



VJCC Vietnam - Japan
Institute for Human Resources Development

VIETNAM – JAPAN INTERNATIONAL BUSINESS CONFERENCE

(VIIBC 2023 - THE 3RD INTERNATIONAL CONFERENCE)

"Business Adaptation to Global Uncertainties"

17th March, 2023

Foreign Trade University, Vietnam

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INTERNATIONAL CONFERENCE ON
VIETNAM - JAPAN
INTERNATIONAL BUSINESS
Foreign Trade University, Hanoi, Vietnam



DAN TRI PUBLISHER

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FOREIGN TRADE UNIVERSITY'S PRESIDENTIAL MESSAGE



Distinguished scholars, professors, ladies and gentlemen,

First of all, I would like to accord my warm welcome to all of the distinguished scholars who come from Japan and other places around the world, gathering at the Third Vietnam – Japan International Business Conference 2023. On behalf of Foreign Trade University (FTU), I would like to express our appreciation to JICA and Japanese partner universities (Rikkyo University, Chiba Institute of Technology, Waseda University, Toyo University, and International University of Japan) for collaborating with us on holding the Third VJIBC International Conference.

Continuing the success of the previous two international business conferences, the Third Vietnam – Japan International Business Conference with the topic “Business Adaptation to Global Uncertainties” is well-timed, especially in the context of global uncertainties and shocks due to political conflicts, geopolitical instability and post-Covid 19 era. As a top leading university in the field of economics, business and management, FTU ourselves are always well aware of the current context of the VUCA world. The mission this international conference will help governments and businesses prepare themselves to be more resilient, agile, flexible and innovative to cope with new challenges. Finally, the third VJIBC 2023 is also an event to mark the 50th Anniversary of the Establishment of Diplomatic Relations between Vietnam and Japan. The relationship that is said to have “infinite potential” between the two countries is approaching a period of brilliant development.

On behalf of FTU – the co-host of the third VJIBC 2023, once again, I would like to extend our sincere thanks for the support we have received from JICA, Japanese partner universities and many other counterparts. Hope that this conference would provide an open platform for scholars and practitioners to meet and share their recent research, ideas and information on building strong and resilient businesses through greater adaptability to emerging challenges and shifting paradigms.

Thank you very much for your kind attention.

Wish you all the best and great success to VJIBC 2023!

KEYNOTE SPEAKERS



Prof. Dr. FUKUNARI KIMURA

Position:

Chief Economist, Economic Research Institute for ASEAN and East Asia (ERIA), Jakarta, Indonesia.

Professor, Faculty of Economics, Keio University, Tokyo, Japan.

Academic Education

PhD (Economics), Department of Economics, University of Wisconsin-Madison, United States

MA (Economics), Department of Economics, University of Wisconsin-Madison, United States

BA (Law), Faculty of Law, University of Tokyo, Japan

Teaching and Research Interests

International trade and development economics; Economic growth theory; Applied microeconomics, Japanese/ Asian Economies.

KEYNOTE SPEAKERS



Prof. Dr. ARI OLAVI KOKKO

Position:

Professor, Department of International Economics, Government and Business, Copenhagen Business School, Denmark.

Research Associate, Nordic Institute of Asian Studies, Copenhagen, Denmark.

Associate Fellow, the Ratio Institute, Stockholm, Denmark.

Affiliated Professor, European Institute of Japanese Studies, Stockholm School of Economics, Denmark.

International Fellow, Fulbright University, Vietnam.

Member, Scientific Council, SNS Centre for Business and Policy Studies, Stockholm, Denmark.

Member, Faculty Board, Faculty of Culture and Society, Malmo University, Sweden.

Board Member, Centre for Child Rights and Business, Stockholm, Denmark.

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Professor (International Business), Copenhagen Business School, Denmark.

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Doctor Honoris Causa (Economics Sciences), Tartu University, Estonia.

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BSc (Economics), Lund University, Sweden.

Teaching and Research Interests

International economics; International trade; Innovation management; Microeconomics

KEYNOTE SPEAKERS



Prof. Dr. HO TU BAO

Position:

Professor Emeritus, Japan Advanced Institute of Science and Technology.

Director, Data Lab Science, Institute for Advanced Study in Mathematics, Vietnam.

Academic Education

Visiting Fellow, Wisconsin-Madison University, United States.

PhD (Computer Science), Pierre and Marie Curie University, France.

MSc (Computer Science), Pierre and Marie Curie University, France.

BA (Applied Mathematics), Hanoi University of Technology, Vietnam.

Teaching and Research Interests

Machine learning; Data science; Computational science

CO-ORGANIZERS

Foreign Trade University, Vietnam

Rikkyo University, Japan

Chiba Institute of Technology, Japan

Waseda University, Japan

Toyo University, Japan

International University of Japan, Japan

Japan International Cooperation Agency, Japan

The Japan Academy of International Business Studies, Japan

Academy of International Business, Japan

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Dr. HOANG ANH DUY	Foreign Trade University	Vietnam
Dr. PHAM THI CAM ANH	Foreign Trade University	Vietnam
Dr. NGUYEN THI BINH	Foreign Trade University	Vietnam

CONFERENCE AGENDA

Date & Time	Activities & Location
13.00 - 13.30	Registration <i>Floor 1, VJCC Building</i>
Session 1 - Keynote Speeches <i>Multi Room 123, Floor 3, VJCC Building</i>	
13.30 - 13.40	Welcoming Guests
13.40 - 13.45	Opening Remarks Assoc. Prof. Dr. BUI ANH TUAN <i>President, Foreign Trade University, Vietnam</i>
13.45 - 13.50	Photo Session
13.50 - 14.10	Keynote 1 – “Free Trade Agreements at the Time of Global Turbulence” Prof. Dr. ARI OLAVI KOKKO <i>Department of International Economics, Government and Business, Copenhagen Business School, Denmark</i>
14.10 - 14.30	Keynote 2 – Education Shift in Digital Economy Prof. Dr. HO TU BAO <i>Professor Emeritus, Japan Advanced Institute of Science and Technology (JAIST), Japan</i> <i>Director, Data Lab Science, Institute for Advanced Study in Mathematics, Vietnam</i>
14.30 – 14.45	Tea Break

14.45 – 15.15	<p>Keynote 3 – “How to Cope with Global Uncertainties? The Case of East Asian Production Networks”</p> <p>Prof. Dr. FUKUNARI KIMURA</p> <p><i>Chief Economist, Economic Research Institute for ASEAN and East Asia (ERIA), Jakarta, Indonesia</i></p> <p><i>Professor, Faculty of Economics, Keio University, Tokyo, Japan</i></p>
15.15 – 15.30	Panel Discussion
<p>Session 2: Parallel Sessions</p> <p><i>Conference Rooms, Floor 1&3, VJCC Building</i></p>	
15.30 – 17.00	PARALLEL SESSIONS
17.00 - 17.15	<p>Closing Remarks</p> <p>Assoc. Prof. Dr. PHAM THU HUONG</p> <p><i>Vice President, Foreign Trade University, Vietnam</i></p> <p>Prof. Dr. KAZUNORI YAMAGUCHI</p> <p><i>Dean, College of Business, Rikkyo University, Japan</i></p> <p>Prof. Dr. KENICHI SEKI</p> <p><i>Dean, Faculty of Social Systems Science, Chiba Institute of Technology, Japan</i></p>

CONFERENCE PARALLEL SESSIONS

PARALLEL SESSION 1: MANAGEMENT

Venue: Seminar B, Floor 1, VJCC Building
Zoom link: shorturl.at/nzFRV (Breakout room 1 – Management)

CHAIRS Assoc. Prof. Dr. LE THAI PHONG

Dean, Faculty of Business Administration, Foreign Trade University, Vietnam

Dr. HOANG ANH DUY

Head, Academic Affairs Division, Vietnam – Japan Institute for Human Resources Development, Foreign Trade University, Vietnam

15.30 Paper Title: **“The Role of Communications Management in recycling Plastic Waste Project in Vietnam”**

– Quach Trung Nghia (*Chiba Institute of Technology, Japan*)
17.00 Tsutomu Konosu (*Chiba Institute of Technology, Japan*)

Paper Title: **“Effect of Task Achievement Behaviour on the Relationship between Member Satisfaction and Process Quality in Small-scale Projects”**

Kenta Kasaharai (*Chiba Institute of Technology, Japan*)

Paper Title: **Examining Multiculturals’ and Multilinguals’ Paradoxical Bridging Processes in Overcoming Cultural and Language Barriers in Organizations”**

Markus Pudelko (*Journal of World Business; School of Business and Economics, University of Tubingen, Germany*)

Paper Title: **“A Study on the Estimation of Appropriate Planned Values of Earned Value Management for Small Scale Projects”**

Miri Umedai (*Chiba Institute of Technology, Japan*)

Paper Title: **“Influence of Brand Equity on the Intention to Adopt Mobile Banking: Evidence from Vietnam”**

Do Phuong Thanh (*Military Commercial Joint Stock Bank, Vietnam*)
Pham Thu Huong (*VJCC Institute, Foreign Trade University, Vietnam*)
Nguyen Thi Hien (*VJCC Institute, Foreign Trade University, Vietnam*)
Nguyen Thi An Binh (*Military Commercial Joint Stock Bank, Vietnam*)
Dinh Quyet Thang (*FPT University, Vietnam*)

Paper Title: **“Redundancy Analysis to Uncover Gender Differences in Business Incubation: An Exploratory Approach”**

Rimi Zakania (*University of Wisconsin-Whitewater, USA*)

17.00 Closing Remarks

PARALLEL SESSION 2: HUMAN RESOURCES MANAGEMENT

Venue: Seminar E, Floor 1, VJCC Building

Zoom link: shorturl.at/nzFRV (Breakout room 2 – HRM)

CHAIR Assoc. Prof. Dr. RANDY FOWLER

College of Business, Rikkyo University, Japan

15.30 Paper Title: **“Study on Perception and Adaptation of Japanese and Thai Employees towards Thai Management Style”**

–
17.00 Phum Tachainiratisai (*Chiba Institute of Technology, Japan*)

Paper Title: **“A Study of the Effect of Growth Mindset on the Stress Resilience”**

Seiryu Ishikawai (*Chiba Institute of Technology, Japan*)

Paper Title: **“Design and Verification of Its Effectiveness Regarding the Diagnostic Framework of Performance/ Risk Indicators and Organizational/ Human Resources Engagement Inherent in Cross-Functional Job/ Task Process”**

Kawaguchi Shinichiro (*Soka University, Japan*)

Paper Title: **“How do Succession Intentions Differ from Both Founding and Employee Intentions?”**

Nguyen Thi Lanh (*University of Dalat, Vietnam*)

Paper Title: **“The New Graduate Labour Market in Japan and Vietnam: Comparison of Career Adaptability and Career Exploration”**

Kyoko Yamazaki (*Rikkyo University, Japan*)

17.00 Closing Remarks

PARALLEL SESSION 3: SUPPLY CHAIN AND OPERATIONS MANAGEMENT

Venue: Seminar C, Floor 3, VJCC Building
Zoom link: shorturl.at/nzFRV (Breakout room 3 – Supply Chain & Operations)

CHAIR Prof. Dr. TOSHIYA OZAKI

College of Business, Rikkyo University, Japan

15.30 Paper Title: **“Risks in Supply Chains: A Framework and A Case Study”**

–

Le Trung Ngoc Phat (*Can Tho University, Vietnam;*

16.45

International University of Japan, Japan)

Wenkai Li (*International University of Japan, Japan)*

Jay Rajasekera (*Tokyo International University, Japan)*

Paper Title: **“Policy Enhancement and Application of Theory of Constraints for Productivity Improvement of a Textile Supply Chain in Sri Lanka”**

Bandara Y.M.A.M (*Central Provincial Council, Sri Lanka)*

Wenkai Li (*International University of Japan, Japan)*

Paper Title: **“Risk Assessment of IT/OT Convergence System for Secure Supply Chain System”**

Tenzin Tsungmay (*Chiba Institute of Technology, Japan)*

Shigeaki Tanimoto (*Chiba Institute of Technology, Japan)*

Hideki Goromaru (*Chiba Institute of Technology, Japan)*

Paper Title: **“The Restrictions to the Companies’ Implementation of Green Logistics”**

Phan Thi Hien Minh (*Foreign Trade University, Vietnam)*

Nguyen Truong Giang (*Foreign Trade University, Vietnam)*

Truong Ha Ninh (*Foreign Trade University, Vietnam)*

Nguyen Duc Anh (*University of Economics and Business, Vietnam National University, Vietnam)*

Paper Title: **“Creating Premium Value in Solution Businesses by General Purpose Technology: Cases of Komatsu’s Komtrax and Sony’s Broadcasting Equipment”**

Atsushi Osanai (*Waseda University, Japan)*

17.00 Closing Remarks

PARALLEL SESSION 4: FINANCE AND ECONOMICS

Venue: Seminar A, Floor 3, VJCC Building

Zoom link: shorturl.at/nzFRV (Breakout room 4 – Finance & Economics)

CHAIR: Assoc. Prof. Dr. NGUYEN THI HIEN

Director, Vietnam – Japan Institute for Human Resources Development,
Foreign Trade University, Vietnam

15.30 Paper Title: **“How Much does Nominal Share Price Matter?”**

–

Hongwei Chuang (*Graduate School of International Management,*

16.45

International University of Japan, Japan)

Paper Title: **“What Influence Hanoi Apartment Price Bubble from 2010 to 2021?”**

Le Phuong Lan (*Foreign Trade University, Vietnam*)

Do Tuan Anh (*ETC – Technology Systems Joint Stock Company*)

Pham Ngoc Anh (*Foreign Trade University, Vietnam*)

Paper Title: **“Lifelong Learning in a VUCA World”**

Yoshikazu Yoshida (*Toyo University, Japan*)

Paper Title: **“The Impact of Institutional Settings on the Relationship between Auditor Change and Cost of Debt: The Case of Europe”**

Magarita Mejia-Likosova (*University of Tubingen, Germany*)

Tobias Svanstrom (*Umea University, Germany*)

Paper Title: **“The Effect of Earnings Persistence and Corporate Governance Elements on Social Responsibility Accounting Disclosure: Empirical Evidence from Construction Material Companies Listed on the Vietnamese Stock Market”**

Nguyen Thi Phuong Mai (*Foreign Trade University, Vietnam*)

17.00 Closing Remarks

PARALLEL SESSION 1

MANAGEMENT

SOLUTIONS TO IMPROVE THE CONTROL OF CAPITAL CONSTRUCTION INVESTMENT CAPITAL BY ODA CAPITAL AT THE STATE TREASURY OF DA NANG CITY.

Ho Tuan Vu

Faculty of Accounting, Duy Tan University, Da Nang, Vietnam

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Abstract.

Capital construction investment (ODA) is a very important financial source of the country for the economic and social development of the country as well as each locality. This capital source not only makes an important contribution to the creation of material and technical foundations for the economy, but also has an investment orientation, effectively contributing to the implementation of social issues. Over the years, the State Treasury of Da Nang has performed well its role through controlling capital payment. The State Treasury of Da Nang has saved the local budget from detecting and refusing to pay improper payments. However, the control of payment in general, the payment of capital construction investment capital by ODA in particular through the state treasury still revealed limitations such as: the policy mechanism is not synchronized; there is still a lot of waste and loss in investment, causing wastefulness and inefficiency in investment. This article focuses on analyzing the achieved results and remaining limitations in the control of payment of investment capital with ODA capital at the State Treasury of Da Nang, thereby, proposing solutions to improve control this capital source at the State Treasury of Da Nang.

1. Introduction

On December 16, 2021, the government issued Decree No. 114/2021/ND-CP on the management and use of official development assistance capital and concessional loans of foreign donors. At the State Treasury of Da Nang, in 2022, the total planned public investment capital of Da Nang is over VND 7,333 billion, of which the capital assigned by the Prime Minister is over VND 5,963 billion. Da Nang City has set a target by the end of the 2022 budget year (January 31, 2023) to strive to disburse 95% of the assigned capital plan. Although there have been many reforms in administrative procedures in controlling ODA and many achievements have been made in controlling public investment in general and control of ODA in particular, the control ODA capital still has many shortcomings that need improvement.

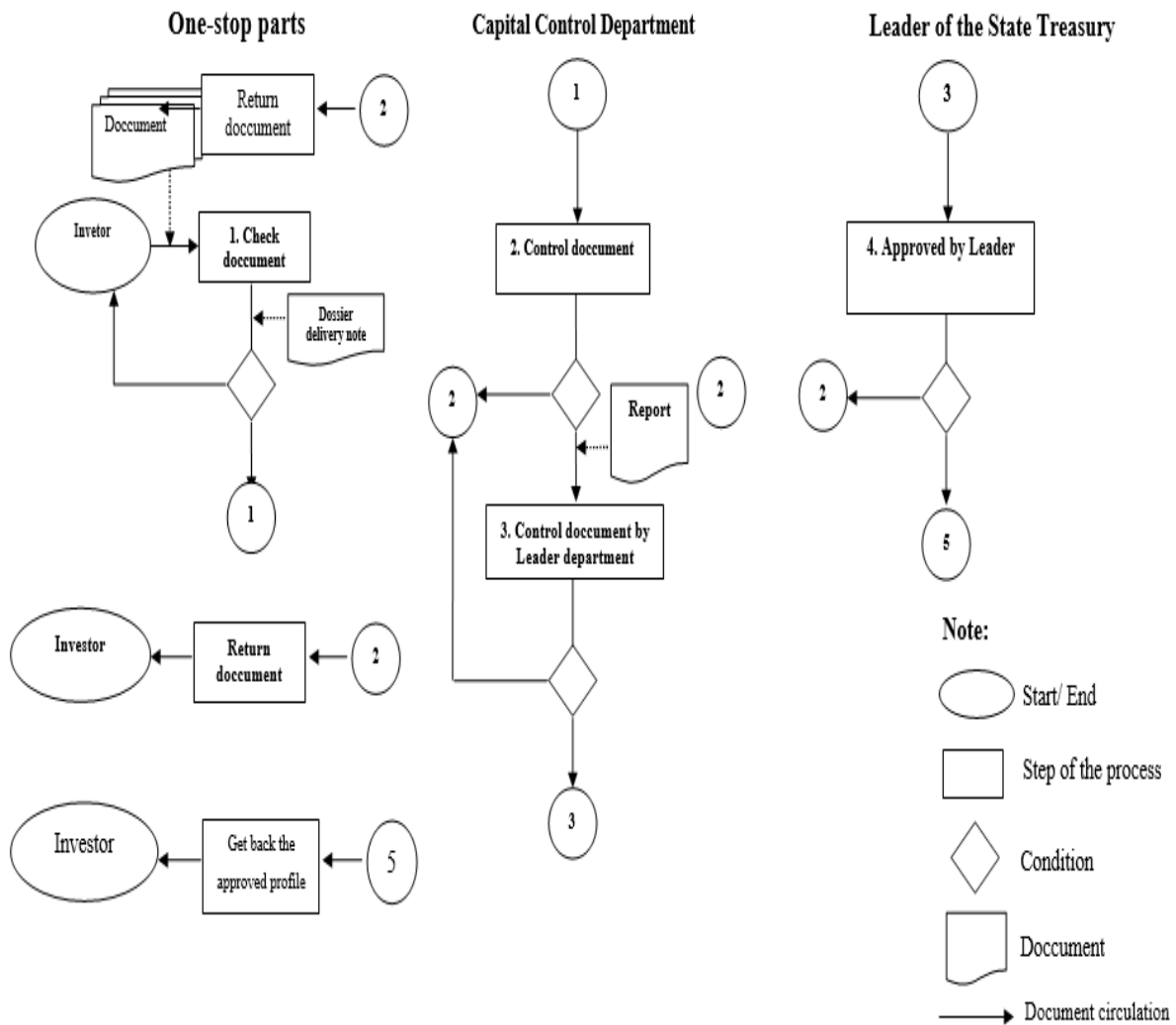
2. The situation of control of basic construction investment capital by oda capital at Da Nang State Treasury

2.1. The process of controlling capital construction investment capital by ODA capital at the State Treasury of Da Nang

2.1.1. Control process for capital advance and volume payment completed over several times

This process is carried out within 3 days from the time the officer receives the dossier and returns the results on the receipt of the complete dossier from the investor and the units. Because this is an advance or payment in installments (not the last payment), to keep up with the disbursement schedule, the principle of implementation is to pay first, control later. This process has 5 steps as shown in Figure 1

Figure 1. Control process for capital advance and volume payment completed over several times



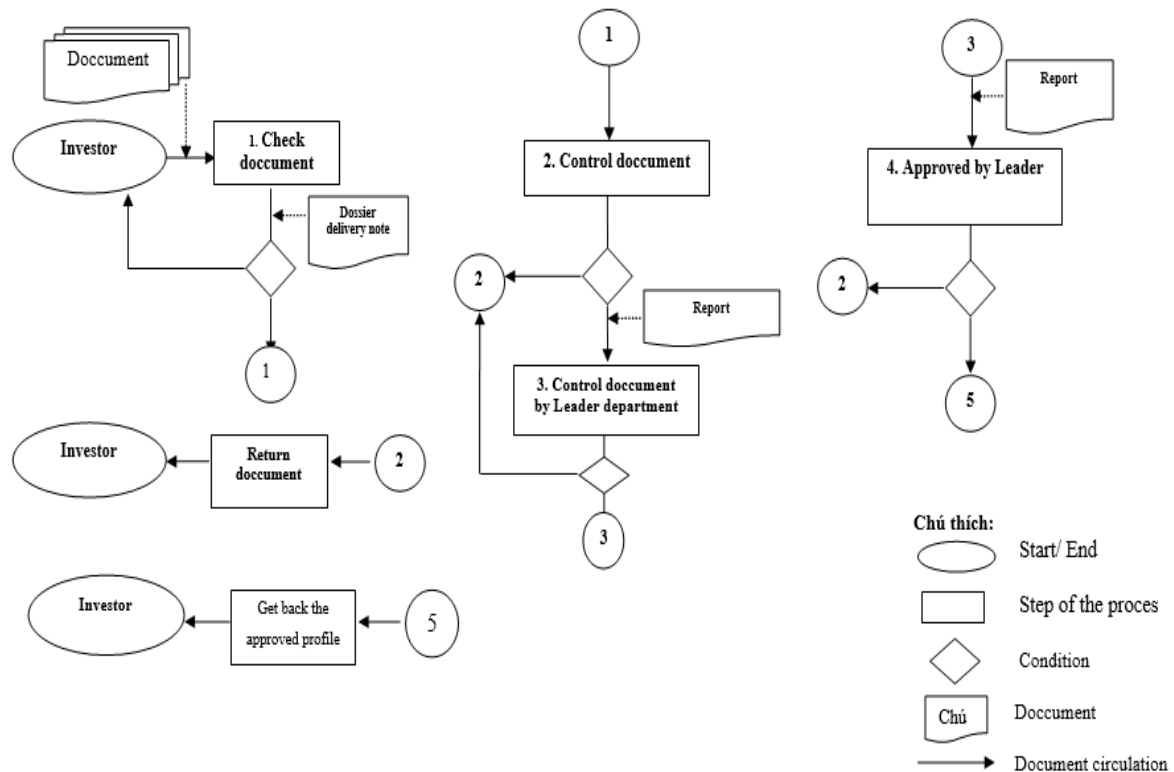
(Source: State Treasury of Da Nang)

2.1.2. Control process for confirmation of one-time completed volume payment or final

payment of a multi-payer contract

This process is carried out within 7 days from the time the officer receives the dossier and returns the results of the receipt of the complete dossier from the investor and the units. Because this is the last payment or a one-time payment, the principle of implementation is to control first, pay later. This process has 5 steps as shown in Figure 2

Figure 2. Control process for confirmation of one-time completed volume payment or final payment of a multi-payer contract



(Source: State Treasury of Da Nang)

2.1.3. Process of controlling the final settlement of approved projects and completed works

When a project or work is approved for finalization, the investor shall send it to the State Treasury for a decision approving the finalization of the completed project or work. The payment controller, based on the amount of capital already paid for the project or work and deciding to approve the final settlement of the completed project or work, shall proceed as follows:

In case the approved settlement is larger than the paid-in capital: The investor sends to the State Treasury a written request for capital payment. The payment controller shall make further payment for the difference between the approved capital amount for settlement and the paid capital amount.

In case the approved settlement is smaller than the paid capital amount: The payment

controller must cooperate with the investor to recover the paid capital amount larger than the approved capital amount for settlement and remit back into the state budget.

2.2. Principle of the control of capital construction investment capital by ODA capital at the State Treasury of Da Nang

Investors, project management boards and units may open capital allocation accounts at the State Treasury, which is convenient for the payment control of the State Treasury and convenient for transactions of the investor, units. The State Treasury has the responsibility to inspect and strictly control the payment control process on the following principles:

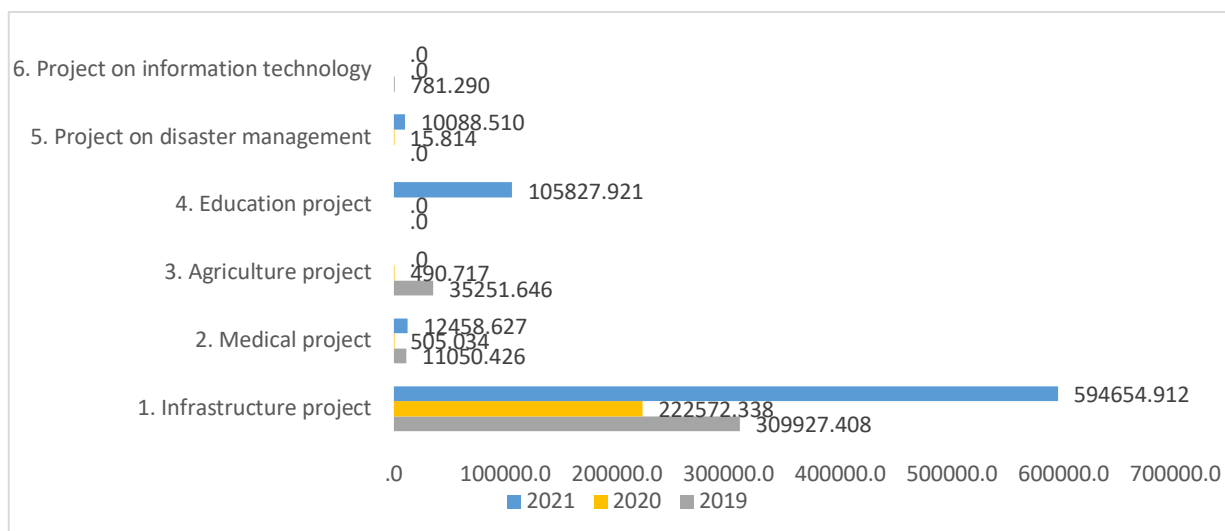
- Control the payment of capital in accordance with regulations, timely and fully
- Control capital payment to ensure the correct process
- Control the payment of capital on the basis of the capital plan, each payment content
- Control capital payment in accordance with the law, prevent loss and waste

2.3. Results of the control of capital construction investment capital by ODA capital at the State Treasury of Da Nang

According to the summary report on payment of capital construction investment capital by ODA at the State Treasury of Da Nang in the period of 2019-2021, the data on capital payment is shown as follows:

Table 2.1: Status of payment for capital construction investment by ODA capital at Da Nang State Treasury in the period of 2019-2021

million Dong



(Source: State Treasury of Da Nang)

In 2022, the city's public investment capital plan assigned by the National Assembly and the Prime Minister is 5,963,336 billion VND and the city's People's Council allocated 7,880,731

billion VND, of which: domestic capital 7,333, VND 231 billion (local budget balance is VND 6,797,283 billion and targeted support from the central budget is VND 535,948 billion) and foreign capital is VND 547.5 billion. In addition, the capital plan in 2021 extending to 2022 is VND 378,469 billion, of which: (1) the local budget is VND 126,581 billion; (2) the central budget is 251,907 billion VND.

By December 31, 2022, the disbursement of the capital plan according to the 2022 estimate of the whole city reached VND 3,375 billion, equal to 56.5% of the plan assigned by the Central Government, and achieved 42.8% of the plan of the People's Council city, within the city's annual disbursement average.

2.4. Disadvantages of the control of capital construction investment capital by ODA capital at the State treasury of Da Nang

In addition to the advantages achieved, the control of payment of capital construction investment capital by ODA source at the State Treasury in Danang also has disadvantages, including:

First, for the control organization:

Professionally qualified officers are often concentrated in the city treasury expenditure control department, in the district State Treasury, the number of officers with solid professional qualifications is not uniform.

The number of officials of the State Treasury at the district level is not only limited in qualifications, but also small compared to the demand.

The decentralization of control over payment of capital construction investment capital by ODA is still overlapping and inconsistent with the actual situation.

Second, for information serving the control work

The development and implementation of application programs is slow and passive, mainly using software provided by the State Treasury information technology department; There are no improved softwares to support the payment and reporting work in the locality.

The investment in equipment is still spread out, not focused on key rooms and areas, and there is no risk reserve.

Human resources are not professional, qualifications and capacity to use technology to serve the operation of professional activities of the State Treasury are still limited.

Third, for process control

In the control process, the leader has to sign twice on a document, causing inconsistency in the completion time because this document has to wait for the other document to be signed before returning it to the investor.

In the control process, the fact that the controller and the accountant jointly check on the same document increases the complexity and prolongs the time in the current cost control process.

3. Solutions to improve the control of capital construction investment capital by ODA capital at the State Treasury of Da Nang City

From the analysis results, the article proposes solutions to strengthen the payment control work as follows:

First, improve the internal governance of the state treasury in Da Nang. Improve internal governance in the direction of decentralizing individual expenditure control tasks in a clear and transparent control process. Building and maintaining an internal control and supervision system in line with the reality of payment control activities of each unit.

Second, improve the professional capacity of controllers to both overcome weaknesses in payment control and meet spending control requirements according to the strategic development goals of the state treasury.

Third, strengthen the guidance on financial management regime for capital construction investment for investors and the Project Management Board.

Fourth, actively deploy information technology applications in cost control to meet the requirements and goals of the applications.

Fifth, strengthen coordination between the State Treasury of Da Nang and the direct superior of the investor closely to promptly solve the problems of the investor.

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COOPERATIVE, COMPREHENSIVE, COMPREHENSIVE RELATIONSHIP BETWEEN VIETNAM BUSINESSES AND JAPANESE ENTERPRISES IN THE PERIOD OF THE COVID-19 PASSION

PhD. Candidate. Hoang Tuan Sinh

Abstract:

The diplomatic relationship between Vietnam and Japan was officially established on September 21, 1973, but in fact, the relationship between the two countries existed before on the basis of cultural and trade exchanges. The imprint of trade and economic cooperation between the two countries is imprinted in many fields, from agriculture to projects to respond to climate change, labor cooperation, education, tourism, cooperation between countries, localities and most recently cooperate in the prevention of Covid-19. Japan has made important contributions to Vietnam's economic development, especially as a leading country in ODA. Japan's ODA has contributed to promoting Vietnam's economic transition towards industrialization and modernization. Although in the context of the global economic crisis caused by the Covid-19 pandemic, the comprehensive strategic cooperation relationship between Vietnam and Japan still has a positive outlook.

Keywords: *ODA, Japan, Vietnam, Vietnam - Japan cooperation relationship*

1. Some History Of Vietnam - Japan Cooperative Relations

1.1. Vietnam's Socio-Economic Development

1.1.1. Gross domestic product per capita reaches thousands of USD

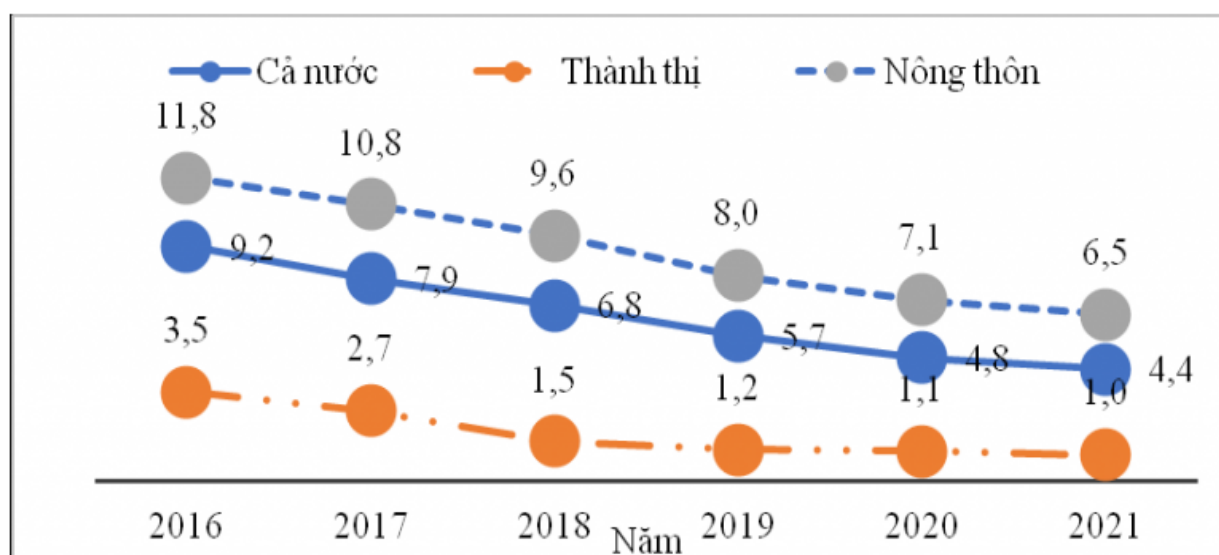
Vietnam's gross domestic product (GDP) per capita was only 98 USD in 1990, but reached 1,407 USD, 14 times higher in 2011 and Vietnam's GDP per capita in 2022 is estimated at 4,075 USD. 42 times higher than in 1990. Statistics at the GII 2021 rankings, Vietnam ranks 44th out of 132 countries/economies (compared to 42nd in 2019 and 2020) after WIPO updated the data. GDP according to the new calculation of Vietnam (up about 36% compared to 2020). Due to the impact of many factors on the ranking results, including the influence of the calculation and ranking methods, besides the ranking position, the GII Report also publishes the confidence interval of the ranking as a basis for ranking. when comparing scores that are close to each other. In 2021, WIPO publishes Vietnam's rank of 44 and publishes its confidence interval between 42 and 47. In 2020, Vietnam has a rank of 42 and a confidence interval of 41 to 50. Therefore, If assessed according to the confidence interval, the GII rankings of Vietnam in 2021 and 2020 are almost equivalent. In the group of 34 low-middle-income countries included in the GII ranking list in 2021, Vietnam continues to hold the top position and continues to maintain its ranking in the group of 45 leading countries globally.

1.1.2. Poverty rate decreased from 58.2% to 4.4%

In 1993, more than half of the respondents (58.2%) were in poverty, but by 2010 this proportion had dropped significantly to 14.2%. The rate of multidimensionally poor households in 2020 will decrease by more than half compared to 2016, from 9.9% in 2016 to 4.8% in 2020. The rate of multidimensionally poor households in 2021 is 4.4%, down 0.4 percentage points compared to 2020, the Northern Midlands and Mountains are the regions with the highest poverty rate in the country (13.4%). The rate of poor households has decreased continuously in the period 2016-2021, with an average annual decrease of about 1 percentage point.

Figure 1. Proportion of multidimensionally poor households according to the Government's multidimensional approach poverty line for the period 2016-2020

Unit: %



Source: Calculation from the data of the 2016-2021 Population Living Standards Survey

1.1.3. The rate of households using electricity reached 98.3%.

In 1994, the national rate of electrification was 14%, but by 1998 this had increased to 61%. In 2009, 97.6% of households had access to electricity. Currently, the number of households using electricity is over 98.3%. (Source: Statistical Office 2022)

1.1.4. Percentage of population that has access to clean and hygienic water

Access to clean water is one of the basic human rights recognized by the United Nations. Accordingly, one of the 17 development goals of the United Nations, goal number 06, is to “ensure the availability and sustainable management of water resources... for all”. Clean water in the context of Vietnam can be understood as water supplied from tap water. Specifically, In 1990, only 57% of the population had access to clean water, but by 2010, this rate had increased to 95%. By 2016, according to Decision No. 54/2016/QĐ-TTg dated December 19, 2016 of the Prime Minister promulgating the system of statistical indicators at provincial, district and

commune levels: clean water is tap water produced. are exported from water treatment plants and supplied to people, meeting the standards set by the Ministry of Construction. In 2021, the National Assembly promulgates Resolution No. 16/2021/QH15 on the 5-year socio-economic development plan 2021-2025, which sets the target: by 2025, the rate of clean and safe water use sanitation of urban population is 95-100% and rural population is 93-95%. (Source: Bureau of Statistics)

1.2. Some achievements in the partnership between Vietnam - Japan

The diplomatic relationship between the two countries was established in 1973, and in 1992 when Japan decided to reopen aid to Vietnam, the cooperation between the two countries was promoted and really came into being; The relationship between Vietnam - Japan has developed rapidly in many fields. Relations in politics, economy, culture, education... are constantly expanding, forming relationships at a macro level.

Since 1992, Japan's ODA for Vietnam has reached 1,542 billion yen (nearly 17 billion USD), accounting for about 30% of the total ODA committed by the international community to Vietnam. Accumulated to 2015, Japan has given Vietnam about 2.6 trillion yen in aid, accounting for over 40% of Vietnam's total ODA. Japan's aid programs target five main areas: human resource development and institutional building; construction and renovation of traffic and electricity works; agricultural development and rural infrastructure construction; development of education, training and health; environmental protection.

Some groups of projects funded by Japanese ODA can be mentioned as follows:

1.2.1. Project on development of electricity infrastructure and efficient use of energy

Japan has always given special priority to the development of electric energy in Vietnam, contributing to stabilizing people's daily life and also contributing to the development of domestic industry and promoting foreign investment. Power plants built with Japan's ODA can be mentioned as Da Nhim Hydropower Plant (1961-1964), Phu My Thermal Power Plant (1994-2002), Pha Lai Thermal Power Plant (PHP). 1995-2003), Ham Thuan-Da Mi Hydropower Plant (1995-2001), Dai Ninh Hydropower Plant (1999-2008), O Mon Thermal Power Plant (2001-2009), Thai Binh Thermal Power Plant (2009-2017) and Nghi Son Thermal Power Plant (2006-2016). In the energy sector, JICA signed a loan agreement worth USD 25 million with a Vietnamese private company to develop wind power on land in Quang Tri province.

1.2.2. Project to strengthen the transportation network

Japan has supported Vietnam's Ministry of Transport in formulating a master plan for transportation development, including some outstanding projects such as the railway bridge on the North-South Unified Railway. , the construction project of Ring Road 3 (Hanoi), East-West Highway (Ho Chi Minh City), international passenger terminal at Tan Son Nhat airport, urban railway in Hanoi and Ho Chi Minh City. Ho Chi Minh City, tunnel over Hai Van pass, Nhat Tan

bridge project-Vietnam-Japan friendship bridge... In addition, human resource development projects have also been implemented to improve safety and quality of transportation services. urban traffic. About the urban railway project. Ho Chi Minh City Line 1, with all 51 metro carriages manufactured in Japan have been transported to Vietnam, the completion progress of the project is about 90%.

1.2.3 Project to perfect the legal system and strengthen the capacity of administrative and financial agencies in Vietnam

With an approach that does not impose the improvement of mechanisms and policies, but rather supports Vietnam in the process of self-administration reform, Japan has started implementing the technical cooperation project "Supporting the formation of important policies". importance of the government on the legal system" since 1996. With the support of Japan, the Civil Code of Vietnam was revised and officially promulgated in 2005. Over the years, Japan has been and is assisting Vietnam in the formulation and implementation of other laws such as the Civil Procedure Law...

1.2.4. Project to develop market economy and attract foreign investment

Japan has conducted the project "Research on economic development policy during the transition to a market-oriented economy in Vietnam" along with hardware support such as construction of roads, ports, Besides, the 4th ODA loan agreement for "Ho Chi Minh City Water Environment Improvement Project Phase 2" was signed in December 2021. By supporting the development of drainage and wastewater treatment systems in Ho Chi Minh City. In Ho Chi Minh City, the project aims to improve the living environment by improving wastewater treatment capacity and minimizing damage caused by floods.

1.2.5. Project to improve people's life and health

Support to upgrade 3 key hospitals in Hanoi and Ho Chi Minh City. Ho Chi Minh City, City. Hue, while expanding support to local hospitals. The project "Reproductive health care" has been implemented in the Central region since 1997, and the project "Dissemination of maternal and child health monitoring books" based on Japanese experience has been implemented nationwide since 2011. At the press conference on October 12, 2022, the Chief Representative of the Office of the Japan International Cooperation Agency (JICA) in Vietnam Shimizu Akira at the press conference, JICA launched the "Global Health Initiative" , even after the COVID-19 epidemic has just subsided, JICA is committed to further cooperation in building a society with a strong capacity to respond to threats from emerging infectious diseases. In particular, Vietnam is a model country in this "Initiative". Specifically, JICA will continue through three central hospitals with a long history of cooperation, namely Bach Mai Hospital in Hanoi, Hue Central Hospital in Hue, and Cho Ray Hospital in Ho Chi Minh City to establish a distance learning system for lower-level medical staff. Besides, JICA will continue to cooperate and associate with Japanese private enterprises, non-governmental organizations, universities...

to improve rehabilitation techniques, nursing care. ... to assist Vietnam in responding to new challenges such as a rapidly aging population.

Also in this press conference, Mr. Shimizu Akira emphasized supporting Vietnam to fight against the Covid-19 pandemic. Specifically, JICA has provided medical biological products, medical equipment such as ECMO Cardiopulmonary Machine for diagnosis and treatment, with a total value of 850 million yen; Technology transfer and key equipment to Biosafety Laboratory Level III (BSL-3) at Pasteur Institute Ho Chi Minh City, worth more than 200 million yen. These support packages are intended to contribute to improving Covid-19 diagnostic testing capacity, strengthening Vietnam's response to infectious diseases.



1.2.6. The project narrows the gap between rich and poor through agricultural and local development

“Phan Rang Irrigation Project”, “Small-scale infrastructure development project for the poor” and “Infrastructure development project and improvement of living conditions in rural areas”... have contributed to helping Vietnam will eliminate hunger, reduce poverty, and narrow the gap between rich and poor between regions.

Since 2009, Vietnam has officially risen to become a middle-income country. This is a good sign for the economy, but it also poses a problem when ODA capital provided by Government and non-governmental organizations is no longer abundant. From 2010 to 2016, the total amount of ODA investment fluctuated sharply but with an increasing trend while the grant amount increased sharply in 2011-2012. (Table 1)

Table 1. Japanese ODA to Vietnam (2010-3/2022)*Unit: million USD*

Signed year	Total ODA and concessional loans	Aid	Preferential loans	ODA loan
2010	3607,18	172,06	210	3225,12
2011	6910,42	194,85		6715,57
2012	5938,27	437,17	100	5401,1
2013	6853,83	390,88	410	6042,95
2014	4450,78	224,99		4225,79
2015	3972,15	58,07	536,31	4978,89
2016	5555,574	40,374	536,31	4978,89
2017	3640,09	0,09		3640
2018	2001,1			2001,1
2019	463			463
20/03/2020	105			105
4/2021→3/2022	80	5		75

Source: Finance Magazine

In recent years, Japan's ODA support for Vietnam is on a downward trend. As Vietnam becomes a middle-income country, the source of development assistance has gradually decreased, and conditions for preferential loans are becoming more and more stringent. Specifically, since 2013, ODA from Japan has dropped sharply from \$6.8 billion to \$3.9 billion in 2015 and to \$2 billion in 2018.

1.2.7. Project on training and developing highly skilled human resources

Vietnam is moving towards the goal of industrialization before 2020, in which promoting vocational training is considered a national goal. At the same time, Japanese small and medium-sized manufacturing enterprises are developing their businesses. Enterprises need to have enough human resources such as workers and technicians. Therefore, technical cooperation in human resource development for production to meet the needs of Kansai businesses is imperative. The target area is Dong Nai province. With the aim of promoting economic growth of the Kansai region and Vietnam, the Kansai Department of Economy, Trade and Industry has made efforts to promote economic exchanges through the presentation of intent to the People's Committee of

Dong Nai province. in April 2013 on promoting the establishment of an auxiliary industrial cluster including small and medium enterprises in the modern industrial park of Dong Nai province with the cooperation of the Osaka Prefectural Government and economic organizations. by Kansai. On the other hand, according to the assessment of Japanese businesses that are expanding their investment in Dong Nai province, the current difficulty of the locality is "human resources", which is the development of human resources for the manufacturing industry in Dong Nai. Dong Nai province and an important point for sustainable exchange between Dong Nai province and Kansai region. Therefore, this technical cooperation will be carried out at Long Thanh Nhon Trach Regional Vocational College and Lac Hong University, two schools that play a core role in developing technical human resources for the province. The field of human resource training is one of the cooperation that Japan is always interested in for projects in Vietnam. In which, it is necessary to mention the cooperation with Vietnam Japan University since 2015, up to now, 260 students have graduated from the master's program and currently more than 200 students and trainees are studying at the university. JICA continues to cooperate through the form of technical cooperation and loans to support Vietnam Japan University to open more doctoral training programs, set up a new campus in Hoa Lac from 2023, with the goal of bringing the university to life. Vietnam Japan University became a general university with a scale of 6,000 students. In addition, JICA plans to deploy Technical Cooperation to enhance job connection for technical interns. The project aims to create a better working environment for Vietnamese workers working in Japan by eliminating illegal job brokerage, which has been a problem in recent years.

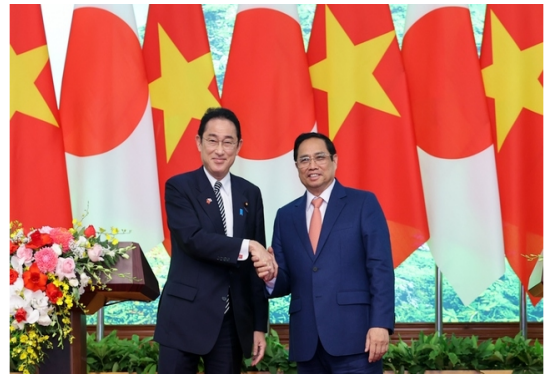
At the Workshop "Cooperation in training human resources to promote the implementation of sectoral action plans in Vietnam's industrialization strategy within the framework of Vietnam - Japan cooperation" of the Central Institute for Economic Management (CIEM), in collaboration with the Embassy of Japan and the Japan International Cooperation Agency (JICA), took place, this is an opportunity for the two countries, together with leading experts to re-evaluate the current situation and potential. , along with opportunities, propose solutions in this potential field. According to Dr. Nguyen Thi Tue Anh, Deputy Director of the Central Institute for Economic Management, said that with the goal that by 2020, Vietnam will basically become a modern industrialized country, Vietnam has determined the development of human resources. force is one of the three strategic breakthroughs of our country in the period 2011-2020.

In fact, after nearly 30 years of renovation, our country has achieved many achievements in human resource training. However, Vietnam's human resources have not yet met the needs of the process of accelerating industrialization - modernization associated with knowledge, especially there is still a shortage of skilled and skilled workers. techniques to serve strategic industries. The reason is that the cooperation between businesses and training institutions is still weak. Therefore, finding solutions for cooperation between training institutions and enterprises and the role of the state in human resource training is essential. According to Assoc. Pham Hoang

Luong - Vice President (Hanoi University of Science and Technology) said that in the past time, Hanoi University of Science and Technology has had 36 cooperation documents signed with schools and institutes from Japan; 17 agreements with Japanese companies. Every year, more than 30 Japanese enterprises visit and propose cooperation with the University. The fields of cooperation are mainly in the fields of: training, scientific research and technology transfer.

2. COOPERATIVE RELATIONSHIP BETWEEN VIETNAM - JAPAN WHEN THE GLOBAL EXPLOSION OF COVID-19

The COVID-19 pandemic is sweeping the world fiercely, causing unprecedented negative impacts on the world economy and Vietnam. In that context, it is required that we have solutions to limit the risks of the epidemic to the economy, ensure reasonable growth, stabilize society, create a foundation for rapid economic growth and create a foundation for rapid economic growth. sustainable in the coming years. Up to now, the



COVID-19 epidemic is still developing very complicatedly in many countries around the world, negatively affecting major economies such as the US, China, Japan, and the European Union... In Vietnam, in the first 6 months of 2020, COVID-19 impacted the economy and made our country's economic growth drop to the lowest level in the past 10 years. It seemed that the storm of the COVID-19 pandemic had passed and the economy would recover from that difficult period, but after 99 days of no community transmission, cases of SARS- CoV-2 was detected again in Da Nang, Quang Ngai, Quang Nam and spread to other provinces and cities throughout the country (Hanoi, Ho Chi Minh City, Hai Duong, Dak Lak...), threatening to increase economic growth, business development and employee income.

2.1. Impact of the COVID-19 pandemic on the world economy

As of the morning of September 23, 2020, the whole world has nearly 32 million cases of infection, of which more than 23.4 million have been cured, nearly 1 million have died. The US is the country with the largest number of SARS-CoV-2 virus infections, more than 7.1 million people, followed by India, Brazil, Russia, Colombia, Peru... The number of infections and deaths due to the virus The cause of SARS-CoV-2 shows no sign of stopping but continues to increase day by day in the world. In Vietnam, after more than 3 months without detecting any more cases of infection in the community, in the last days of July 2020, new cases were detected without finding the source of infection. As of September 23, 2020, Vietnam recorded 1,069 cases of COVID-19.

The COVID-19 pandemic is having a strong impact on the global value chain through its hubs. During the COVID-19 pandemic, hard-hit countries are also hubs of the global production

network such as China, Japan, South Korea, and the US. When the pandemic broke out, social distancing measures were implemented, many production activities halted. The supply chain is interrupted, affecting investment and global trade activities, thereby reducing the growth of the world economy in general and many countries and regions in particular.

Due to the impact of COVID-19, global foreign direct investment (FDI) in 2020 is assessed by the United Nations Conference on Trade and Development (UNCTAD) to shrink “from USD 1,540 billion in 2019 to USD 1,540 billion in 2019. less than \$1 trillion”. According to UNCTAD's forecast, in 2021, FDI inflows will decrease further by 5% - 10% and may start to recover from 2022(2). Until now, the epidemic is still complicated in many countries around the world, the possibility of FDI inflows recovering is very unclear.

The impact of COVID-19 on global employment is also dramatic. According to the World Trade Organization (ILO), in the second quarter of 2020, total global working hours decreased by 14%, equivalent to 400 million full-time workers. The decline in global employment was even stronger than previously forecast by the ILO. The decline in employment is not only caused by production decline, but also due to the fact that many countries have implemented social distancing measures to combat the outbreak of the SARS-CoV-2 virus.

The COVID-19 pandemic has exposed the weaknesses of global organizations and systems such as the world health system, the World Health Organization (WHO) is said to be too slow to react when the epidemic breaks out. broadcast.

However, the COVID-19 pandemic also brings new and clearer insights into development opportunities. For example, during the COVID-19 pandemic and social distancing, meetings, learning, and webinars have flourished at different scales and levels, showing that the potential of the internet has not yet been discovered. fully exploited so far. For example, the National Assembly of Vietnam has pioneered online sessions; The United Nations General Assembly held an online meeting for the first time in its history on June 6, 2020 - when the epidemic was still complicated and unpredictable; or the ASEAN Inter-Parliamentary General Assembly meeting online in September 2020. Many schools at all levels, many domestic and foreign meetings are conducted online. This saves costs and reduces travel time for everyone. However, along with that, the institution also needs a change to respond to that digital transformation.

2.2. Impact of the COVID-19 pandemic on Vietnam's economy

Through 35 years of renovation (1986 - 2020), Vietnam's economy has achieved many great achievements. Economic growth has always been positive, there have been many years of high growth rate of around 8%; the poverty rate fell sharply from 58% in 1993 to 11.3% in 2009 and less than 4% in 2019; People's income has improved markedly, people's living standards have been improved. However, during more than three decades of renovation, Vietnam's economy was repeatedly affected by external shocks such as the Asian financial crisis in 1997, the world financial crisis in 2008 and the global financial crisis. Epidemiology in 2020. Unlike

the previous two shocks in financial - monetary, this COVID-19 shock is unprecedented, having a strong impact on many countries in the world in general and Vietnam in particular. .

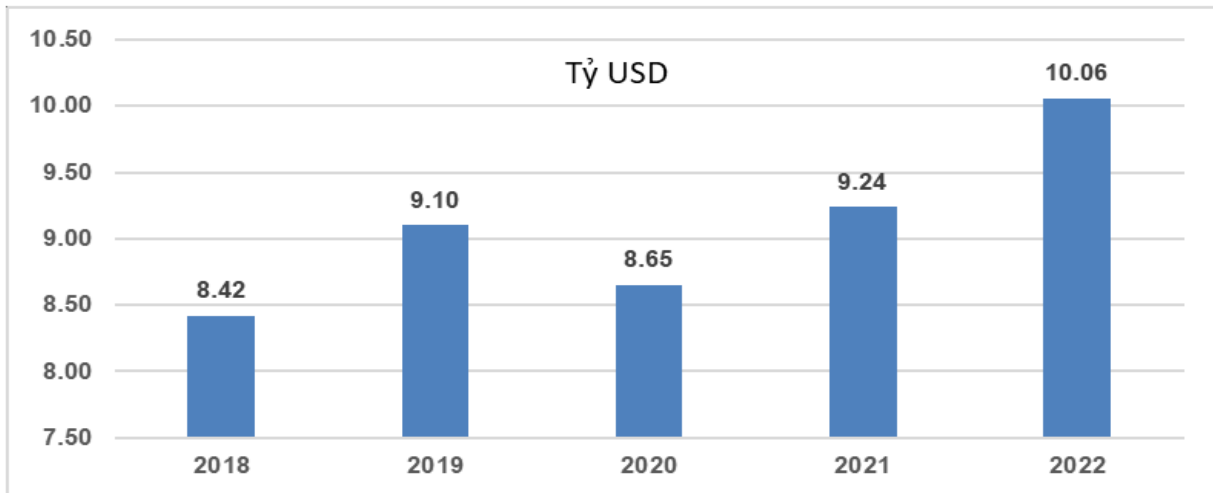
Although the COVID-19 pandemic has impacted many areas of our economy, the focus is on two main factors: supply and demand. For the demand factor, the COVID-19 epidemic along with the implementation of necessary and mandatory social distancing measures according to Directive No. 16/CT-TTg, dated March 31, 2020, of the Prime Minister, "On the implementation of urgent measures to prevent and control the COVID-19 epidemic" caused a sharp decline in domestic consumption. Meanwhile, major economies (USA, China, EU, Japan, South Korea) were also greatly affected by the epidemic and implemented social distancing measures, leading to a decline in economic growth. leading to a decrease in import demand, including goods imported from Vietnam.

According to the General Statistics Office, in the first 6 months of 2020, the total retail sales of consumer goods and services decreased by 0.8% compared to the same period in 2019, and if the price factor is excluded, it will decrease even more. stronger, at 5.3% (up 8.5%) in the same period in 2019. In which, retail sales of goods in the first 6 months of 2020 increased by 3.4% over the same period in 2019. Essential items for life such as food, food, utensils, tools and equipment family gain; but items such as apparel, means of transport, cultural products, and education... are heavily affected by social distancing measures with a decreasing rate. Also in the first 6 months of 2020, revenue from accommodation and catering services decreased by 18.1% over the same period in 2019; tourism revenue decreased by 53.2% - this is the sector most severely impacted by the COVID-19 epidemic and from the implementation of social distancing measures.

For investment demand, the realized investment capital of the whole society in the first 6 months of 2022 at current prices is estimated at 1,301.2 trillion VND, up 9.6% over the same period last year. Realized foreign direct investment capital in Vietnam in the first six months of 2022 was estimated at 10.06 billion USD, up 8.9% over the same period last year. This is the highest level of realized capital in the first 6 months of the year within the past 5 years. In the first 6 months of 2020, investment capital of the whole society increased by 3.4% over the same period last year - the lowest increase in the period 2016 - 2020, of which the state sector increased by 7.4%; the non-state sector increased by 4.6% and the FDI sector decreased by 3.8%. In the first 6 months of 2019, social investment capital increased by 10.3% over the same period last year; in which, the state sector increased by 3%, the non-state sector increased by 16.4% and the FDI sector increased by 9.7%. Thus, the investment demand of the two sectors: the non-state sector and the FDI sector decreased in the first 6 months of 2020 compared to the same period last year. Investment capital in the FDI sector decreased the most, from 9.7% growth in the first 6 months of 2019 to negative growth of 3.8% over the same period in 2020; investment capital growth from the non-state sector decreased from 16.4% in the first 6 months of 2019 to 7.4% year-on-year in 2020. However, the only bright spot is the investment capital of the region. the

state sector increased from 3% in the first 6 months of 2019 to 7.4% over the same period in 2020. In a time of economic difficulties and a decline in aggregate demand, the State played an important role to limit decline in aggregate demand.

Figure 2. Realized foreign direct investment capital in the first 6 months of the year 2018-2022

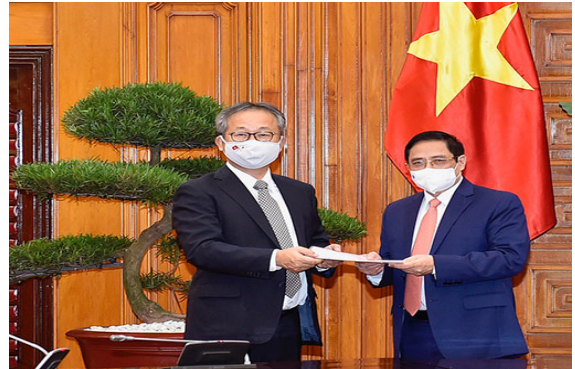


Many businesses, especially those with foreign experts and foreign workers, are heavily affected by COVID-19 when the labor supply is in short supply. Labor costs during this period are also higher when businesses have to invest in more masks, antiseptic water, and implement safety measures at work to avoid virus infection.

COVID-19 affects all aspects of socio-economic life, negatively affecting economic growth, commercial activities, labor, employment and income of workers. However, facing this shock, the State quickly implemented strong solutions, first to limit the spread of the disease, then to develop the economy. The solutions have shown initial success when controlling the epidemic, preventing the spread of the disease in the community for a long time (over 3 months) and socio-economic development activities, especially tourism activities. The calendar is also starting on the way to prosperity again before the epidemic breaks out again at the end of July 2020.

2.3. Impact of the COVID-19 pandemic on Vietnam - Japan relations

On the morning of June 15, 2021, at the Government Headquarters, Prime Minister Pham Minh Chinh received Japanese Ambassador to Vietnam Yamada Takio. Following the results of phone calls between President Nguyen Xuan Phuc, Prime Minister Pham Minh Chinh and Japanese Prime Minister Suga Yoshihide, the Japanese Government decided to support Vietnam with 1 million doses of vaccine to prevent



COVID-19. Ambassador Yamada read Prime Minister Suga's message to Prime Minister Pham Minh Chinh, emphasizing that the Japanese Government's decision to provide 1 million doses of vaccine to Vietnam is a testament to the deep friendship between the two countries. Japan; Japan wishes to link with the international community, especially Vietnam, to overcome the COVID-19 pandemic together. At the meeting, Ambassador Yamada also announced that Japanese associations and 36 businesses in Vietnam have donated VND 39.2 billion to the Government's COVID-19 Vaccine Fund and will continue to contribute more. In order to take the initiative in the source of vaccines to prevent and prevent the COVID-19 epidemic in the long run, Vietnam has promoted research, testing and domestic vaccine production. Along with that, Vietnam is also seeking to transfer vaccine production technology from countries around the world. Up to now, Vietnam has had technology transfer contracts related to vaccines to prevent COVID-19 with Japan, Russia, the US..., signed as vaccine technology transfer between Progressive Joint Stock Company. (AIC) and Shionogi Company (Japan), it is expected that by June 2022, it will complete its activities and bring the vaccine to the market.

From March 2021 to April 23, 2022, Vietnam has received more than 239 million doses of COVID-19 vaccine from many different sources, of which, about 50% is from donations through the agency. Although the world is facing a global shortage of COVID-19 vaccines, Vietnam still receives enthusiastic support from partners. , neighboring countries and international friends with a total commitment of about 160 million doses. This is one of the outstanding results of the "vaccine diplomacy" activity in the past time, making a practical contribution to the domestic efforts to prevent and control the COVID-19 epidemic.

In short, the COVID-19 pandemic is a powerful medical shock, affecting all aspects of the world economy. Global growth and of many countries and regions are negative; global trade and investment decline; workers lost their jobs, the unemployment rate increased. In the midst of difficulties brought about by the epidemic, there are also opportunities appearing, especially online socio-economic activities such as online sales, online learning, online meetings, and even businesses with Long-term plan for employees to work from home online. COVID-19 is accelerating the adoption and launch of new products from the Fourth Industrial Revolution. The

pandemic brings to the world difficulties and challenges; but it also offers opportunities. Countries that know how to take advantage of opportunities will be able to rise strongly after the pandemic. And vice versa, countries that do not take advantage of opportunities will face many difficulties in the "post-COVID-19" period.

3. SOME SOLUTIONS TO PROMOTE THE ECONOMIC RELATIONS BETWEEN VIETNAM - JAPAN IN THE NEW STAGE

In the condition that the two countries are well controlling the Covid-19 pandemic and are open to socio-economic activities, Vietnam wants Japanese leaders to encourage Japanese businesses to increase investment and business. , promote diversification of supply chains to Vietnam; interested, creating favorable conditions for the Vietnamese community in Japan, promoting local cooperation, cultural exchanges, people-to-people exchanges, coordinating activities to celebrate the 50th anniversary of the establishment of relations. Vietnam-Japan diplomacy in 2023 is worthy of the Vietnam-Japan extensive strategic partnership. The COVID-19 pandemic has put our country's economy in front of enormous challenges and at the same time brought opportunities. This shock contributes to accelerating the digital transformation of the economy; great benefits in the application of the results of the Fourth Industrial Revolution bring more clarity, new products appear and develop widely. These trends require institutional and regulatory changes to promote the development of the digital economy. In the dynamic new international and regional context, the relationship between Vietnam and Japan has been affected both in terms of prospects and new challenges. Accordingly, in order to further develop the depth of relations between the two countries, the two countries need to strengthen cooperation, cultural exchanges and people-to-people exchanges. At the same time, strengthen deepening cooperation, shape strategic partnership on the basis of strengthening trust, shoulder joint responsibility for regional and global issues. Therefore, in order to continue promoting the friendship and comprehensive strategic cooperative partnership between Vietnam and Japan, measures to strengthen relations in the coming time should be continued:

Firstly, strengthening the link between Vietnamese and Japanese enterprises, which not only benefits Vietnam's production capacity, but also brings economic benefits and builds an image for Japanese investors. Vietnamese version.

Second, cooperate under multilateral mechanisms to promote and facilitate trade and investment by actively participating in WTO and plurilateral free trade agreements such as CPTPP, RCEP..., forums such as APEC, ASEM... as well as regional and sub-regional initiatives such as GMS. Particularly for the customs sector, it is necessary to continue to facilitate trade, simplify and harmonize administrative procedures to promote trade between the two sides.

Third, maintain regular and substantive dialogue on investment-related issues such as business environment reform; Vietnam's capacity building needs as well as economic infrastructure development and Vietnam's ability to participate in the tripartite development cooperation model

led by Japan. There should be close coordination between the Ministry of Foreign Affairs, the Ministry of Planning and Investment, and the Ministry of Trade in studying the world and regional investment markets, the impact of the financial crisis, etc. information, conduct investment and trade promotion activities from the outside through Vietnam's foreign trade and diplomatic missions in key countries and regions to improve efficiency and ensure save.

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CAN MULTINATIONAL ENTERPRISES ATTAIN COMPETITIVE ADVANTAGES THROUGH HIRING OFFSHORE EXPERTS?

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Abstract

Schaefer (2020) argues that offshore experts generate competitive advantage for telecommunication manufacturer Huawei by providing innovative output, but without integrating their knowledge with the activities of other key staff members at Huawei's home base. The contrast between Schaefer (2020) and mainstream international business theories led us to conduct further empirical analyses of Huawei. We find that there was extensive integration between offshore experts and Huawei's home base, and that dynamic matching led to catch-up and competitive advantage for Huawei. In analyzing the contributions of offshore experts, Schaefer (2020) overlooks the inherent uncertainty of R&D projects and the embedded nature of offshore experts' functioning.

Schaefer (2020)—which is an in-depth study of the Chinese telecommunication manufacturer Huawei—addresses the important issue of “how hiring offshore experts can provide competitive advantages” (Schaefer, 2020: 2) for latecomer companies. Schaefer argues that (1) Huawei hires offshore experts at its foreign research and development (R&D) centers for their knowledge and experience, and (2) these offshore experts provide innovative input directly for Huawei to develop state-of-the-art products. Contrary to the “learning by hiring” hypothesis on recruiting highly qualified employees to learn tacit and complex knowledge (Almeida & Kogut, 1999), Schaefer (2020) finds that Huawei uses the knowledge of newly hired employees directly. The genesis of the argument is that latecomers such as Huawei use the innovative output of offshore experts to gain competitive advantage without learning their tacit knowledge or integrating their knowledge within the rest of Huawei.

Latecomers like Huawei try to catch up with and learn from their competitors through hiring offshore experts from either competitors or other firms in the market. If we view technologically

advanced competitors as Huawei's teachers (i.e., providing innovative output through offshore experts), how is it possible that latecomers can outperform their teachers? This question involves us in the long-standing debate in international business (IB) about the possession of (or lack of) firm-specific advantages (FSAs) of emerging market multinational enterprises (EMNEs) and the contribution of external resources. For example, Mathews proposes that Asian MNEs do not possess FSAs and expand internationally to acquire them (Mathews, 2006), but Mathews' proposition does not explain "how firms that are going abroad to learn can, at the same time, successfully compete with their teachers" (Hennart, 2012: 171).

We are intrigued by the Schaefer's claims (2020). To assess the validity of these claims, we revisit what extant IB theories say about the sources of competitive advantage for EMNEs. The goal is to place the Huawei case in the context of IB theories so that we can understand whether the Huawei case supports, refutes, or extends propositions in mainstream IB theories. We conduct interviews with Huawei's executives, managers, and engineers, in ways similar to Schaefer (2020). Schaefer (2020) collects data only from offshore experts, but data from those who are their supervisors or collaborators may provide a different perspective on the issue. Accordingly, we provide evidence that offshore experts interact with multiple players at Huawei, and that the dynamic matching between offshore experts and Huawei staff builds the foundation for Huawei's competitive advantage.

IB THEORIES ON FSAS AND ASSET-SEEKING MOTIVATIONS OF EMNEs

We choose internalization theory (Hennart, 1988; Narula et al., 2019; Rugman, 1981; Rugman & Verbeke, 2003) and the dynamic capabilities-based theory of the MNE (Teece, 2014) as the theoretical lens to assess Schaefer (2020). Internalization theory, as the generally accepted theory of MNEs, allows the prediction of a wide range of organizational phenomena. Furthermore, Schaefer (2020) focuses on the sources of competitive advantage, which fits well with the domain of the dynamic capabilities-based theory of MNEs.

Internalization theory has traditionally focused on the overseas deployment of the MNEs' own assets and FSAs (Hennart, 1988; Narula et al., 2019; Rugman, 1981; Rugman & Verbeke, 2003). Drawing on both transaction cost theory (Coase, 1937) and Penrose's theory of firm growth (1959), IB scholars have expanded and adapted internalization theory to emphasize the geographic adaptability and recombination of the MNEs' FSAs (Verbeke, 2013). MNEs' success requires not only geographic deployment of their location-bound and non-location bound FSAs, but also recombination of complementary resources and knowledge bundles in novel ways through entrepreneurial judgment. The capability to recombine can function as a higher-order FSA, which may involve specialized routines within the MNEs to facilitate the integration of knowledge located in various units in the MNEs (Narula et al., 2019).

Recombination can be difficult to realize, due to various sources of market failure, either in the form of adverse selection or moral hazard. When two units in an MNE are involved in the

recombination of knowledge bundles, the MNE can use two approaches: one unit can transfer its knowledge to the other party for recombination, or both units can work closely together. Multiple factors can complicate the recombination process, such as the absence of full cooperation due to misaligned incentives, limited absorptive capability of the recipient unit, and certain knowledge characteristics (Casillas et al., 2009). Recombination thus requires both knowledge transfer and entrepreneurial judgment, and various frictions may arise during the recombination process.

The focus on recombination explicitly links with the notion of dynamic capabilities. Teece (2014) develops a dynamic capabilities-based theory of MNEs and proposes that they need three clusters of entrepreneurial and managerial orchestration activities to build and attain sustained competitive advantage. These activities are *identification of opportunities* (sensing), *deploying resources to exploit the opportunities* (seizing), and *effectuating continued renewal* (transforming). In contrast to ordinary capabilities that rely on best practices and munificent ordinary resources, dynamic capabilities rely on signature practices, VRIN resources (Valuable, Rare, Inimitable, and Non-substitutable; Barney, 1991), and astute managerial orchestration. As Teece (2014:21) observes, “A corollary of the fact that VRIN resources and signature processes and business models are products of the firm’s heritage and past managerial decisions is that dynamic capabilities tend to get built, are difficult to imitate, and cannot generally be bought. ... This is the reason for the ‘stickiness’ of dynamic capabilities – that is, they don’t tend to travel well, they are complex, and they are hard to figure out and to implement.”

Despite their differences, both theories acknowledge the importance of resource recombination and entrepreneurial judgment inside the MNE. In the following paragraphs, we utilize these foundational theories to conduct a preliminary analysis of Schaefer (2020). We identify the extent to which the Huawei case and Schaefer’s analysis (2020) support or contradict predictions of internalization theory and the dynamic capabilities-based theory of the MNE, and use the inconsistencies between theory and practice to gain new insights.

A PRELIMINARY ANALYSIS OF SCHAEFER’S (2020) PROPOSITIONS BASED ON IB THEORIES

Schaefer (2020) investigates how offshore experts generate competitive advantage for latecomers to a market. Based on over 40 interviews with offshore experts at Huawei, Schaefer (2020) argues that (1) innovative output from offshore experts creates competitive advantage for latecomers; (2) hiring offshore experts can help latecomers to gain legitimacy by signaling technological competence and improving the latecomer’s reputation; and (3) offshore experts are hired for their global embeddedness and skills. Schaefer (2020) contends that latecomers such as Huawei rely on directly using offshore experts’ experience and knowledge which they gained while working for competitors, in order to catch up with industry leaders and achieve competitive advantages. Schaefer (2020) thus introduces an intuitive causal mechanism between offshore experts and competitive advantage (see Figure 1), with offshore experts’ knowledge and

experience as strong ordinary capabilities (for temporary competitive advantage) or even as strong dynamic capabilities (for sustained competitive advantage).

Insert Figure 1 about here

Three intriguing questions emerge if we analyze this issue through the lens of internalization theory and dynamic capabilities. In Table 1, we summarize the inconsistencies between Schaefer (2020) and mainstream IB theories, and state the possible pre-conditions that must be met in order for the propositions in Schaefer (2020) to function.

Insert Table 1 about here

First, although there is general agreement that resources and capabilities for competitive advantage cannot be bought in the market (Teece, 2014), Schaefer (2020) rejects this idea by arguing that hiring offshore experts from competitors or other related companies *can* generate competitive advantage. The migration of offshore experts thus creates a competitive advantage for Huawei and/or engenders losses for Huawei’s competitors. Schaefer’s proposition (2020) is possible if (1) there are so many migrations that an imbalance in R&D experts arises between Huawei’s offshore centers and Huawei’s competitors, or (2) offshore experts who move to Huawei make more contributions in their new jobs than in their previous ones. With these assumptions, Huawei (as the latecomer and student) does better than its “teachers” do.

Second, Schaefer (2020) contrasts innovative output with innovation capabilities in Huawei’s catchup process. Output capabilities refer to “firms’ technologies and skills relating directly to the currently observable product or service. They do not require the ability to enhance or develop the product, since knowledge requirements are well defined. Thus, output capabilities are well suited to imitation strategies, and with adept management, they are amenable to rapid acquisition” (Awate, Larsen, & Mudambi, 2012: 208). By contrast, innovation capabilities describe “the technologies and skills relating to developing and enhancing the observable product or service. Therefore, they go beyond smaller adaptations and adjustments of the product and, rather, describe firms’ ability to develop the ‘next generation’ of the product.” (Awate et al., 2012: 208). Since Schaefer (2020) cites Awate et al. (2012) to differentiate between output and innovation capabilities, output capabilities of offshore experts in Schaefer (2020) may refer to products/services that offshore experts imitate based on those of their former employers. On the other hand, Schaefer (2020: 9-10) states that “one of the main tasks for offshore employees is to create novel product ideas—ones that can be developed and produced by a larger and less costly workforce in China” and that “Huawei relies on the innovative ideas of its foreign experts”. This

suggests that offshore experts actually create new ideas (though Schaefer is vague about what ideas mean in this context), in spite of the fact that there is limited integration between offshore experts and Huawei's home base in China. Though it is unclear what Schaefer (2020) exactly means regarding the term of output capabilities, mainstream IB theories assume that imitating competitors' products by offshore experts may facilitate catchup, but is unlikely to create competitive advantage for Huawei.

Third, Schaefer (2020) focuses on knowledge, experience, and innovative output from offshore experts, but does not indicate *how* opportunities for innovative ideas are sensed. The experts may simply imitate the products of their former employers, or they may be so alert that they recognize market needs and generate innovative ideas for further development at Huawei's home base. Since recombination in internalization theory (Verbeke, 2013) and the dynamic capabilities perspective (Teece, 2014) emphasize entrepreneurial judgment and resource orchestration, offshore experts depicted in Schaefer (2020) need to not only sense and shape potential opportunities, but also understand complementary assets at Huawei for further exploitation of such demands.

Method

Given these uncertainties, we conducted semi-structured interviews with employees at Huawei's home base and offshore centers, with a modified list of questions (e.g., on the perceived roles of offshore experts) in Schaefer (2020). We also added questions about Huawei's R&D system to get a better understanding of how offshore R&D centers interact with related stakeholders at Huawei.

We asked interviewees what they thought was the most critical time period for Huawei to develop global competitiveness. Most considered the years between 2004 and 2012 as the crucial period, so our questions are focused on this period. To provide a perspective of the tasks and contributions of offshore experts complementary to Schaefer (2020) (which relied on the self-report of the offshore experts), we selected key informants who were personally involved in tasks with offshore experts, as either their supervisors at the offshore centers or collaborators at Huawei's home base.

To secure diverse viewpoints, we chose interviewees from different units of Huawei and across multiple levels. We approached interviewees through personal networks (two of the authors have personal connections with senior scientists at Huawei), and applied a snowball approach to access potential additional interviewees. We gathered data in late 2019, and interviewed a total of 16 current Chinese employees at Huawei, with 8 at Huawei's home base in China and 8 at offshore centers. All eight interviewees at offshore centers were in management positions, while those at Huawei's home base were engineers in R&D who have worked closely with offshore experts. Each interview lasted around two hours and was recorded.

Data analysis

To address our research questions, we used an abductive case study methodology (Dubois and Gadde, 2002). In contrast to deductive approaches concerned with deriving testable propositions from current theories and inductive approaches relying on observations to generate new theories, the abductive approach emphasizes the interplay among theoretical frameworks, data sources, and analyses. With new findings gained in the empirical fieldwork, researchers continue to modify established theoretical frameworks and derive new concepts, thereby representing an evolving framework between theories and empirical observations. While various conceptualizations may help explain the sources of competitive advantage for Huawei from the perspective of hiring offshore experts (e.g., Awate et al., 2012; Verbeke, 2013), we do not know which might be relevant and what are the relevant agents. Following Dubois and Gadde (2002), we systematically recombined the confrontation between our evolving theory and the empirical data. We first analyzed data with established coding techniques (Miles & Huberman, 1984) by focusing on recurrent expressions. This led to an identification of the relevant players, specific categories, and overarching concepts (Gioia, Corley, & Hamilton, 2013). During this process, we refined our concepts through iterations between theory and empirical data. Finally, we examined the contextual conditions in which activities of offshore experts and related players emerged, which resulted in the systematic analyses of offshore experts' contributions.

FINDINGS

We describe Huawei's R&D system, how offshore experts function inside Huawei, and the key players, tasks, and activities (see Figure 2). We focus on two major players—offshore experts and brokers—and their activities at offshore centers. We then introduce dynamic matching as a recombination between actions at offshore experts' locations and Huawei's home base.

Insert Figure 2 about here

Huawei's R&D system and how offshore experts connect with the rest of Huawei

Figure 2 shows the major players and the related activities in Huawei's R&D system when offshore experts are involved. At offshore centers, major players include offshore experts and brokers (who are often called coordinators). Brokers are expatriates and engineers who are sent to offshore centers to both support and monitor R&D tasks. Projects at offshore centers normally have offshore experts as the tech leader, a broker as the project manager and business leader, and Chinese support staff. At Huawei's home base, related tech leaders and tech teams are the major players, though product leaders and managerial teams may be involved as representatives of sponsors, which are the product divisions and technological divisions that provide funding to offshore centers. Major representatives from the sponsoring divisions work together to define offshore experts' tasks, priorities, and operations. Normally sponsors define initial tasks and

projects, but the tasks are continuously refined in practice, and interactions among the major players lead to various adjustments so their work fits together. In some cases, offshore centers propose R&D projects to match home base's plan. Besides budgeting and defining R&D projects, sponsors connect offshore centers' projects with Huawei's home base, provide support to offshore centers when they have difficulties (e.g., internal barriers, resource requests), and evaluate their performance and contributions.

In the left corner of Figure 2, we include Huawei's culture as described in De Cremer and Tao (2015), including a customer-first attitude, employee dedication, long-term thinking, and gradual decision-making, as many of these features influence players' interactions.

Results of the R&D tasks first go through various stages of evaluation. Successful designs are transferred to receiving units and enter Huawei's product decision system across multiple levels. Within this complex, multilevel R&D system, each R&D project is normally comprises of seven to eight knowledge modules, and each architecture enacts complementarities among its subsystems (see Figure 3 for an example of such a system). Interviewees indicated that it is important for offshore experts to be "interlocked" with Huawei's internal systems. One interviewee said, "a successful offshore project team needs to foresee the next generation product architecture based on the understanding of the existing system, and 'insert' your R&D project into the system. Such opportunities often arise when architectures change. If you don't become part of the system, your project doesn't have a chance." (Offshore center, Interviewee 14)

The complex internal system at Huawei provides both opportunities and challenges for offshore experts to function. Realizing and appropriating the value of offshore experts is not as straightforward as it seems.

Insert Figure 3 about here

Offshore experts

Our analysis reveals that Huawei's overseas R&D centers had difficulties in their recruitment. Huawei initially aimed for top experts ("大牛" in Chinese) who were widely recognized in their fields. But it quickly became clear that top experts often had many options and were difficult to recruit. This led Huawei to focus on experts who were average in the industry ("中配" in Chinese). One manager mentioned that about 10% of offshore experts can be categorized as top ones, but most are average. During the industry downturn in 2002 and 2003, Huawei hired a few from Ericson and other small firms that went bankrupt in Europe. Interviewees depicted offshore experts as typically those who were either below 40 or above 50, reached the glass ceiling with their former employers, were unhappy about their former jobs, and were attracted by higher salaries at Huawei (much higher than their original salaries in some

cases) and job characteristics.

Our analysis suggests that the functioning of offshore experts is enabled by their willingness to learn Huawei's practices, but is hampered by their attitude of cultural superiority.

Offshore experts' willingness to learn. An important finding from the interviews is that offshore experts would function effectively if they were willing to be "interlocked," "matched," or "plugged in." This suggests that formal and informal integration with the rest of Huawei was critical to success. To be interlocked requires a good understanding of Huawei's practices. One interviewee said that "successful offshore experts need to be passionate about learning Huawei's systems" (Offshore center, Interviewee 11). There are three reasons for this. First, internal demand for R&D projects, their importance, and their specific objectives frequently changes; this is common practice at Huawei but difficult for some offshore experts to adapt to. As suggested by one interviewee, "being flexible is the default requirement at the home base. Changing objectives of R&D projects are hard for offshore experts to work with" (Offshore center, Interviewee 14).

Second, new designs/products need to consider various dimensions, such as supplier networks, manufacturability, and installability. In the early days of offshore centers, many good ideas and designs introduced by offshore experts could not move to development stages because these designs did not consider the firm-specific characteristics of Huawei. For example, if a new design uses parts that are not on the list of Huawei's current suppliers, it will not have much chance to be launched. One interviewee talked about offshore experts from Ericson, "who often suffered at Huawei because they lacked understanding of Huawei's systems and platforms and could not adapt to the new and complicated product architecture at Huawei" (Offshore center, Interviewee 4).

Third, Huawei has its own unique languages, which use many military terms to connote specific meanings. For example, Huawei uses "where the gunfire roars" to refer to where direct interactions with customers and competitors are located. These languages often raise eyebrows for offshore experts.

For many projects, Huawei included two to three engineers from the home base to help offshore experts understand project demands. Normally it takes offshore experts two to three years to understand Huawei's inherited practices. Some offshore experts are more willing to socialize with brokers and engineers from Huawei's home base, and are more curious about Huawei's culture, which helps them to surmount internal hurdles and frictions.

Offshore experts' attitudes of cultural superiority. Our data suggests that there is a general perception that offshore experts stubbornly stick with their own perspectives. Brokers and their colleagues from Huawei's home base often view such insistence as a reflection of both cultural superiority and a lack of knowledge of organizational priorities as a result being distant from the home base. As one interviewee said, "many offshore experts in the United States appear to have

a strong sense of cultural superiority and do not ‘buy into’ the suggestions of colleagues from the home base.” Another interviewee said something similar, but also suggested that offshore experts in Northern Europe are better than the experts from the U.S. at listening to the perspectives of colleagues at the home base. Interviewees tend to view cultural superiority as a major barrier to offshore experts’ understanding of Huawei’s systems. One interviewee mentioned that when engineers at Huawei’s home base in China did not agree with offshore experts’ suggestions, the typical reaction of offshore experts was: “if you cannot understand my advice, then I’d better not participate in the project and we can collaborate later when other opportunities emerge.” (Home base, Interviewee 5)

Brokers

An unexpected finding in our analysis is the crucial function of brokers at offshore R&D centers who play a boundary-spanning role in linking offshore experts with Huawei’s system, thereby combining the knowledge sets of offshore experts with the rest of Huawei. The brokers are Chinese expatriates and engineers sent by Huawei’s home base to outpost in offshore R&D centers and support offshore experts. All R&D projects have two leaders, an offshore expert and a broker. In the official design of responsibilities, the offshore expert is the technology leader and the broker is in charge of the business domain. Brokers represent the sponsor at offshore centers, monitor the progress of R&D projects, and take responsibility for the success of the projects. We summarize the activities of the brokers in Figure 4.

Insert Figure 4 about here

First, sponsors (i.e., business divisions at Huawei’s home base) allocate funding to offshore teams to support R&D projects of their interest, but brokers also actively look for internal opportunities, as they will take the blame if projects fail. Since offshore experts usually have only limited knowledge/connections with Huawei’s internal market where R&D teams compete for tasks, brokers try to find ways to match internal tasks with the expertise of offshore experts, especially when the projects allocated from Huawei’s home base do not fare well. To sense internal opportunities, brokers need to discover opportunities through internal ties, know the capabilities of offshore experts, and advertise offshore experts’ contributions.

Discovering opportunities through internal ties. Brokers function as the agents for offshore experts in Huawei’s internal knowledge market. Because they were former engineers at Huawei’s home base and have many friends/acquaintances at Huawei, they can utilize their informal networks to search for R&D tasks that are priorities at Huawei. With their knowledge of Huawei’s internal system, they can find ways to interlock offshore experts’ capabilities into

Huawei's next generation systems. As one interviewee observed, "opportunities often arise when the systems change to new versions or new architectures. This is the time when offshore experts can get interlocked into the system" (Offshore center, Interviewee 14). Even after offshore experts know the system, they normally do not develop such extensive informal networks with engineers at the home base, because of time issues, language barriers, or social skills.

A typical example is the development of the base station for both 2G and 3G in 2006. With the fast growth of the GSM market, major leading telecommunication manufacturers viewed 2G products as mature and optimized, and chose to decrease their investment in 2G and gradually laid off 2G-related experts. In the meantime, Huawei's home base was faced with the dilemma of both catching up in the 2G market and developing 3G products for the European market. In Europe, Huawei hired offshore experts (initially as consultants) to develop 2G products, but one of the brokers in China viewed these offshore experts as underutilized resources. With the support of senior executives at both Huawei's home base and offshore centers, the broker invited these experts to join the development of an architecture for both 2G and 3G base stations to resolve the strategic dilemma. The R&D engineers in mainland China and experts in Europe together developed SingleRan as the unified architecture for 2G, 3G, and 4G.

In such cases, brokers see opportunities that are neither the intent of the sponsors nor the projects that are foreseen by offshore experts. The familiarity of the brokers with Huawei's strategies, problems, and priorities, and their knowledge of offshore experts' expertise puts brokers in a unique position to see new possibilities to address Huawei's issues through new combinations.

Knowing the capabilities of offshore experts. To support offshore experts' work, a key task of brokers is to develop a good understanding of offshore experts' skills. Our analysis suggests that good brokers need to have a strong engineering background *and* strong social skills, both of which are crucial for successful bridging. Quite a few offshore experts know more than they can tell, so brokers need to find a spot to position offshore experts in the system. For example, a broker identified a young European mathematician who had unique expertise in improving algorithm, and found the demand for such expertise in a project. The new algorithm from the mathematician significantly reduced the complexity of a sub-system in the project. As highlighted by one interviewee, "the intermediary role of Chinese partners is critical; he needs to be more than a translator; he needs to be an interpreter of the needs of the home base and the expertise of offshore experts" (Home base, Interviewee 5)

Advertising offshore experts' contributions. Another activity of brokers is to generate visibility within Huawei by promoting the expertise and contributions of offshore experts. One interviewee commented, "a major function of a broker is to make sure that the home base sees offshore experts' value" (Offshore center, Interviewee 10). As people at Huawei's home based generally have limited knowledge/interaction with offshore experts, such promotion activities

can create awareness of offshore experts' uniqueness/expertise, attract interest in collaborating with offshore experts, and increase their influence within Huawei.

One broker explained how he advertised offshore experts' contributions: "when I saw the unique presentation of product structure (i.e., the hierarchical decomposition of a product, including the components of the product and the relationships among the items) from an offshore expert, I started to examine her theory and recommended the theory to my colleagues for reference, as product structure, system architecture, organizational structure, and information architecture are all closely interrelated" (Home base, Interviewee 1). Thus, a broker needs to be a good salesperson to connect offshore experts with popular projects at the home base.

Second, besides sensing opportunities, brokers need to leverage resources and connections to mobilize complementary resources and coordinate activities with internal stakeholders. The activities intend to support offshore experts' work, improve coordination, and best utilize their expertise. All these activities require brokers to possess strong social and interpersonal skills.

Getting high-level sponsorship. The administrative level of the sponsors at Huawei is quite important for R&D projects. The higher the level, the easier it is to coordinate with related internal stakeholders. In the words of one interviewee, "when a project is sponsored by senior administrators, you don't have to adjust so as to synchronize with related stakeholders. Other stakeholders have to adjust to synchronize with you. And it makes your life much easier" (Home base, Interviewee 13). For example, in the design of the SingleRan base station, the broker, who also worked as the manager of base station design, was very influential in setting targets, getting resources, and communicating with senior management.

An interviewee also mentioned another advantage of getting high-level sponsorship. Projects sponsored by lower-level management tend to be affected by financial indicators such as return on investment, while projects with high-level sponsors are often connected to core capabilities for Huawei's long-term success, and thus can receive stable and long-term support from Huawei's home base.

Looking for partnership. The second activity for brokers to mobilize resources is to create alliances with internal stakeholders, which may produce synergies for both offshore experts and for internal collaborators. For example, the above-discussed engineer in Europe had very unique and creative ideas about product structure. Although the concept of product structure was public knowledge in the telecommunication equipment industry, Huawei itself had not developed an in-depth understanding of it. A broker therefore initiated meetings to link engineers in several locations, and that resulted in collaborations between engineers at the home base and offshore experts that examined the theoretical and practical implications of product structure, organization structure, and information structure. This project finally helped to improve Huawei's management information system.

Third, a major responsibility of brokers is to support offshore experts' work. In the words

of one interviewee, “try all means to make sure that the projects survive” (Offshore center, Interviewee 10). Given differences between offshore experts and home-base engineers in expertise, language, experience etc., it is assumed that brokers will facilitate offshore experts’ work by addressing their concerns, re-interpreting information to improve mutual understanding, and enabling adjustment of the behaviors of both offshore experts and home-base engineers.

Clarifying demands. Customer demand and market focus often contradict offshore experts’ preferences for technical leadership, system continuity, and technical reliability. During the period of fast expansion, Huawei’s strategic priority was to occupy the market first and then increase its market share. This strong market orientation means that Huawei’s customers will dictate product characteristics and R&D tasks. For example, in a product development project, data retransmission (in contrast to technical flexibility and evolutionary architecture) weighs heavily in customers’ decisions, while offshore experts may not view customers’ preference as important from a technology perspective. In these situations, brokers need to clarify the objective of the design and preferable features to the offshore experts.

Brokers, being located very close to offshore experts and acquainted with common practices at Huawei’s home base, are often the best candidates to explain the demand to offshore experts, especially when customer demands change. For example, carriers, as Huawei’s direct customers with significant negotiation power, often require specific characteristics for their target markets, such as functional flexibility, even at the cost of certain technological parameters. In these situations, brokers need to find ways to interpret the rationale of the demand and design criteria, so offshore experts can add extra capacity in software design but neglect some technical features in hardware design.

One interviewee explained a second example, where offshore experts can satisfy customer demand through either hardware design or software design, and they prefer to apply the more sophisticated technology to tackle the issue. In this case, the broker had to emphasize that customers expected a specific data retransmission capability, not technical advancement. The collaboration between brokers and offshore experts shifted the R&D focus to offer a solution that was oriented towards the specific customer needs, rather than the design itself.

Facilitating mutual adjustments. Many situations require adjustments in behavior, mentality, and practices of several related players (offshore experts, product leaders, etc.). Offshore experts enter Huawei with their accustomed processes and mentalities at their former employers, but for Huawei’s managerial teams, the major motivation of establishing offshore centers is to access advanced knowledge and technologies, and integrating such knowledge with Huawei’s established practices will require changes inside Huawei. Before offshore experts and their collaborators at Huawei’s home base develop a shared language, frictions may arise and damage subsequent collaborations. In these situations, brokers need to work with managerial teams to help related players to understand each other’s rationale, to alleviate conflict, and when

necessary, to create new routines to smooth adjustments.

For example, in the design process of the remote radio unit (RRU), sponsors rejected the initial design, but saw the value later and invited offshore experts to participate. However, the offshore experts hesitated because of the first rejection. A broker then stepped in to communicate with sponsors at Huawei's home base in order to better understand home base expectations and to voice offshore experts' concerns that resulted from the previous rejection. In the meantime, the broker interpreted the sponsors' decision parameters to make it easier for offshore experts to see the need for new ways of selling the design. More generally, brokers function to lubricate interactions between offshore experts and related players to improve mutual adaptations.

DYNAMIC MATCHING AS RECOMBINATION OF OFFSHORE EXPERTS' EXPERTISE AND HUAWEI'S KNOWLEDGE BASE

Our interviews revealed multiple players were involved in shaping the roles of offshore experts, including brokers and other representatives of sponsors. In the interactions among these players, we found that Huawei adjusted its formal and informal integration mechanisms between offshore experts and Huawei's internal system. We conceptualize this recombination as dynamic matching between offshore experts and Huawei's internal system (see Figure 5), which entails continuous adjustment of objectives and managerial approaches, starting with Huawei's initial approaches of setting up offshore R&D centers.

Insert Figure 5 about here

Initial design: From experts to tasks and from tasks to experts

Huawei set up its offshore centers with two basic approaches. The first approach is starting with offshore experts whom Huawei is able to recruit in the market and then allocates tasks to them based on their expertise and Huawei's need. The second approach is starting from existing tasks (e.g., knowledge gaps at Huawei and future strategic technologies) and then recruiting offshore experts who will match. According to interviewees, the second approach did not work for Huawei, indicating that "a major challenge for offshore R&D centers is to recruit foreign experts who are among top 10% in their fields" (Home base, interviewee 1), because they have many available options and often Huawei is not their top choice. Searching for the right experts with existing projects actually had very high failure rates. As a result, most R&D experts were recruited based on their capabilities in relatively broader technological fields, and Huawei then applied multiple integration mechanisms to capture the value of offshore expertise.

Dynamic matching with adjustment of objectives and managerial approaches

An important feature that we have observed is the continuous adjustment of objectives and

managerial approaches in coordinating activities between offshore experts and the rest of Huawei.

Adjustment of objectives/results. Though Huawei set up offshore centers with technological objectives, changing political and environmental situations may render the initial objectives invalid. In these situations, Huawei is willing to change its initial objectives by re-positioning some R&D centers within Huawei. A typical example is offshore R&D centers in the United States. When setting up American R&D centers, Huawei intended to match each R&D team in the US with a product line at its home base, but re-positioned American offshore centers as think tanks. They thus take the responsibility of offering insights to Huawei's strategic direction in technology, and their performance is not assessed with tangible technological output. Thus, when offshore centers/experts did not achieve the original objectives, Huawei's management team demonstrated high levels of flexibility in searching for new ways to benefit from existing human capital at offshore centers.

Adjustment of managerial approaches. Huawei's managerial team often adjusts its managerial approaches at offshore centers after they see the necessity of correcting previous practices. After receiving feedback, new approaches to improve integration are tried. A typical difference between offshore experts and Huawei's administrative heritage is that offshore experts prefer to concentrate on stable tasks, while Huawei demands fast turnaround from ideas to designs and products, so it can quickly respond to the dynamics of customers' needs and competitive pressures.

Huawei's managerial team adopted various ways to overcome such differences. One approach is to assign long-term and fundamental R&D tasks to offshore centers, such as enhancing wavelength rate and amplifier efficiency that does not experience fluctuations. The second approach is to assign tasks that are well defined and relatively loosely interdependent with other subsystems. In the meantime, the sponsors try to decrease major changes in the design process, and if they do, sponsors, brokers, and offshore experts together negotiate on such changes, delay the tasks, or move the tasks to the next project. For example, sponsors have learned not to allocate landline-related projects to offshore centers, since these projects belong to the traditional domain of the industry and it is hard to achieve much. Projects that need to meet dynamic changes in customer demands are not suitable for offshore centers either. In contrast, relatively stable demands, such as operating systems and algorithm optimization, are fields where offshore experts can make significant contributions.

Mutual adjustments. In many cases, the collaboration between offshore experts and related stakeholders demands mutual adjustment in many parameters. For example, in the design process of the remote radio unit (RRU) discussed earlier, sponsors rejected the first design from offshore experts, as it was viewed as unnecessarily competing with existing technical solutions. However, in the optimization process of RRU, offshore experts upgraded the design as complementary with

the current system, which made it easier for the sponsor to see the value of the design and finally accept it. In this process, both offshore experts and the sponsor were willing to make adjustments and try to understand the rationale of the other party.

One interviewee also mentioned how Huawei and an offshore expert found an appropriate way for the expert to fit in. Viewed as among the top 10% in the field, the expert was hired for her insights in systems and understanding of core technologies. Her expertise in systems required continuous updating of system knowledge, which became infeasible at Huawei, since it would require information flow from hundreds of employees to her. Both Huawei and the expert were not satisfied with her performance. Rather than splitting up, they created a new role for her to work as a coach and designer, with new long-term objectives of designing future systems for Huawei.

Offshore experts centered integration as the foundational principle. A resounding theme of dynamic matching is the attribution of low performance of offshore centers and experts to a “mismatch with the Huawei system” and the “inability to lock into the system.” One interviewee concluded that “most cases of project failure result from failing to integrate” (Home base, interviewee 3). This rationale has led to continuous matching to find appropriate complementarities between offshore experts and the rest of Huawei, especially when actual performance falls short of initial expectations. In contrast to attributing low performance to offshore experts themselves, Huawei’s approach assumes that offshore experts hold important expertise and are willing to take responsibilities in their work. Therefore, properly positioning them in Huawei’s system and identifying suitable tasks for them is key to their success.

The offshore experts “centered integration approach” is further strengthened by Huawei’s long-term orientation (De Cremer & Tao, 2015) and the functions of brokers. Huawei takes a long-term perspective in offshore experts’ performance evaluations. Even if they do not produce tangible results in one or two years, they will not receive criticism. Evaluation is also flexible, with emphasis tilted towards positive evaluations rather than areas for improvement. This very lenient and tolerant managerial approach significantly deviates from the emphasis on self-criticism and self-negation at Huawei’s home base (Tian & Wu, 2015: 139). Huawei also puts a lot of weight on brokers, who take the blame if R&D projects fail. Although project failure is usually attributed to “system failure” and “inability to lock in,” brokers are the ones with the responsibility of supporting the offshore experts and coordinating their activities, and they are thus highly motivated to develop integration approaches so that offshore experts perform well.

In Figure 5, we illustrate the interactions between offshore experts and Huawei’s home base through brokers as dynamic matching. This contrasts sharply with the relay perspective implicitly assumed in Schaefer (2020), which would mean that the relationship between offshore experts and Huawei’s home base is a one-way direction flow of ideas and designs.

A SYSTEMATIC ANALYSIS OF OFFSHORE EXPERTS’ CONTRIBUTION TO

HUAWEI'S COMPETITIVE ADVANTAGES

How do offshore experts function at Huawei and then contribute to Huawei's catchup? We find that offshore experts are embedded in a network of relationships, and multiple players are involved in shaping offshore experts' tasks, contributions, and final results. We identify two factors that are important in understanding the contribution of offshore experts (see Figure 6); these factors differentiate our analysis from that proposed in Schaefer (2020). The first factor is the individual-level analysis vs. the system level analysis. The individual-level analysis emphasizes the role of offshore experts as independent identities without considering their interactions with their surroundings; the systematic analysis examines their roles through understanding their positions in their environments. In our analysis of offshore experts, brokers, and dynamic matching, we emphasize the system level analyses that explain the interactions between offshore experts and related players.

Insert Figure 6 about here

The second factor is the success or failure of new ideas/products/designs that are introduced by offshore experts. Our findings show that offshore experts' contributions go beyond providing successful new designs or ideas. Failed projects may become part of the organization's knowledge stock and re-enter the system in the future. The design process of the remote radio unit (RRU) discussed above is a typical example, where people re-found the value of failed projects. Thus, an important but often neglected contribution of offshore experts is the knowledge they have gained from past failures. As one interviewee said, "there can be multiple trajectories for many technologies, and Huawei's traditional approach is to experiment with all major trajectories before deciding on the appropriate route, which can be very costly. However, offshore experts may have tried some routes and failed, and these insights significantly reduced the development costs for Huawei" (Offshore center, Interviewee 2).

Traditionally, Huawei relied on experimenting and learning from failure in its R&D by experimenting with parallel routes and removing infeasible ones, but it is often very difficult to identify problems at the later stage of R&D, or when the system becomes too complex. Knowledge from past failures helps to avoid wasting time looking at solutions that have not worked in the past, and therefore contributes to Huawei's catchup by reducing the span and cost of technology search. Thus, contrary to the traditional understanding of offshore experts' contributions in introducing new designs/products, the exclusion of potential technological trajectories in future development plans is very crucial for Huawei's catch-up. Finally, success is not limited to innovative output as tangible designs. Since technological development can proceed through multiple potential routes, knowing "where to go" is crucial for the allocation of investment. One interviewee said that "Offshore experts from Ericsson make very important

contributions. They point out the right direction.” (Offshore center, Interviewee 4)

We thus contrast four potential perspectives for analyzing offshore experts’ contributions to Huawei’s competitive advantage. Cell 1 represents the essence of Schaefer (2020), i.e., focusing on the role of offshore experts and their successful ideas/products/designs. With its sole focus on offshore experts and successful designs, it not only dismisses other outcomes (e.g., failures of offshore experts), but also ignores the long path from product design to market success. Even if the designs successfully move to the receiving unit, some may never reach the market. This is a rather intuitive, “heroic” perspective regarding offshore experts.

Cell 3 complements Schaefer (2020) by recognizing the uncertainty about R&D projects. In this case, the failed R&D tasks of offshore experts are considered, but learning (or failing to learn) occurs only at the individual level, and this limits the implications of failure solely to the individual level. Cell 3 also reveals an inherent weakness in Cell 1, in the sense that the heroic perspective assumes the success of the innovative output from offshore experts without considering the innate uncertainty of R&D.

Cells 2 and 4 represent a more realistic picture of the offshore experts at Huawei. We find that offshore experts are positioned in the multi-level R&D system, with tasks assigned and related parties matched dynamically. In practice, offshore experts may contribute to the improvement of a sub-module or a sub-system, and their contribution relies on the complementary capabilities of brokers, product and technical leaders, and managerial teams in assigning the appropriate tasks, making adjustments, and positioning offshore experts dynamically inside Huawei. Cell 2 also highlights the increased diversity of ideas and designs resulting from the contribution of offshore experts. As one interviewee noted: “although we have competing teams for similar tasks to search for different views and designs at Huawei’s home base, engineers in China had so much similarity—they were trained in China. They saw similar kinds of customers. They are too similar. Offshore experts are different and they offer fresh perspectives.” (Home base, Interviewee 3)

Unlike Cell 2 (which considers only the successful tasks of offshore experts), Cell 4 identifies two additional scenarios. One is that failed tasks can become part of an organization’s “stock” of knowledge. As one interviewee commented, “the experience of offshore experts helps you to save twists and turns. Some become knowledge stock and are not of much use immediately. When new issues occur, we often review similar questions and solutions in the past five to six years, and you may find solutions to current issues available within Huawei” (Home base, Interviewee 3). This quote also reflects a second scenario, that is, the removal of certain technological trajectories is important because it helps Huawei to avoid detours and reduces development costs.

An important implication of Figure 6 is that it shows how different causal mechanisms are implied/proposed in Schaefer (2020) and in our systematic perspective. Attention to the chain of

events can clarify the linkage between actions (e.g., hiring offshore experts) and the assumed outcomes. The closer the outcomes are to the antecedents, the smaller the influence of other actions and initiatives on the linkages. As suggested in Ray, Barney, & Muhanna (2004), business processes, rather than overall firm performance, may be a more appropriate outcome variable in testing the resource-based view (RBV) (Barney, 1991), since overall performance is often too distant from explanatory variables in studies of complex organizational processes. Given the conceptual distance between hiring offshore experts and the idea of competitive advantage, the identification of mediating variables should help to refine our causal understanding of the functions of offshore experts.

Referring back to Figure 1, in Schaefer (2020), the mechanism between hiring offshore experts and gaining competitive advantage focuses on the introduction of novel products. In contrast, our systematic perspective focuses on the diversity of new designs/products and removal of certain technology trajectories, in addition to new products. Compared to Schaefer's idea of limited integration between offshore experts and Huawei's home base, we argue it is exactly the managerial actions taken to combine many activities of offshore experts and Huawei's home base that facilitate Huawei's catch-up process. The long "distance" between hiring offshore experts and competitive advantage may imply that the purpose of "exploring how hiring offshore experts can provide competitive advantages" (Schaefer, 2020: 2) is almost impossible to achieve, given potentially too many variables and too much noise involved in this long mediating process.

DISCUSSION

Schaefer (2020) makes important contributions by analyzing the functions of offshore experts at Huawei as a source of competitive advantage. This resonates with recent suggestions of examining the micro-foundations of MNEs' competitive advantages (Verbeke & Yuan, 2020). Using the Coleman diagram (1990), Verbeke and Yuan demonstrate that there is only limited research on how individuals contribute to firm-level results. Schaefer (2020) represents rare research in this domain.

However, we feel that our findings provide a more complete picture of a complicated process than what has been proposed in Schaefer (2020). Rather than focusing simply on the roles of offshore experts, we adopt a systematic and nuanced view to examine how offshore experts' embeddedness at Huawei matters. Even when it comes to industry connections, it is the combination of offshore experts' connections and other sources of knowledge at Huawei that comes into play. For example, one interviewee pointed out that "Offshore experts played a very important role in entering industry associations for Huawei. Socially, they are very important—they help get the right atmosphere. In the meantime, although I don't talk much, the counterparts know that I am the one who has the final say" (Offshore center, Interviewee 15). Similar combinations exist in other circumstances, such as that "in industry committees and standard committees, it is the joint effort of offshore experts and Huawei's expertise at home. Engineers

in China prepared the contents, and offshore experts act as the spokespersons... when it comes to negotiations in industry or standard associations, you need senior managers' involvement, because such negotiations often consist of deals among firms" (Offshore center, Interviewee 4). Though we do not delve into industry engagement further in our study, the global impact of offshore experts almost surely stems from recombination between offshore experts and other parts of Huawei.

Our findings also challenge the idea that there was very limited integration between offshore experts and the rest of Huawei during the catch-up phase. The role of brokers, the assignment of tasks, and the dynamic matching observed in our study suggest that extensive integration was going on. Our finding is not only aligned with the idea of recombination in mainstream IB theories (Verbeke, 2013; Teece, 2014), but also extends the concept of recombination by revealing several forms of adjustments across related players.

Dynamic matching, based on the conceptualization of recombination (Teece, 2014; Verbeke, 2013), switches the attention from *possession* of resources (as in Schaefer (2020)) to the *management* of resources. Schaefer (2020) largely follows the traditional RBV literature and assumes that possession of VRIO resources leads to competitive advantages. However, implementing certain management practices often demands access to complementary resources (Christmann, 2000), and there are many cases where maximizing value requires not only possession of resources, but also careful management of those resources (Sirmon et al., 2007). By explicating the interactions among multiple players related to offshore experts and the chain of events, we have made a step forward towards understanding how complementary resources are mobilized to appropriate value from offshore experts.

Our finding of the difficulties in the integration process and dynamic matching resonates with research on imitation (Schnaars, 1994; Shenkar, 2010) and causal ambiguity in RBV (Barney, 1991; Konlechner & Ambrosini, 2019; Powell, Lovallo, & Caringal, 2006). Schaefer (2020) views Huawei's practice of hiring offshore experts from competitors as essentially an extreme form of imitation. Shenkar (2010) points out that the central puzzle in imitation is to preserve the favorable outcome in the original strategy, and that requires an understanding of the context of the product and seeing beyond the codified items. In other words, since imitation opportunities are often embedded in interrelated, complex systems, "as is" coping rarely works. From this perspective, imitating products/designs of Huawei's competitors with the "as is" copying by hiring offshore experts from those competitors misses the context of the offshore experts' former work environments. But dynamic matching reflects the clear recognition that offshore experts need the appropriate context in order to create value for the new firm.

Our conceptualization of dynamic matching also differs from Schaefer (2020) when it comes to causal ambiguity. A very important concept in RBV, causal ambiguity refers to the condition under which organizational decision makers cannot determine the linkage between

organizational actions and organizational performance/advantages, thereby creating barriers to imitation (Barney, 1991; Cording, Christmann, & King, 2008; Konlechner & Ambrosini, 2019; Powell, Lovallo, & Caringal, 2006). Schaefer (2020) generally ignores the issue of causal ambiguity, and narrows the focus to the group of offshore experts as the accelerator of catchup and a source of Huawei's competitive advantage, though it is unclear to what extent offshore experts meet the VRIO criteria in RBV. In contrast, we view offshore experts as ordinary capabilities (or strong ordinary capabilities) (Teece, 2014), but take dynamic matching as a potentially strong candidate for dynamic capabilities. Dynamic matching implies that none of the involved actors, such as offshore experts and brokers, has perfect knowledge about how their actions produce effective outcomes, thereby requiring continuous retooling. This non-stop adjustment process requires entrepreneurial judgment by offshore experts, brokers, product leaders, and technology leaders, to combine complementary resources.

Finally, we call for a realistic understanding of the case of Huawei. For example, when it comes to mergers and acquisitions, Schaefer (2020: 10) suggests, "Huawei has tried to overcome liabilities of origin by making greenfield investments rather than acquisitions." Our primary finding is that liabilities of origin do matter, but it is the risk-preference of senior managers and the characteristics of the industry. When we probed the rationale of Huawei's preference for greenfield investments instead of acquisitions, one interviewee commented, "acquisitions are more risky. Greenfield investment is different—if R&D projects fail in your greenfield investment, you can still adjust; many factors can lead to the failure of greenfield investment, such as experts you hire and your team; you won't be held responsible. The telecommunication industry is very mature, and there is lots of overlap in firms' technologies in the industry. Outside of the industry, more than 90% of the technologies from acquisition may not be much use for your firm" (Home base, Interviewee 5). It is very likely that senior-managers' mindsets and industry characteristics decide the preference for greenfield investment, rather than the generalized attribution of liabilities of origin.

A realistic understanding of Huawei requires us to be cautious about potential biases that exist in research. A typical bias in cross-cultural related comparisons is variations in the tendency of self-enhancement, meaning that people are motivated to manifest a positive view of themselves (Heine, 2003; Heine & Hamamura, 2016). A recent meta-analysis (Heine & Hamamura, 2016) has shown that Westerners exhibited a clear self-serving bias, followed by a weaker self-enhancement bias by Asian-Americans and none by East Asians. For the Huawei case, the implication of self-enhancement differences between Westerners and East Asians is that self-reports by offshore experts about their roles and contributions may result in overestimation of their abilities (many interviewees in Schaefer (2020) came from European countries or belonged to the "more Western" group). In this sense, Schaefer (2020) and this counter-argument together may portray a more comprehensive picture of Huawei.

CONCLUSION

The contrast between the “attaining competitive advantage by hiring” proposition in Schaefer (2020) and mainstream IB theories motivated us to examine the functioning of offshore experts at Huawei by interviewing managers/engineers at both Huawei’s offshore centers and its home base. We find that offshore experts interact with multiple players at Huawei, with brokers making crucial connections and dynamic matching evolving between offshore experts and staff at Huawei’s home base. We applaud Schaefer (2020) for its endeavor to link offshore experts with competitive advantages of MNEs, but question its “heroic” view of the contribution of offshore experts. Schaefer (2020) may have overstated the importance of offshore experts, while underestimating the implications of dynamic matching for Huawei.

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Figure 1. Summary of the causal mechanism in Schaefer (2020)

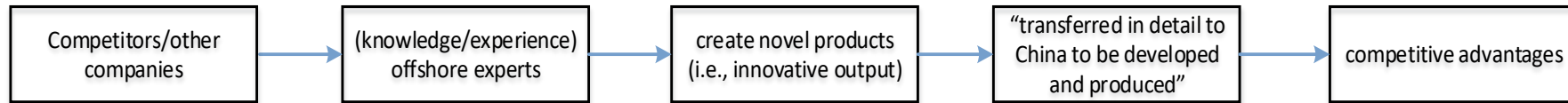


Table 1. Contrast between Schaefer (2020) and mainstream IB theories

Schaefer's arguments (2020)	Mainstream IB theories	Possible conditions for Schaefer (2020)
Offshore experts generate competitive advantages and they can be hired from competitors in the market	Bases of recombination and dynamic capabilities, such as VRIN resources and signature processes, cannot generally be bought	(1) there were so many migrations that an unbalance in R&D experts and elite between Huawei's offshore centers and Huawei's competitors arose (favoring Huawei); or (2) offshore experts who moved to Huawei made more contributions in the new jobs than in their previous ones.
Offshore experts imitated products from their former employers or offshore experts actually create new products (the student (i.e., Huawei) surpasses the teachers)	Imitation does not lead to competitive advantages	(1) and (2) above; (3) relatively frictionless flow from offshore experts to Huawei's home base
Offshore experts as sensing opportunities and creating novel products	Entrepreneurial judgment and orchestration of activities	Offshore experts sense opportunities to develop innovative output

Figure 2. A framework of offshore experts' contribution

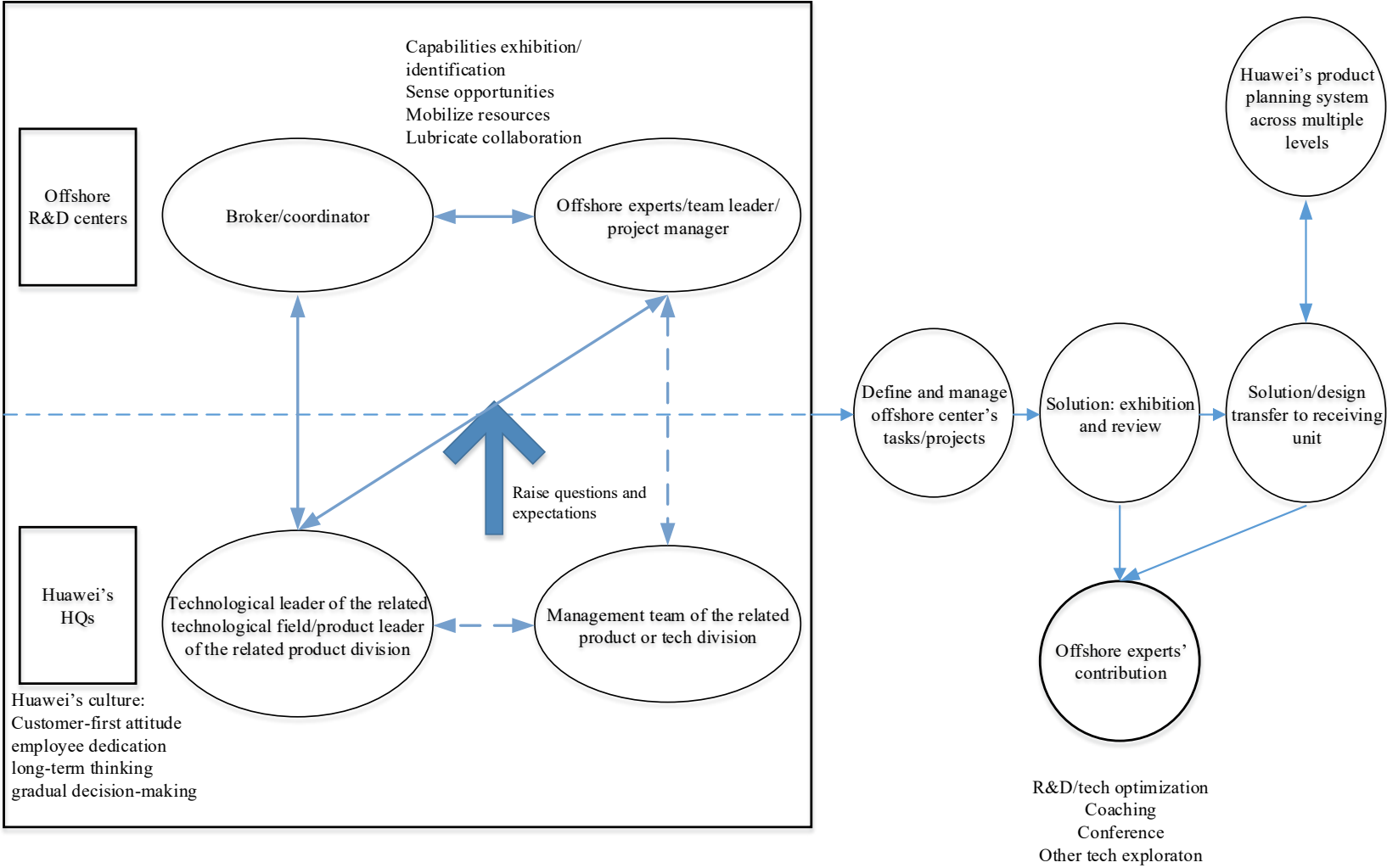
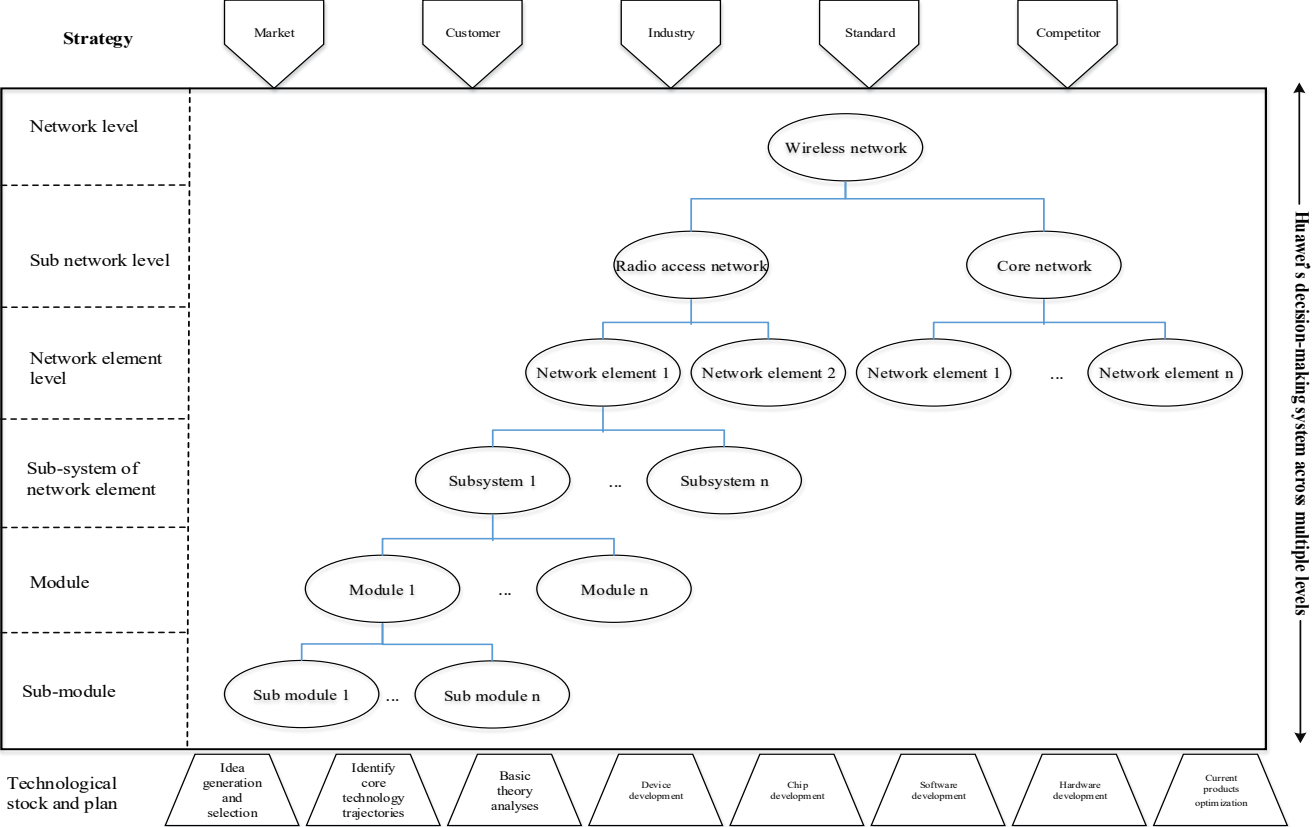


Figure 3. Huawei’s technological development system



Note: This is an example of Huawei’s technological development system on the wireless network. The development system comprises of multiple layers and several fields of knowledge, which can be subdivided into sub-systems and sub-modules. The development of the wireless network requires research not only in all related fields and modules, but also in configurations of the sub-modules and sub-systems. Moreover, the development needs to consider business decisions, such as competition and customer demands, and future technological trajectories. R&D

projects will go through multiple stages of evaluation and enter Huawei’s product planning system, and only feasible designs will move to the product development process.

Figure 4. Brokers’ activities

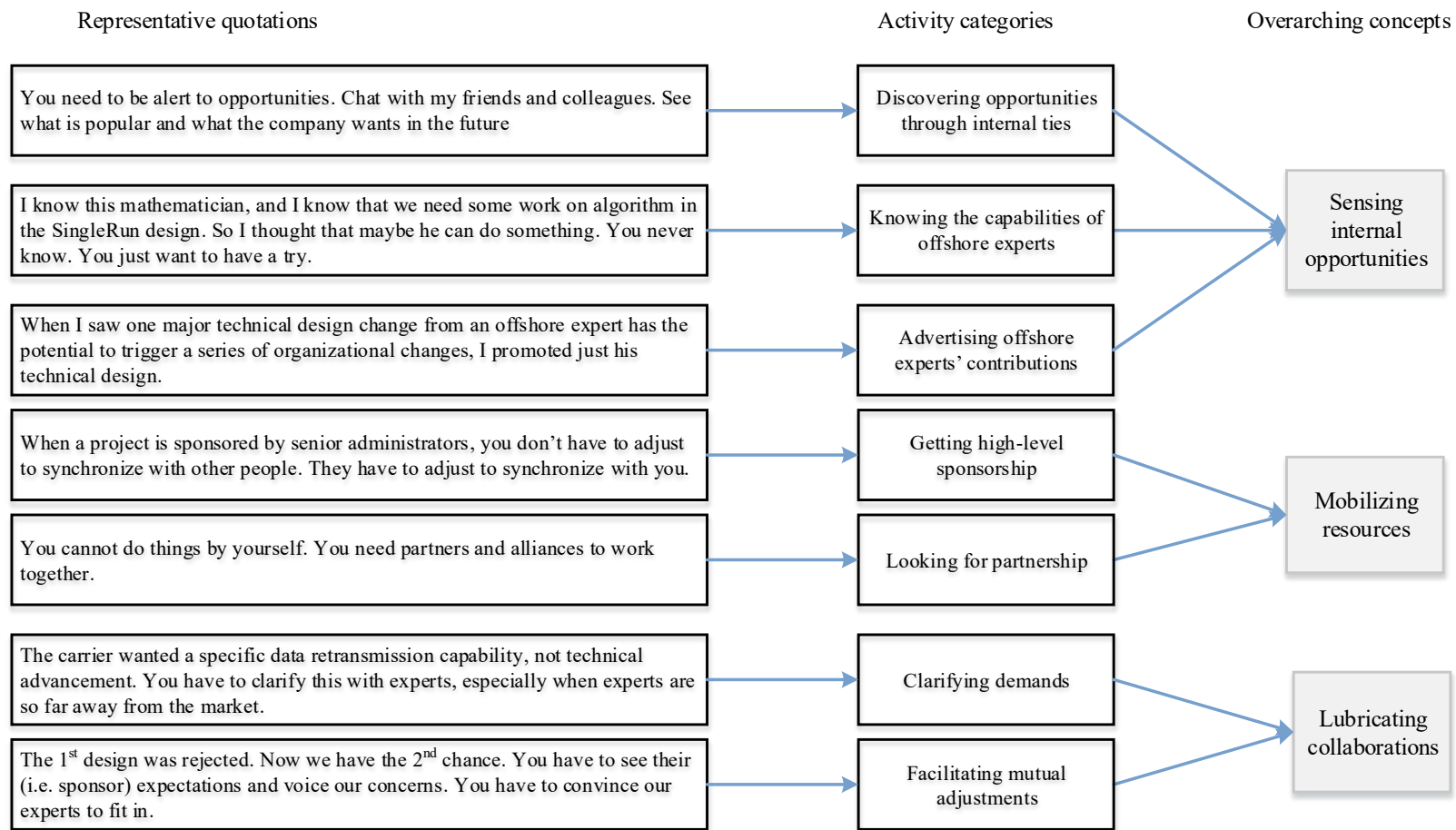


Figure 5. Dynamic matching as recombination

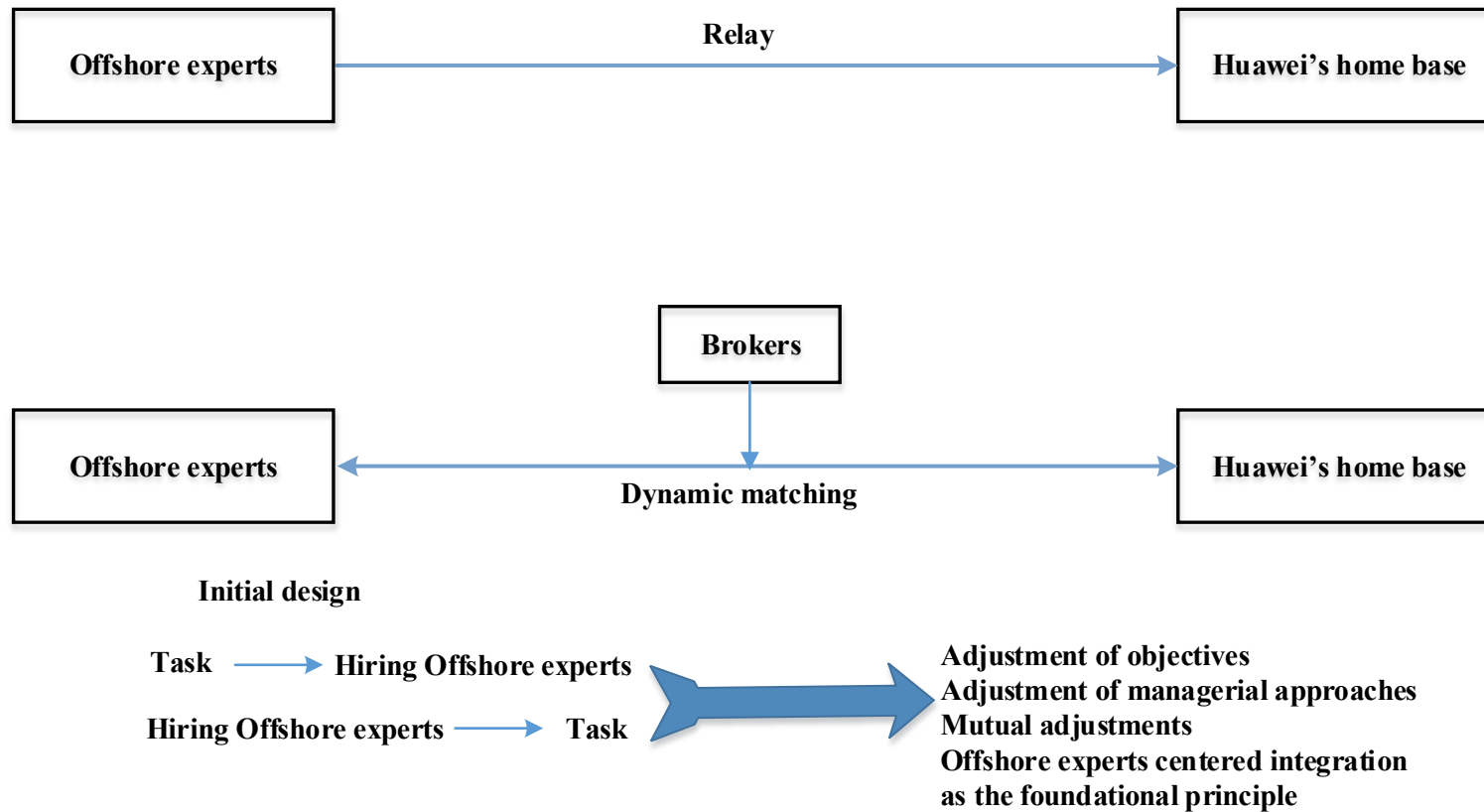


Figure 6. Perspectives in analyzing offshore experts' contribution

	Individual level analysis	System level analysis
Success	1. Heroic	2. Add products; increase diversity
Failure	3. Failed efforts	4. Remove trajectories

WHAT INFLUENCE HANOI APARTMENT PRICE BUBBLE FROM 2010 TO 2021?

Lan Phuong Le
Anh Tuan Do
Anh Ngoc Pham

Abstract

This study focuses on testing the existence of apartment price bubble in Hanoi (Vietnam) and determining the factors affecting it in the period 2010 - 2021. Using the fundamental factor approach, the authors apply VAR regression with time series data, specifically using ADF unit test to test the stationarity of the variables; basing on the criteria AIC (Akaike), LR (Likelihood Ratio), FPE (Final prediction error), HQ (Hanan-Quinn information criterion) and Schwarz (SC) to find the optimal lag (Lag) for the model; applying Granger Causality test to determine the correlation of economic variables appearing in the model with the PR index; presenting the results of the research model through the push response function and the variance decomposition to consider and evaluate the impact of the PR index shock to itself and other variables. Although literature includes many researches familiar to this, there has previously been no research focusing on analysing whether or not the influence of variables such as per capita income, urbanization rate on the formation of real estate bubbles, especially in Hanoi, an important part of the Vietnamese real estate market. This paper aims to fill this gap and contributes to the references of Hanoi real estate market and influencing factors.

Keywords: *apartment price bubble, real estate bubble, influencing factors, Vietnam real estate market*

JEL Code: G10, G12, G32

1. Introduction

Hanoi - Vietnam's capital – is a political, economic, cultural and social centre with a large population density, ranking second in the country. Along with the development and urbanization, the demand for housing is always high, so it is important to pay close attention to the situation of the real estate market, as well as to stabilize the price of this market which has a close relationship with stabilizing people's lives and a healthy growth of the economy.

Moreover, we witness a fact that real estate prices in Vietnam in general and in Hanoi in particular are very high, making this market profitably attractive to not only large corporations, companies, businesses, but also individuals and households, especially in the context of a bank interest rate decrease during Covid-19 pandemic when investors want to find another channel to invest and increase profits. Foreign investment enterprises such as Dragon Capital, Vina Capital Foundation are among the investing enterprises of real estate market during the period 2019-2021. Thus, speaking of real estate supply, sources of investment capital

as well as participants are abundant. According to the theory of supply and demand, when the supply increases, the price should decrease. In addition, in the context of the pandemic, when economic growth prospects slow down, people find it harder to find stable jobs, housing prices will fall deeply.

In contrast, in the report on the real estate market situation in the fourth quarter of 2021 of the Ministry of Construction, the prices of residential housing and land plots have continued to increase since the beginning of the year 2021. For example, there were times at the end of the first quarter and the beginning of the second quarter of 2021, when there was a phenomenon of land fever in some areas around Hanoi: prices in Quoc Oai increased by 20%, Ba Vi 45%, Bac Ninh 20%, Hung Yen 26%, etc. This raises the question of whether there is a bubble in the Hanoi real estate market. And based on actual data, the Real Estate Market Report for the first quarter of 2022 of the Vietnam Real Estate Brokers Association also confirms the existence of local bubbles when house prices increase but liquidity does not increase commensurately.

On the other hand, when real estate prices are increasing abnormally high, it will lead to a large amount of people's money flowing into this market in an uncontrollable manner. Moreover, the lack of knowledge, lack of factual basis, lack of research, profit-seeking, and crowd psychology shows inefficiency and potential risks. According to the Vietnam Real Estate Association, real estate is an important part of the economy, closely linked with 40 other industries, and accounts for 13.6% of the country's GDP. The above analysis raises the problem that without early forecasting with close and tight management from the regulatory authorities, only a sign of negative volatility of this market will be enough to drag the whole economy down.

For the above reasons, we realize the importance of studying the factors affecting the formation of real estate prices in Hanoi. Due to data collecting ability, the study team cannot collect data on all components that make up the whole real estate market of Hanoi area, so we will focus on apartments, an important typical representative of the Hanoi real estate market.

The purpose of the article is to determine the factors affecting the price of apartment in Hanoi in the period 2010 - 2021, and to analyse the influence of these factors. Along with that, based on the research results, the authors point out whether there is an apartment price bubble in Hanoi in the period 2010-2021. Finally, the authors make some discussion and implications, which can be the basis for regulators to build a developed, healthy, transparent real estate market and for businesses, organizations and individuals working in the real estate market, helping them make accurate investment decisions and reduce risks from this market.

Collecting secondary data on a quarterly basis, from 2010 to 2021, the study applies the VAR vector autoregressive model to test the relationship between gross domestic product (GRDP), consumer price index (CPI), real estate loan outstanding (DUNO), foreign direct investment (FDI), urbanization rate (DOTHIHOA), per capita income (BQDN) and price index

(PR) – which is calculated by Apartment Price/Rent. After collecting, the data is processed using the data processing software Eviews 12. Thereby, the study examines the two-way relationship between the variables mentioned above in the process of forming the apartment price bubble in Hanoi.

2. Literature Review

2.1. Concept of real estate bubble

Kindleberger (1987) defines an asset bubble as a sharp rise in prices over a continuous period, with the initial rise creating additional expectations and attracting new buyers, generally speculators, who are more interested in profits from trading an asset than in the ability to use or generate income from it.

Yukio Noguchi (1994) defines the real estate bubble as the difference between the market house price and the theoretical house price. Real house prices are a discount of the present value of future rentals, while theoretical house prices (or expected house prices) are discounts on the expected economic benefits over the process of owning it.

Marc Labonte (2005), said that the real estate bubble appeared due to reasons that could not be explained by basic supply and demand factors. Explaining this, he points out that the determinants of real estate supply and demand are uncertain and unpredictable. If a real estate bubble could be pinpointed, the market would react by selling to avoid future losses that would result in the fact that the bubble unable to occur or develop.

According to Christopher Mayor (2011), a real estate bubble is a type of economic bubble in the local or global real estate market, which is cyclical, followed by a boom, stemming from excessive expectations in housing price increases. In particular, land fever is a rapid increase in the real estate market price until it reaches a point where the market can no longer sustain and then declines.

Le Thanh Ngoc (2014) defines a real estate bubble as a state of the market when the expectation that real estate prices will continue to increase in the future, making demand and real estate prices increase with high speed, lasting for a period of time. The price far exceeds the basic value, and at the same time exceeds the affordability of many people with real needs to buy a home to live in. After a period of an increase in housing prices, the market has a fundamental adjustment in value.

On the basis of the above definitions, the authors define a real estate bubble as an abnormally strong and continuous increase in real estate prices, which accumulates for a period of time, stemming from the expectation that prices will continue to increase in the future, ignoring the basic law of supply and demand of the market and other economic factors such as the actual income of people in need, or income brought about by exploiting that real estate. There comes a time when there is any doubt about the market price of the property and its true

value, or when a certain number of buyers can no longer afford it, the market will react. By selling off, the price of real estate will drop very quickly to bring the property back to its true value, leading to a freeze or a market crash. At this time, a chain reaction will take place, the impact of the bubble burst will spread to other related industries.

2.2. Real estate bubble defining approaches

Previous studies show that there are two popular common methods used to determine whether there is a real estate bubble in the market, namely the fundamental value approach and the fundamental factor approach.

Fundamental value approach derives from the definition of the difference between actual and theoretical house prices as evidence of a bubble existence. Here, the theoretical house price (some studies use the word “base house price”) is equal to the discounted sum of cash flows resulting from the exploitation and use of the property. Specifically, according to Caspi (2016), the larger the difference between these two values, the clearer the presence of a real estate bubble in the market.

The assumption of the method is that (1) the economic benefits derived from owning, exploiting and using real estate are either from the rent or some value converted to rent; (2) rent is fixed over time; (3) real estate is a long-term ownership property – meaning it has no resale value at any point in time. In the case of real estate being resold, the resale value is calculated at the underlying value of the property at that time. Since real estate is an investment asset, the discounted cash flow formula will be used to determine the relationship between the price of the property and the income stream (Muellbauer et al., 2008), specifically the total cash flow. The discount is:

$$P_t = \sum_{k=1}^{\infty} \frac{R_k}{(1+r)^k}$$

Real estate rent is partially set aside for depreciation. After a certain period of exploiting and using the property, this amount of depreciation will be used for repairing and rebuilding in order to maintain the permanent existence of the real estate. In the formula, the rent R is a known measure, while to calculate the r , we can rely on the analysis of the risk premium of real estate rent, or the estimate of the return rate of property rent. Given the results of R and r , we can calculate the maximum value of P_t which is P_t^{max} , which is called property’s basic value limit. Thereby, combined with the actual observations in the market, we have the actual price P_{real} . In case P_{real} exceeds P_t^{max} , it can be concluded that there is a bubble in the market and vice versa.

According to Mikhed et al (2008), the weakness of the above method lies in the fact that the risk of renting activities is higher than the risk of saving at banks. Risks in leasing activities include the risk of the lessee's contract cancellation, the vacancy period while finding a new tenant, and the decrease in rental prices due to unfavourable factors or force majeure factors

that can not be predicted in advance. In practice, when the bubble size is small, this method can lead to inaccurate conclusions. Bias can be quite large in calculations and estimates can also affect this.

The basic factor approach was proposed by Case and Shiller (2003). According to Mikhed et al (2007), there is a strong relationship between real estate prices and economic factors such as average income and real estate rental. This relationship is shown through the stationarity test on real estate price-to-rent or real estate price-to-household income indexes. According to the study, there exist 4 cases with the results of the stationarity test of the above-mentioned indicators, of which there are 2 cases and 1 possibility of finding bubbles, namely:

- Real estate prices and rents (or incomes) are both stationary series: with this, property prices and rents (or incomes) are constants over the time, which suggests that there is a real estate bubble.

- Real estate prices are stationary series but rents (or incomes) are non-stationary series: in this case property prices do not change over time while rents (or incomes) increase over time, indicating that real prices of real estates are lower than intrinsic value, and no bubbles exist.

- Real estate prices are a non-stationary series while rents (or incomes) are stationary series: then the real estate value is greater than its fundamental value, indicating that a real estate bubble exists.

- Real estate prices and rents (or incomes) are both non-stationary series: then we need to further test the stationarity of the House Price/Rent (or House Price/Income) index. If the index is stationary, the market does not have a bubble, otherwise there will be a bubble in the real estate market.

2.3. Literature review on real estate bubble existence

In the world

Kim et al (1993) used a VAR model with a series of quarterly data for Korea and Japan during 1974-1989. Through analysing the influence of speculation on the House Price/Rent Index, the study shows the existence of real estate bubbles in these two countries.

Different studies in China demonstrate unsimilar findings about the time and the venue of bubble existence and explosion. Chen et al. (2013) have tested the existence of a housing bubble in the Beijing market from 1998 to 2010. The study uses the VECM model proposed by Coleman et al (2008) with interest rate, inflation, GDP and cost of supply as variables. The research results of the authors show that there is a clear existence of a housing bubble in the Beijing real estate market when the house price index there is significantly larger than the equilibrium value in from 2004 to 2007.

Tie-Ying Liu et al (2016) performed a large-scale test with data of 70 Chinese cities. The

study applied the ADF test proposed by Phillips et al (2015) to determine the beginning and the ending time of the speculative bubble in the housing price from 2006 to 2013. The results show that about 25% of the bubbles have burst as of December 2013, while the central-level city bubbles did probably not burst due to urbanization, which caused increased housing demand and disparity between occupational structures and average incomes in urban and rural areas.

Zhou et al (2006) used a methodology developed by themselves, with the 2005 and 2006 data sets of the Northeast, Midwest, South and West regions of the USA. The results showed that the 22 states with the existence of a real estate bubble are still developing. From the analysis of the S&P 500 Housing Index, the authors pointed out further bubble possibility that could occur around mid-2006.

Nneji et al (2011) used VAR model to test two real estate bubbles, intrinsic and speculative bubbles, based on the data series from 1960 to 2011 in the US states. In the study, the authors divided this large period into 2 separate time periods to consider: from 1960-1999 and 2000-2011. The results showed that in the second period, speculative bubbles existed.

Itamar Caspi (2016) conducted research on the basis of concerns about the bursting of the real estate bubble in Israel based on specific data from 2008 to 2013, house prices in Israel increased by about 50% on a year-over-year basis, with increases of nearly 60% in some regions of the country. The study uses data collected from 9 regions from 2008 to 2013 to build an econometric model between the House Price/Rent ratio and variables including interest rate, income and financial leverage. They find the emergence of a housing bubble in the period 2008 - 2013 and the impact of rents and lending rates on real estate price changes in this country.

Coskun et al (2017) conducted the first study using two house price indices PI (House Price/Income) and PR (House Price/Rent) and the ADF test to analyse the housing bubble in Turkey during two different time periods, first from January 2010 to December 2014 and second from June 2007 to December 2014. By using OLS, FMOLS, DOLS, filter models Kalman and ARIMA, the research shows that the Turkish housing market has experienced some cases of overvalued, but not bubble formation.

In Vietnam

Le Thanh Ngoc (2014) has carried out qualitative research using VAR model with data series in Ho Chi Minh City area from the first quarter of 2004 to the second quarter of 2013. According to the author, there's a fact that house prices increased sharply and remained for a long time, exceeding rents, leading to the expectation that the price increase will continue to increase in the future. This together with the large capital inflow from other sources made real estate prices increase rapidly, which was the cause of the housing bubble in the study period.

Research by Bui Ngoc Toan et al (2018) and Phan Hoang Long (2020) also based on the VAR model to check the existence of a housing bubble in the Ho Chi Minh City market on

the housing market in Ho Chi Minh City, with different time period, from 2009 to 2017 and from 2005-2018. The research results confirm the existence of a real estate bubble in Ho Chi Minh City in the research period with the apartment segment.

Meanwhile, Dao Huu Hoa (2013) applied qualitative method to analyse real estate supply and demand and the factors affecting them, in association with actual market situation. The author has clarified the mechanism of setting real estate price, and from there confirmed the existence of a bubble in the real estate market in Vietnam. Using the same method, there are studies by Tran Le (2020), Bao Bao (2021) on the Ho Chi Minh real estate market which give similar conclusions.

Truong Quang Hien et al (2018) quantified factors such as location, shape of land, direction, purpose of use, ... of the housing market in Bong Son, Hoai Nhon, Binh Dinh to establish house pricing model for each region in the area. From there, the author compares with actual housing price data on the market as a basis to confirm the existence of a housing bubble. Using the same method, the study Pham Huu Ty et al (2015) on urban land prices in Ha Tinh, Dao Ngoc Mai (2018) on the Thai Binh real estate market in the period 2015 - 2018 also concluded about the existence of bubbles.

2.4. Literature review on factors affecting real estate bubbles

As analysed in the previous section, the most obvious fact and also the keyword that defines a real estate bubble is the sharp and continuous increase in real estate prices over a period of time. According to Case and Shiller (2003), for such a price increase to occur, there must be economic signals to increase people's expectations about future real estate prices. In other words, there should be "bait" factors for the real estate bubble to form and expand. From reality and related researches on domestic and international real estate bubbles, the authors summarize the factors affecting the bubble formation according to the following table and summarizes the explanations in the studies as follows:

Table 0.1: Summary of factors affecting the real estate bubble in previous studies

Influencing factors Research by	GDP (GRDP)	CPI	FDI	Monetary policies
Yanbing (2012) Chen et al (2013) Zhang (2012)	GDP↑ → income ↑ → Saving↑ → real estate investments ↑ → Real estate prices ↑			
Ting Lan (2014)		Inflation → rent prices ↑ → real estate prices ↑		
Amonhaemanon et al (2013) Wadud et al (2012)		Inflation↑ → the economy is stifled → Suppressing the rise in housing prices		
Pillay et al (2008) Kuang & Liu (2015)		Inflation and real estate prices have a two-way relationship		
Yanbing (2012)			FDI ↑ → real estate prices ↑	
Wong (2001)			Foreign	

			capital liberalization → Real estate projects have easy access to capital → oversupply and increase in real estate prices	
Tsatsaronis & Zhu (2014)				Lending rates explain 10.8% of the change in house prices. When interest rates are floating, short-term rates have a stronger impact on house prices than long-term rates
Xu và Chen (2012)				When lending interest rates are low, money supply M2 expands, then house prices increase and vice versa.

Source: Authors compilation

2.5. Research gap

Currently, issues related to the real estate market have been and will continue to receive the attention of many researchers and managers around the world. In fact, there have also been

many domestic and foreign studies analysing, discussing and testing the existence of the real estate bubble as well as the factors affecting the real estate bubble. However, there has been no research focusing on Hanoi - a large and important real estate market of Vietnam in a specific, up-to-date period. In addition, there are no studies analysing whether or not the influence of variables such as per capita income, urbanization rate on the formation of real estate bubbles.

Therefore, this article will address the above research gap, with the aim of providing references for studies related to the real estate bubble or the factors affecting the real estate bubble in the real estate market. future.

3. Research model and methodology

3.1. Analysis framework

Based on the reality of real estate bubbles in Vietnam and internationally, as well as from the results of domestic and international studies mentioned and discussed in part 2, the study using the vector autoregressive VAR model and refer to the work of Kivedal (2012) to estimate and calculate the impact of independent variables on the formation and development of the apartment price bubble in Hanoi from the first quarter of 2010 to the fourth quarter of 2021.

The independent economic variables used from previous studies include: Gross Domestic Product (GRDP), Consumer Price Index (CPI), Real Estate Loan Outstanding (DUNO), Foreign Direct investment in the real estate market (FDI). At the same time, the authors add 02 variables that have not been found in previous studies, namely Urbanization Rate (DOTHIOA) and Per capita Income (BQDN). They are used to evaluate the relationship with PR variable - the dependent variable representing the bubble of apartment price in Hanoi real estate market.

Figure 01: Factors affecting Hanoi apartment price bubbles



3.2. Theoretical framework

Of the two methods of identifying bubbles, the basic value approach has a limitation in that it is used when the market has seen a clear signal of a real estate bubble. On the contrary, when the market has an unclear indication of bubble or when the level of bubbles is low, the results obtained from the basic value approach may be misleading, so this method will be difficult to confirm the existence of real estate bubbles on the market.

Because of that, in this study the author will use the fundamental factor approach, namely the PR index (House Price/Rent) to confirm the existence of a bubble and consider the relationship between basic economic variables and the change of real estate prices in the apartment segment in Hanoi during the research period.

- The method of calculating the PR index in this study is specifically considered as follows:

$$PR = \frac{\text{Apartment price}}{\text{Apartment rent}}$$

In which:

The Apartment price is the average apartment price on a quarterly basis

Apartment rent is the average quarterly rent for an apartment.

Specifically, in reality, the apartment segment is currently divided into three classes with different price levels. Circular 31/2016/TT-BXD has listed three classes as Class A, B and C respectively with the specific criteria specified in Clause 2, Article 3 and Article 6. To be consistent with the legal regulations as well as the situation in the market, the authors calculate the weighted average price based on the transaction proportion of each above-mentioned apartment class. In summary, the specific calculation method for Apartment Price and Apartment Rent in the PR formula is as follows:

$$\text{Apartment price} = \sum x_{m,t} \cdot P_{m,t}$$

$$\text{Apartment rent} = \sum y_{m,t} \cdot R_{m,t}$$

In which:

$x_{m,t}$ is the proportion of apartments of class m traded in the quarter t compared to the total number of Apartments on the market.

$P_{m,t}$ is the average price of the m-class apartments in the quarter

$y_{m,t}$ is the proportion of apartments of class m that are rented in the quarter compared to the total number of apartments on the market.

$R_{m,t}$ is the average rent price for the m-class apartments in quarter t.

- Examining the relationship between the series Property Price (Apartment Price) and Apartment Rent (Rent):

With the assumption of the VAR model and the approach used in this study, apartment rent is the income brought from the process of exploiting apartment value. In other words, it is the factor that brings basic value for the apartment. In the case of a high PR index, based on the above formula, it can prove that the apartment price exceeds the basic value of it. Furthermore,

in the long run, apartment rents reflect the amount of its value. According to Kindleberger (2015), if PR is abnormally high compared to its average value in the long run, it is evidence of a bubble in the market. Conversely, if there were no bubbles in the market, there would be a strong relationship between prices and rents. To identify this relationship, we will use the test ADF developed by Phillips et al (2013) to test the stationarity of the PR series, or we can test the cointegration between the two data series.

3.3. Methodology and Econometric model

Using the fundamental factor approach, the authors apply VAR regression with time series data for the period from the first quarter of 2010 to the fourth quarter of 2021, with reference to the research of Le Thanh Ngoc (2014) and Phan Hoang Long (2020). Specific steps include:

- Using ADF test through unit test to test the stationarity of the variables included in the research model.

- On the basis of criteria AIC (Akaike), LR (Likelihood Ratio), FPE (Final prediction error), HQ (Hanan-Quinn information criterion) and Schwarz (SC) to find the optimal lag (Lag) for the model.

- Granger Causality test to determine the correlation of economic variables in the model with the PR index.

- Presenting the results of the research model through the push response function and the variance decomposition to consider and evaluate the impact of the shock from the change in PR index to itself and other variables. Specifically, when delving into the model analysis, this research applies the push response function and the variance decomposition according to the Recursive Cholesky method of Christopher Sims (1980).

The application of the push-response function is to clarify the present and future effects of a shock of one variable on another variable, with the magnitude of the shock being the one-unit change in the variable's standard deviation. In details, when a shock occurs affecting exogenous variables, the influence will be spread to endogenous variables through the structure of the autoregressive vector model, and unstructured residual estimates are simultaneously interrelated.

Because of the above reason, it is necessary to avoid the spurious effect caused by the residuals' correlation. This can be done by adding constraints to the research model so that the effects of the common random factors are shown for one of the model's variables. Then, the conduction effects will be suppressed and the response functions in the model will be reasonably determined.

Meanwhile, the application of variance decomposition aims to cover the asymmetries of the autoregressive vector model and determine the causal order between the variables that

needs to be established into the model.

In the scope of this study, the push-response function and the variance decomposition are applied in order to evaluate the impact of the change (caused by the shock) from the PR variable to itself and to the other variables including GRDP, CPI, DUNO, FDI, DOTHIOA and BQDN.

Also according to the research results of Christopher Sims (1980), the relationship between the variables in the autoregressive vector model can also be a 2-way causal effect. This means that in some cases, variables happen to interact with each other. Thus, to evaluate the full interactions between variables, it is not possible to have only one econometric equation, but there will be many equations. The variables this study are PR, CPI, GRDP, DUNO, FDI, DOTHIOA, BQDN. In summary, the authors apply VAR to analyse the mutual influence between the variables listed above, then the econometric models are developed specifically as follows:

$$(1) PR_t = \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} + \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIOA_{t-i} + \sum \sigma_{1i} BQDN_{t-i} + U_{1t}$$

$$(2) GRDP_t = \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} + \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIOA_{t-i} + \sum \sigma_{1i} BQDN_{t-i} + U_{2t}$$

$$(3) CPI_t = \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} + \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIOA_{t-i} + \sum \sigma_{1i} BQDN_{t-i} + U_{3t}$$

$$(4) DUNO_t = \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} + \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIOA_{t-i} + \sum \sigma_{1i} BQDN_{t-i} + U_{4t}$$

$$(5) FDI_t = \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} + \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIOA_{t-i} + \sum \sigma_{1i} BQDN_{t-i} + U_{5t}$$

(6) $DOTHIHOA_t$

$$\begin{aligned} &= \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} \\ &+ \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIHOA_{t-i} \\ &+ \sum \sigma_{1i} BQDN_{t-i} + U_{6t} \end{aligned}$$

$$\begin{aligned} (7) BQDN_t &= \alpha_{1t} + \sum \beta_{1i} PR_{t-i} + \sum \delta_{1i} GRDP_{t-i} + \sum \gamma_{1i} CPI_{t-i} \\ &+ \sum \varepsilon_{1i} DUNO_{t-i} + \sum \mu_{1i} FDI_{t-i} + \sum \rho_{1i} DOTHIHOA_{t-i} \\ &+ \sum \sigma_{1i} BQDN_{t-i} + U_{7t} \end{aligned}$$

In those models:

$\alpha, \beta, \rho, \delta, \gamma, \varepsilon, \mu$: estimated coefficients

U: random error

3.4. Research data

All the data series below are taken for time period from the first quarter of 2010 to the fourth quarter of 2021.

We describe how the variables are collected and calculated in table 2 belows

Table 2: Variable description

No.	Variable	Description	Unit	Source of Data
1	PR	Apartment price/apartment rent in Hanoi	point	- reports and announcements of the Ministry of Construction - market reports of Savills Vietnam - VARS report
2	GRDP	Gross Domestic Product in Hanoi	VND billion	Monthly Socio-Economic Situation Report released by Hanoi Statistics Office and Vietnam General Statistics Office
3	CPI	Consumer Price Index of Hanoi	%	- Annual Socio-Economic Situation Report from the Hanoi Statistics Office and the General Statistics Office of Vietnam

				- Governmental electronic information portal
4	DUNO	Outstanding loans for real estate in Hanoi	VND billion	-Housing and Real Estate Market Management Department under the Ministry of Construction.
5	FDI	Foreign Direct Investment in Hanoi	USD million	- reports of Hanoi Statistics Office - the General Statistics Office of Vietnam - website of Hanoi Department of Planning and Investment
6	DOTHIHOA	Urbanization rate in Hanoi=urban population over total Hanoi population divided by urban area over Hanoi area	%	- reports of the Hanoi Statistical Office - the General Statistics Office of Vietnam - Labor Newspaper
7	BQDN	Per capita income in Hanoi	VND	Hanoi Statistics Office and the General Statistics Office of Vietnam

4. Research Results

4.1. *Stationarity test of the data series and confirm the existence of a real estate bubble*

Table 3: Testing the stationarity of the data series

No	Variable	P-value (0)	P-value (1)
1	PR	0.9946	0.0000
2	GRDP	0.3704	0.0000
3	CPI	0.5480	0.0000
4	DUNO	0.3398	0.0000
5	FDI	0.4806	0.0000

6	DOTHIHOA	0.5452	0.0000
7	BQDN	0.0521	0.0000
8*	PRICE	0.6103	0.0000
9*	RENT	0.4534	0.0000

**Price and Rent series are not included in the model*

The test results show that the 7 series in the original sequence are not stationary at the 5% level and their first-difference sequences are all stationary at the 5% significance level. Therefore, in the analysis from now onwards, the first difference series of the original variables is used and the corresponding variable symbols become D(PR,1), D(DOTHIHOA,1), D(CPI,1), D(DUNO,1), D(FDI,1), D(BQDN,1) and D(GRDP,1). On this basis, VAR model and push response function are built and variance decomposition analysis is performed.

The results from the above table also confirm that the series of Apartment Price and Rent and variable PR are both non-stationary series. On that basis, as analysed in part 2, we can conclude: in the research period, there was a bubble in the Hanoi apartment market.

4.2. Lag selection for model

In quantitative researches using VAR model, in fact, many studies have applied different methods to choose the optimal lag for the model. In the scope of this study, the authors present VAR Lag order selection criteria to find the optimal lag. On that basis, the optimal lag for the research model of 4 is selected to perform the VAR model estimation and the Granger Causality test.

4.3. Results of econometric models and Granger Causality test

Since the optimal lag for the model has been selected as 4 as above, we perform the Granger Causality test with the assumptions H0 for the results presented in table 4 below.

Table 4: Granger causality test

Hypothesis H0	Chi-sq	Prob.	Lag
(PR,1) has no impact on D(DOTHIHOA,1)	0.952121	0.9170	4
D(DOTHIHOA,1) has no impact on D(PR,1)	4.0566888	0.3984	
D(PR,1) has no impact on D(CPI,1)	3.039862	0.5512	4
D(CPI,1) has no impact on D(PR,1)	12.43641	0.0144	
D(PR,1) has no impact on D(DUNO,1)	2.698836	0.6094	4
D(DUNO,1) has no impact on D(PR,1)	2.113713	0.7149	
D(PR,1) has no impact on D(FDI,1)	2.705024	0.6083	4

D(FDI,1) has no impact on D(PR,1)	5.822158	0.2128	
D(PR,1) has no impact on D(BQDN,1)	4.995540	0.2878	4
D(BQDN,1) has no impact on D(PR,1)	6.009508	0.1984	
D(PR,1) has no impact on D(GRDP,1)	5.378107	0.2507	4
D(GRDP,1) has no impact on D(PR,1)	11.26533	0.0237	

Source: an extract from Eviews 12

From the table of the results the conclusion can be made that variables D(CPI,1) and D(GRDP,1) have one-way effects on PR as a typical variable for the apartment price bubble. Specifically, the variable D(CPI,1) has negative effect on the apartment price bubble; while in the long run, the variable D(GRDP) shows a positive influence on the bubble. The PR in the past at a one-quarter lag has a negative effect, then reverses to have the positive effect on the bubble. The other variables did not show statistical significance.

4.4. Testing model stability

The stability of the VAR model was further verified to determine the validity of the impulse response function and the variance decomposition. The figure and table below show each inverse root within the unit circle, which indicates that the ensemble VAR model is stationary. From this it is concluded that there is a significant long-run relationship between the seven variables, which can be further analysed.

Table 0.1: Testing model stability

Roots of Characteristic Polynomial

Endogenous variables:

D(PR,1)

D(DOTHIHOA,1) D(CPI,1) D(DUNO,1)

D(FDI,1) D(BQDN,1) D(GRDP,1)

Exogenous variables: C

Lag specification: 1 4

Root	Modulus
0.623284 + 0.713240i	0.947203
0.623284 - 0.713240i	0.947203

$0.118467 - 0.923194i$	0.930764
$0.118467 + 0.923194i$	0.930764
$-0.018033 - 0.925769i$	0.925944
$-0.018033 + 0.925769i$	0.925944
$0.287991 + 0.870506i$	0.916908
$0.287991 - 0.870506i$	0.916908
$-0.325712 - 0.849563i$	0.909860
$-0.325712 + 0.849563i$	0.909860
$-0.536270 - 0.715571i$	0.894219
$-0.536270 + 0.715571i$	0.894219
$-0.889668 - 0.009588i$	0.889720
$-0.889668 + 0.009588i$	0.889720
$-0.800291 - 0.333327i$	0.866932
$-0.800291 + 0.333327i$	0.866932
$-0.718737 + 0.470346i$	0.858958
$-0.718737 - 0.470346i$	0.858958
$0.601550 - 0.586087i$	0.839857
$0.601550 + 0.586087i$	0.839857
$-0.578666 - 0.578443i$	0.818200
$-0.578666 + 0.578443i$	0.818200
$0.772773 - 0.088272i$	0.777798
$0.772773 + 0.088272i$	0.777798
$0.381508 - 0.598614i$	0.709850
$0.381508 + 0.598614i$	0.709850
0.597446	0.597446
0.014321	0.014321

Inverse Roots of AR Characteristic Polynomial

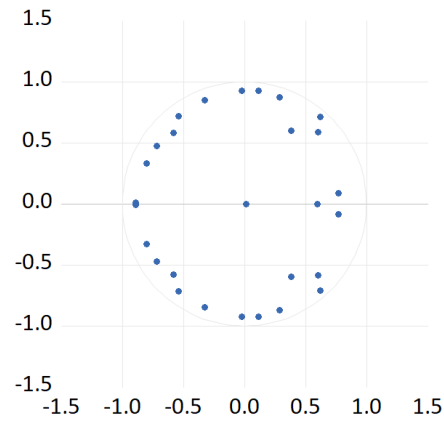


Figure 2: Testing model stability

Source: Extract from Eviews 12

4.5. Residual autocorrelation test

With the selected optimal lag of 4, the significance level of 5%, the table of test results below shows that the model does not have residual autocorrelation.

Table 6: Residual autocorrelation test

VAR Residual Serial Correlation LM Tests

Sample: 2010Q1 2021Q4

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	df	Prob.	Rao F-stat	df	Prob.
1	63.01161	49	0.0861	1.114640	(49, 9.5)	0.4611
2	54.83683	49	0.2629	0.827520	(49, 9.5)	0.6896
3	94.05676	49	0.0001	3.158496	(49, 9.5)	0.0303
4	66.20756	49	0.0511	1.247707	(49, 9.5)	0.3776
5	65.38111	49	0.0588	1.212052	(49, 9.5)	0.3984

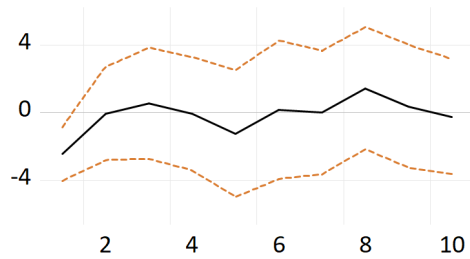
Source: Extract from Eviews 12

4.6. Result of push response function

4.6.1. DOTIHOA's reaction to PR shock

DOTHIHOA reacts strongly to PR shock with a lag of about 2 periods. The cumulative response level gradually decreased and approached 0 from the 8th period.

Figure 2: DOTHIHOA's reaction to PR shock

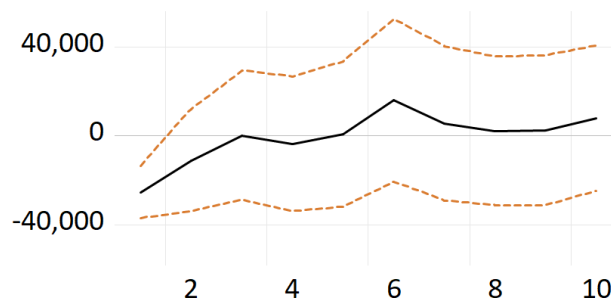


Source: Extract from Eviews 12

4.6.2. DUNO's reaction to PR shock

DUNO reacts strongly to the strong impact of the PR shock. Accumulation peaked in the 6th period and then started to decrease. This result is consistent with the fact that most of the outstanding loans for real estate in Vietnam exist when the real estate bubble was forming and expanding.

Figure 3: DUNO's reaction to PR shock

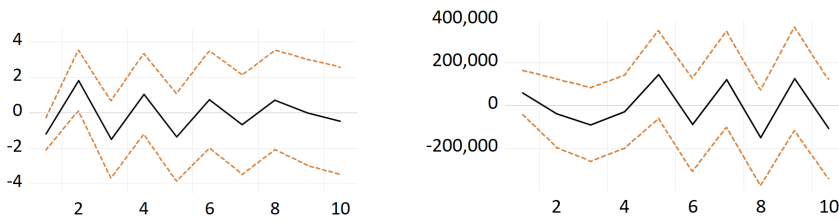


Source: extract from Eviews 12

4.6.3. CPI and GRDP's reaction to PR shock

The two variables CPI and GRDP have different responses to the PR shock at the early stage. With CPI, the lag is about 2 periods, lasts until the 8th period and gradually goes to 0. This is consistent with the study of Chen et al (2013) when concluding that people have a choice to invest in any real estate to avoid currency devaluation. With the GRDP variable, the lag is about 3 periods. It lasts until the 9th period and then gradually decreases towards 0. In fact, the real estate bubble has the effect of stimulating economic growth in an unsustainable way by making a large amount of capital pour into the market to create and build new projects, pulling the other industries to develop together.

Figure 4: CPI and GRDP's reaction to PR shock

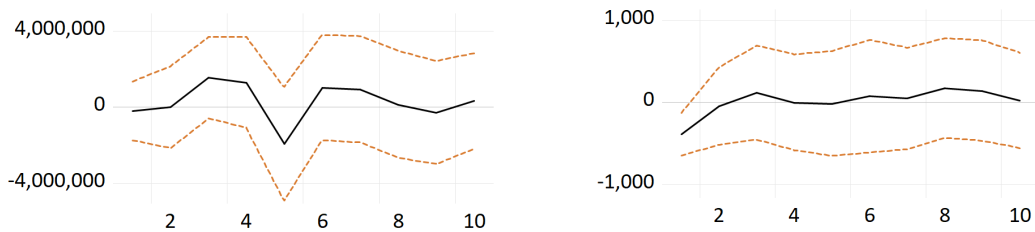


Source: extract from Eviews 12

4.6.4. BQDN and FDI's reaction to PR shock

Both factors have a delay of about 3 periods but the response is completely different. BQC has cumulated until the 6th period then gradually decreases towards 0, while FDI has relatively little impact from the PR shock, its accumulation peaks in the 8th period and then gradually decreases towards 0.

Figure 5: BQDN and FDI's reaction to PR shock

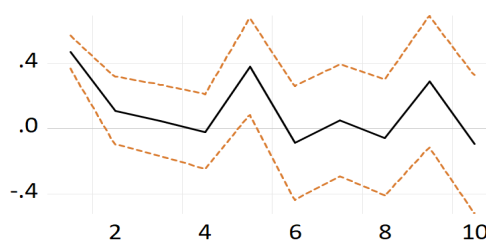


Source: extract from Eviews 12

4.6.5. PR's reaction to PR shock itself

The real estate bubble is strongly affected by its own shock, with a lag of about 2 periods. According to Shiller (2000), economic signs such as high growth rate, low inflation, high employment rate, loose monetary policy, etc. in the previous period will drive overoptimism in the real estate price increase and in fact real estate prices really go up then. On the other hand, this price increase will cause speculators to actively pump money into the real estate market, creating a loop that causes the market to bubble (Case and Shiller, 1989).

Figure 6: PR's reaction to PR shock itself



Source: extract from Eviews 12

4.7. Variance decomposition results

In essence, analysis of variance shows the significance of different structural shocks through the effects of endogenous variable changes. It derived from the effects of each structure at different levels of contribution and it can visually show the degree of mutual influence of endogenous variables. Analysis of variance can describe the relative importance of shocks to PR through dependent variables. The method applied in this study to decompose variance is Sim (1980) Recursive Choleski method. The analysis results are as follows.

Table 7: Variance decomposition results

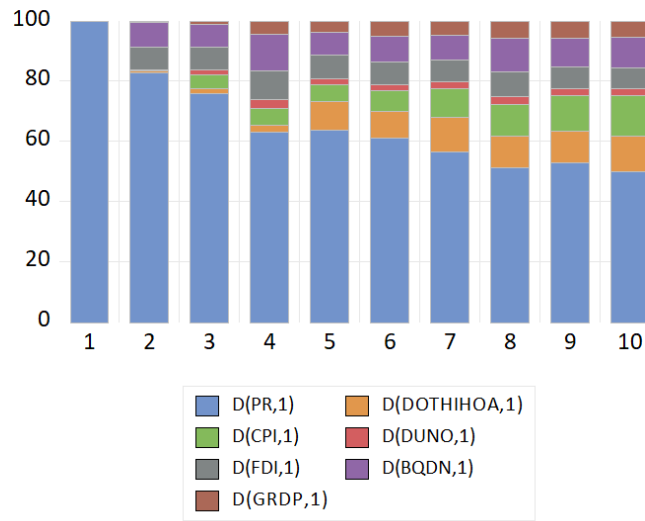
Variance Decomposition of								
D(PR,1):								
Period	S.E.	D(PR,1)	D(DOTHIHOA,1)	D(CPI,1)	D(DUNO,1)	D(FDI,1)	D(BQDN,1)	D(GRDP,1)
1	0.470143	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.531060	82.73342	0.549515	0.016786	0.338140	7.629655	8.085294	0.647189
3	0.557485	75.87846	1.672718	4.364637	1.670131	7.807235	7.409115	1.197705
4	0.612371	62.98188	2.233646	5.651761	3.118160	9.419799	12.26990	4.324850
5	0.773285	63.60944	9.663986	5.573109	1.958432	7.722619	7.743515	3.728895
6	0.798280	60.86741	9.125076	6.672279	2.266979	7.263015	8.674262	5.130978
7	0.832829	56.30208	11.56291	9.634049	2.272027	7.166799	8.281874	4.780259
8	0.877757	51.09275	10.73964	10.38446	2.531956	8.175345	11.41541	5.660432
9	0.951778	52.67370	10.61314	11.88506	2.329737	7.116166	9.714138	5.668050
10	0.987417	49.82751	11.72326	13.66721	2.352721	6.780689	10.20266	5.445948

Source: extract from Eviews 12

The results of variance decomposition show that in the first period, 100% of Hanoi's PR increase comes from itself, showing that PR changes are not related to other variables in the model. In the long run, the improvement of the dependent variable PRICE depends on the effects of other variables, such as DOTHIHOA, CPI, FDI, DUNO, BQDN and GRDP. For example, in the 5th period, Hanoi's PR itself contributed 63.60%; DOTHIHOA 9.66%; CPI 5.57%; DUNO 1.95%; FDI 7.72%; BQDN 7.74% and GRDP 3.72%. In the 10th period, the contribution of each variable to PR growth tends to be stable, the change in PR is 48.82% due to PR itself; 11.72% from DOTHIHOA; 13.66% from CPI, 2.35% from DUNO, 6.78% from FDI, 10.20% from BQDN, and 5.45% from GRDP. A further conclusion can be drawn from the table of variance decomposition results above that these effects are long-term and not immediate.

The chart below will give a better view of the contribution of the variables.

Figure 7: Variance decomposition of D(PR,1)



Source: extract from Eviews 12

5. Discussion

The PR index in the past had negative effect on the apartment price bubble with a 1-quarter lag, then reversed the impact. This is consistent with the psychology of Hanoi people in particular and the psychology of apartment investors in general. When apartment prices increase, they tend to sell to take profits. However, if the expectation that apartment prices will continue to increase in the coming periods is maintained, more and more investors will pour money into this market with the desire to make profits in the future. Excessive expectations and uncontrolled investment will be the premise for the formation of an apartment price bubble as analysed in the previous sections.

GRDP has a positive effect on the apartment price bubble in the long run. This is consistent with what was found by Pillay et al (2008), Yanbing (2012) or Chen et al (2013).

When GRDP increases, presenting an expansion of the economy, a positive belief in a better future economic prospect is formed. On the other hand, this entails the capital surplus in the economy. Depending on different risk appetite, some individuals and households will plan to invest in real estate, driving real estate prices to increase accordingly. Moreover, the supply of real estate has a low elasticity because the process of building or renovating an apartment or a house takes a long time. Therefore, in the short term, a rapid increase in demand can lead to a spike in real estate prices.

Statistical data shows that Hanoi's GRDP growth in the study period has always been positive, even in difficult years heavily impacted by the Covid-19 pandemic (2020, 2021). It is this sustainable growth that has increased people's income, as well as people's expectation for

economic development in general and the real estate industry in particular, maintaining a positive level, contributing to the increase of apartment prices in Hanoi during the study period.

The consumer price index (CPI) has a negative effect on the apartment price bubble. This result is similar to the results in Amonhaemanon et al (2013), Wadud et al (2012). To explain this, when inflation is too high, it first shows an increase in the prices of essential consumer goods in the market, especially bad in the case that people's income levels do not increase accordingly. This will lead to a decrease in financial accumulation among the population classes. Economic difficulties and rising prices force people to tighten spending and limit the money flow into the real estate market because people need to consider financial resources for anything not of essential needs. Thus, high inflation not only affects people's lives, but also influences the real estate market. So, it can be seen that high inflation goes against the formation and development of the apartment price bubble.

DUNO – outstanding loans for real estate reacts strongly to the shock from PR, peaking at period 6 and decreasing gradually, according to the results of the push-response function. This result is consistent with the fact that most of the outstanding real estate loans in Vietnam are in the period that apartment price bubble is forming and expanding. Also according to the results from the analysis of variance decomposition, the variable DUNO contributes up to 3.12% to the increase in real estate prices. In fact, the Government and the State Bank are increasingly concerned with credit capital poured into real estate and strictly control this capital flow, and they always have policies to adjust interest rates appropriately to avoid risks that may arise, not to let interest rates fluctuate and affect the market. Some policies like raising the risk factor for real estate loans (from 150% to 200% for enterprises; 50% - 150% for house-buying borrowers), limiting loans for high-standard real estate... This helps controlling interest rates and bank credit for real estate, not causing bubbles to form.

Foreign Direct Investment (FDI) explains about 6.7% to 9.4% of the increase in apartment prices, according to the decomposition of variance. Hanoi Statistics Department's data indicates that FDI for real estates are mainly medium and long-term capital sources. During the Covid-19 pandemic in 2020, capital inflows into real estate still accounted for 31% in FDI investments in Hanoi, leading to an increase in the supply of real estate in Hanoi, contributing to stabilization of demand-supply of the real estate market in Hanoi. In addition, recently, the Vietnamese Government has implemented solutions to control and optimize FDI inflows, especially FDI into the real estate sector, such as enhancing construction supervision, commitment to construction progress, inspection and quality control of works, control of capital mobilization and taxes. This can explain for the difference between this study's finding and that of Le Thanh Ngoc (2014) and Phan Hoang Long (2020) who pointed out the impact of FDI on the real estate bubble in Ho Chi Minh City in the previous period, especially in the years 2006 - 2008, the early years of Vietnam's WTO membership, when FDI inflows poured into the market and the managers did not have much experience when facing such a sharp increase in FDI flows.

The urbanization rate explains about 0.54% to 11.7% of the increase in apartment prices, according to the results of the decomposition of variance. Hanoi is one of the two cities with the highest urbanization rate in Vietnam. Statistical data of Hanoi Statistics Department shows that Hanoi's urbanization rate was about 40% in 2010, and it is expected to reach 68% by 2030 and about 70-80% by 2050. With the model results, we can confirm that the increase in the urbanization rate of Hanoi leads to an increase in the demand for houses and apartments of the people in the process of stabilizing at the new workplace, which leads to apartment price increases in the study period. This follows the normal law of supply and demand of the market, meaning that during the research period, there was no impact of urbanization rate on the formation and development of apartment price bubble.

Per capita income explains about 7.4% to 12.3% of the increase in apartment prices, according to the results of the decomposition of variance. According to data from Hanoi Statistics Department, per capita income in 2010 was 37 million VND (equivalent to USD1,950), which increased by 1.8 times to nearly VND70 million in 2021. Increased per capita income creates a new amount of idle capital, part of which went in real estates. This has partly contributed to the increase in the price of apartment in Hanoi during the study period. However, as mentioned in the previous sections, when the apartment price bubble is formed, the rate of increase in apartment prices may have decoupled from the fundamentals that make up its underlying price. And in the specific case of the study, the growth rate of apartment prices has exceeded the growth rate of people's income in Hanoi. This reinforces the assertion that an apartment price bubble has appeared in Hanoi real estate market during the research period.

6. Conclusion

This study confirmed the existence of a bubble in the apartment market in Hanoi in the period 2010 – 2021, as well as examined the factors affecting the formation of the bubble and the influencing level of each factor.

The study carried out a mixed method. With the qualitative method, the author uses data from domestic and international reports, statistics, articles, and studies to analyse the factors that affect the bubbles that have occurred in the past, namely gross domestic product, CPI, real estate loans, FDI, urbanization rate and per capita income. With the quantitative method, the author uses a quarterly series of data from the first quarter of 2010 to the fourth quarter of 2021 to conduct data processing and multivariable regression analysis.

The research results show the existence of an apartment price bubble during the research period in the Hanoi. From the model results, the variables DUNO, FDI, and GRDP can only partially explain the increase in apartment prices (maximum 9% for FDI). Variables DOTHIOA, CPI, and BQDN can respectively explain up to 12%, 14%, and 12% of the increase in apartment prices in the peak period. Also from the results of the VAR model, it is shown that in the research period, the CPI and GRDP variables have a one-way causal effect

on the PR variable. Specifically, CPI has the opposite effect and GRDP has a positive effect in the long term. The past apartment price index has a large, positive impact on itself in the long run. The remaining variables are not statistically significant.

7. Limitations of the study and direction for further research

In the scope of the study, the variables of gross domestic product, CPI, outstanding loan for real estate, FDI, urbanization rate, per capita income are not comprehensive enough, therefore inexplicable for the whole mechanism of the real estate bubble. The next limitation is the data problem. The PR variable that characterizes the existence of a bubble is significantly dependent on its own past variability. With the series of data collected and compiled by the authors, this study cannot completely explain the above phenomenon. The study also only focuses on the data of apartments because it is not possible to collect data of all components that make up Hanoi's "real estate", so it is not representative enough and has not fully explained about the situation of Hanoi real estate bubble.

In addition, the study only focuses on the real estate market in Hanoi, while as analyzed, there are many areas where the PR index is high and there is a need for research to detect signs of bubbles, which is necessary for managers to take early synchronous and effective preventive measures.

For the above reason, there is a need for a more in-depth study with more variable data series, variables that are surveying the behaviour of individuals, organizations and businesses involved in the real estate market. From there, the research will increase the representativeness and generality of the model.

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GEN "Z" AND AUGMENTED REALITY: THE PREDICTOR AND OUTCOME OF MATERIAL LIFE FOR YOUNG CONSUMERS IN INDIA

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Abstract:

The Metaverse is one of the innovative tools in the 21st century. Metaverse promises to give what is futuristic. It's like building an entirely new world from scratch. It is founded on virtual reality (VR) and augmented reality (AR), two technologies that permit multimodal interactions with digital environments, objects, and people. AR/VR technology application includes education, open games, finance, medical, natural disaster, tourism industry, manufacturing, fashion, and other related business domains. Major corporations are putting resources and intend to make technology an integral part of everyone's daily existence. While the number of young adults is increasing in the Indian economy, the retail industry has seen a tremendous upsurge in recent years. India ranks fifth on the world ranking when it comes to shopping. Selling products effectively is indispensable in today's competitive market. To enhance the competitiveness of retail products in the Indian market, firms may deploy AR. It helps businesses expand and become valuable in the field. While social media influences today's youth preferences, firms must recognise factors affecting buying behaviour in retail. In this paper, we test the application of digital technology in the retail garments industry in India. In addition, the extent to which Indian buyers are willing to rely on AR technology for purchase decisions will also be tested.

Keywords: Retailing, Consumer Behaviour, Young Consumers, Augmented Reality, India

CHINA'S & JAPAN'S ODA

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Abstract:

Japan and China are the two largest providers of official development assistance among Asian donors, supporting many developing nations in Southeast Asia, namely Vietnam. This paper explores whether China and Japan compete in their official development assistance allocations to this region, by considering whether each donor considers the other in their subnational official development assistance allocations. This paper draws on IB literature to build a theoretical model of why donors compete, and builds a novel dataset of Japanese and Chinese geocoded official development assistance projects between 2000 and 2019 to investigate this claim. Our results find that Japan positively crowds in official development assistance in response to rising Chinese official development assistance to the same administrative region the years before, whereas China does not allocate official development assistance in response to changing Japanese official development assistance. This interesting finding suggests that Japan is pursuing a more aggressive and combative strategy to rising Chinese influence in Asia and globally. These findings stand to comment on why there has been so little official development assistance effectiveness despite rising aid efforts, particularly among emerging donors. In allocating official development assistance for reasons of resource gain, political motivation, and geopolitical competition, official development assistance is not being allocated to the most deserving recipients, thus failing to have its intended impact of development improvement.

LIFELONG LEARNING IN A VUCA WORLD

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Abstract.

As the world has become more complex and many unexpected events have occurred, the future has grown more uncertain. In order to draw an 'alternative future' that is different from the extension of the present, it is necessary not only to predict the evolution of science and technology, but also to view it from cultural perspectives such as philosophy and anthropology. There are currently a wide range of possibilities for the future amidst the recent uncertainty, as the way of life and business has significantly changed before and after COVID-19, and the Russia-Ukraine war. It is important to always question values, lifestyles, and culture that vary from the current situation. Thus, the most effective behavior for VUCA World is to stop, to doubt, and to think for yourself, rather than a quick and active response. Since the time of the great philosopher Socrates, the role of philosophy has been to question human behavior and raise awareness of the world around us. Philosophy has therefore created perspectives for thinking about an 'alternative future'. Uncertainty in business may also cause many unexpected outcomes. The author believes that it is important not only to focus on collecting more detailed information to address them, but also to devote time to philosophical dialogue. Therefore, in this paper, the author proposes a method to acquire the ability to think more philosophically: art thinking, design thinking, and Monozukuri thinking. This will be essential for working adults in the future.

Keywords: *Reskilling, In-House Training, Adult Education, Business Philosophy, Confucius*

1. INTRODUCTION

'VUCA' is a coined word that combines the initials of Volatility, Uncertainty, Complexity, and Ambiguity to indicate a situation in which it is difficult to predict the future. The author was made aware of VUCA by the following newspaper article.

The headline in the Nihon Keizai Shimbun dated January 1, 2017 was "No more obvious." The article stated, "Common sense that we took for granted is collapsing. This is because the ever-accelerating progress of technology and the torrent of globalization are rewriting past rules of thumb at breakneck speed. An era of disruption that is not an extension of yesterday is looming over us." "Era of disruption" here refers to VUCA World. From this article, it can be said that VUCA World needs a philosophy. Therefore, thinking about things that we take for granted and have not thought about—this is a pertinent philosophy.

On the front page of the Nihon Keizai Shimbun on January 1, 2019, it said, "The evolution of technology will change the way we live and the structure of society. What we need now is to think about who we are. What is a human being? The road begins, you have to decide what to do and what not to do, and for that you have to face ethical and philosophical questions." This article clearly explains that we are in an era where philosophy is necessary.

The Nihon Keizai Shimbun dated January 1, 2022 stated, "The speed of business change is increasing, and the skills required are becoming more complex. However, intensive learning once every five years will not keep up with the changes. Unless you learn a little bit every day, you will not be able to fill the gap. The need for academic reskilling while working is increasing." This article explains how to learn in VUCA World.

In 2023, the environment surrounding companies is changing dramatically due to the rapid progress of IT technology and the spread of the new coronavirus infection. In order to deal with the philosophy education and new academic reskilling mentioned above, there is a limit to conventional standardized training according to rank. Therefore, in this paper, the author would like to begin by reviewing the historical development of the stages of philosophy education, clarify the essence of 'learning', and then look at future trends in corporate education that incorporate these aspects. From there, let's go deeper and think about what kind of Hito-zukuri (human resources development) should be done in the future companies of the VUCA World.

2. ADULT COURSES

2.1. Manage Uncertainty Effectively

In order to survive the VUCA World, it is necessary to draw an 'alternative future' that is different from the current extension. Predicting the evolution of science and technology is nothing more than an extension of the present. What kind of viewpoints that are different from science and technology are required? About this, Steve Jobs said, "It is in Apple's DNA that technology alone is not enough — it's technology married with liberal arts, married with the humanities, that yields us the results that make our heart sing," when the iPad 2 was released in March 2011 (he died in the following October).

In 2017, Professor Michael Osborne of the University of Oxford in the UK published a paper titled "The Future of Skills: Employment in 2030." The top ten are: (1) Learning Strategies, (2) Psychology, (3) Instruction, (4) Social Perceptiveness, (5) Sociology and Anthropology, (6) Education and Training, (7) Coordination, (8) Originality, (9) Fluency of Ideas, (10) Active Learning. From this paper, it can be said that the cultural perspectives necessary for drawing an 'alternative future' are 'Psychology', 'Sociology and Anthropology', and 'Education and Training'. At the same time, these are also skills that can be acquired through university education.

But within the uncertain future lies a wide range of possibilities. If you can make the

most of that breadth, you can expand your business opportunities. Therefore, the author thinks that it is possible to eagerly take in different things and make the most of each characteristic. An example of this is Japan's Maku-no-uchi Bento, which integrates heterogeneity into a box lunch, and makes good use of various features of foodstuffs. The traditional Japanese aesthetics hidden in the Bento creates designs of which Japanese can be proud, from home appliances to automobiles, architecture, and cityscapes. Therefore, in addition to the three educational subjects above, the author believes that 'aesthetics' and 'design' are also necessary to envision the alternative future. In addition to the five educational subjects above, science and engineering basics are also included in liberal arts subjects at university.

2.2. Practical Philosophy

The liberal arts subjects, including the seven subjects above, are like 'drawers' of knowledge and experience that provide hints and guidelines for solving difficult problems. The more such 'drawers' there are, the more people can think and act on their own. The accumulation of these 'learnings' is the process of eventually discovering oneself and changing the circumstances around oneself and the state of the world. This kind of 'learning' can be rephrased as 'philosophy'. Philosophy starts from an individual's internal inquiry (introspection). If through introspection the individual mind strives to see the future world clearly, knowledge in such a philosophy is intrinsic. Therefore, it is generally difficult to transmit that knowledge to others as it is. Conversely, philosophy is ultimately about 'responding' to the inherent questions of individuals, and responding to these questions as 'my own' new knowledge with universality. However, since most of the questions have been answered by past philosophers, it is inevitable to learn the ways of thinking of past philosophers. The author calls this 'Tetsugaku-gaku' (philosophy learning). With Tetsugaku-gaku, it becomes possible to convey the 'alternative future' that individuals have drawn internally to other business partners.

In this way, philosophy seeks objectivity and universal truth through logic, but it cannot escape the influence of the era in which the philosopher lived. The same is true for practical philosophies such as management. The foundation of Tetsugaku-gaku refers to 'European spiritual history' such as Plato, Aristotle, Descartes, Kant, and Nietzsche. In European philosophy,

- (1) "What is ○○?" (Plato's philosophy),
- (2) "Who am I and what can I know?" (Descartes' philosophy),
- (3) "What can humans know?" or "What are freedom and value for humans?" (Kant's philosophy),
- (4) "Why do you ask it?" (Nietzsche's philosophy).

In such a way, the premise has been questioned and overturned with the use of both tangible and intangible arguments in the history of philosophy. Utilizing the Socratic dialogue

as a hint, we are currently exploring the cognitive definitions of the true, the good and the beautiful that we are seeking, and 'Toi-hogushi' (an attitude of doubt toward the premise of the question) can be practiced. In VUCA World, we need to escape from the erroneous view of knowledge in the present and future society and explore philosophy to change us into 'true learners' (acquiring the ability to continue learning correctly).

By learning philosophy, we can acquire the ability to "digging deeply into things and accurately grasping the essence" or "seeing through hidden truths." Therefore, in order to look at the essence of the 'alternative future' with a sharp point of view, it is necessary to explore the crisis phase of the modern world from the perspective of everyday events. In other words, it can be said that the accumulation of 'Toi-hogushi' is a practical philosophy. However, in order to be able to do 'Toi-hogushi', 'Tetsugaku-gaku' is necessary.

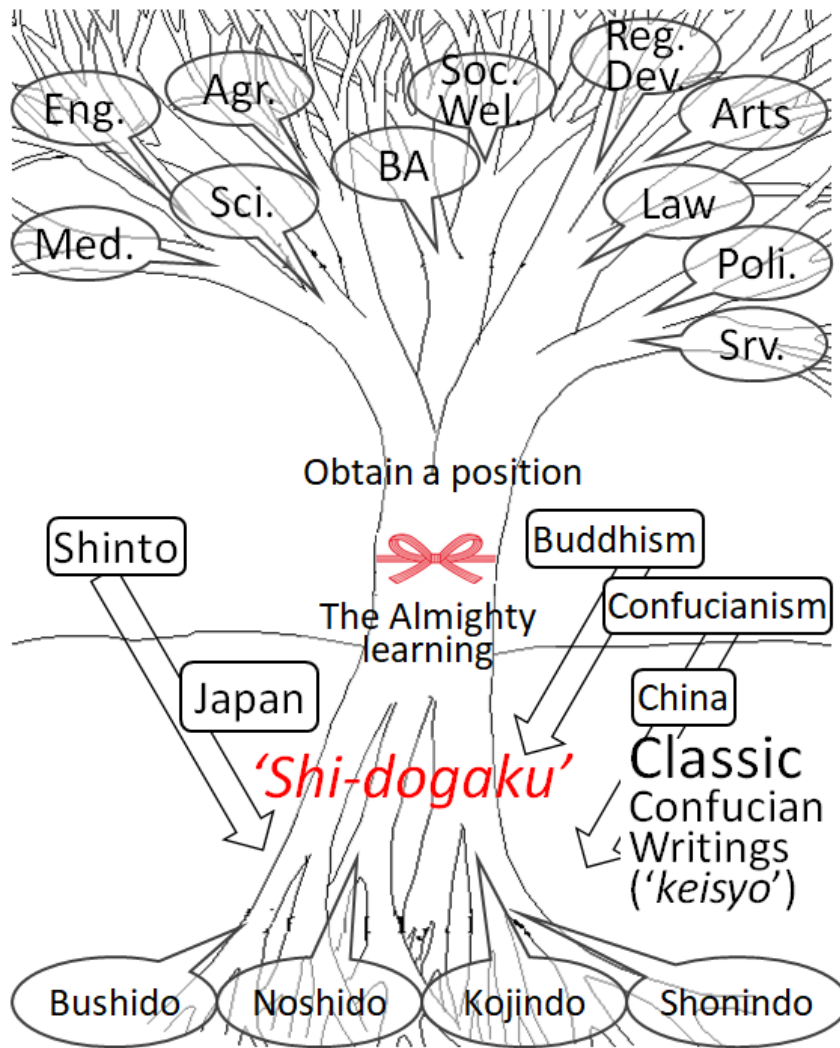
2.2.1 Shi-dogaku

The Chinese Confucian scripture 'Jing-shu' (Classic Confucian Writings, in Japanese Keisho) is said to have existed for more than 5,000 years and is still read today. Jing-shu is simply called Jing (in English it means 'warp'). The Five Classics of Yi, Calligraphy, Poetry, Rites, and Spring and Autumn form its basis. Keisho is said to be like an all-powerful god, and if you learn it, you are nothing, but you can become anything. It is said that learning this much is enough, and that no matter what kind of occupation or position you have, you will be able to cope with what you have learned in the Keisho. The author called this 'God-like learning.'

Education in the Edo period (1600-1868) in Japan centered on Keisho. In particular, scholars in the Edo period were well versed in any academic field and were able to quickly find the correct solution to any problem. Baien Miura, Ekiken Kaibara, Masamasu Ando, Nobuhiro Sato, Yukichi Fukuzawa, and others too numerous to mention. Each and every one of them has made great achievements in politics, economics, education, and science. For example, Baien Miura (1723-1789) was a physician, Confucian scholar, Dutch scholar, pharmacist, mathematician, agronomist, economist, and political scientist who published the dialectics 50 years before the German philosopher Hegel.

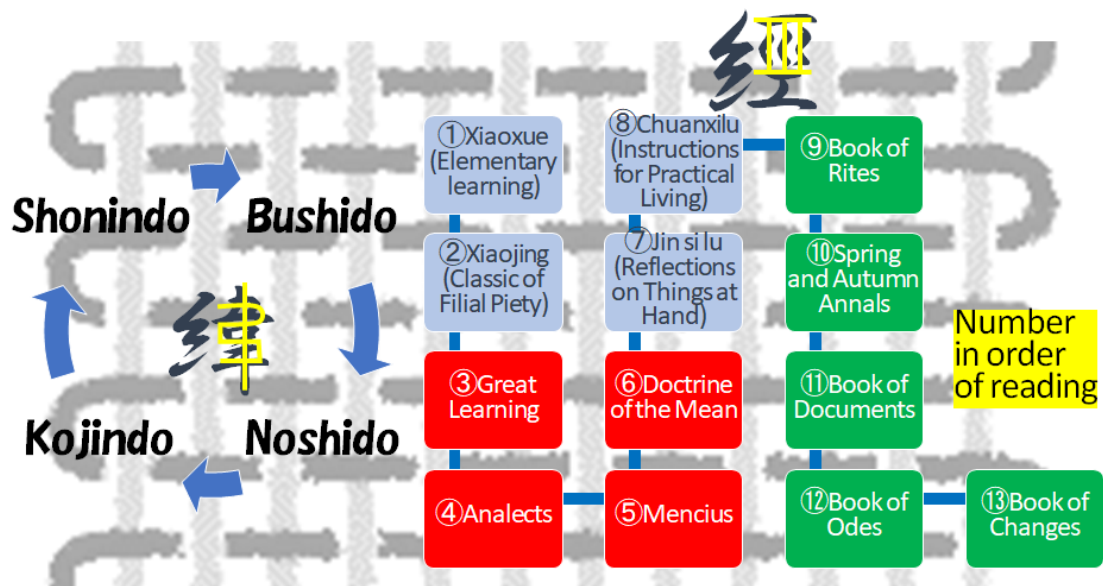
Therefore, the author made a bold hypothesis that there was a unique 'God-like learning' (almighty learning) in Edo period Japan. What he paid attention to was 'The way of the warrior (in Japanese Bushido)' and 'The way of the Merchant (J. Shonindo)' which the people of the Edo period created by incorporating not only Confucianism but also Shinto and Buddhism. He also believed that 'the way of farmer (J. Noshido)' and 'the way of the Craftsperson (J. Kojindo)' existed, and discovered them in ancient documents. After that, he reconstructed and systematized 'Bushido', 'Noshido', 'Kojindo' and 'Shonindo' as academic disciplines. He named the God-like learning obtained from this result 'Shi-dogaku' (the Four Morals of Japan's Edo Period). Figure 1 is a tree of knowledge showing the relationship between Shi-dogaku and Keisho and their application fields.

Figure 1: Shi-dogaku and Keisho and their application fields



As you all know, vertical (warp) and horizontal (weft) yarns are woven together to make cloth. We can think of Keisho as the warp and Shi-dogaku as the weft (as shown in Figure 2), with which the cloth of your life is woven. Warp's Keisho is useful for all generations as an almighty study. Weft's Shi-dogaku is an oriental philosophy that is useful for business.

Figure 2: Warp and Weft; Relationship between Keisho and Shi-dogaku



2.2.2 Philosophy Dialogue

The great philosopher Socrates said, "The supreme excellence of man is to ask himself and others what he thinks is right and what he thinks wrong." Since then, the role of philosophy has been to question human behavior and raise awareness of the world around us. Philosophy has therefore produced diverse perspectives for thinking about alternative futures. Uncertainty in business also causes many unexpected events. It is necessary to collect detailed information such as big data and data science to deal with them, but the author thinks it is more important to spend time on philosophical dialogue using Tetsugaku-gaku.

In addition, in today's rapidly changing business environment, the skills required of working people are also changing rapidly. However, it is difficult to acquire the necessary skills in each situation as it emerges, so it is necessary to acquire the ability to continue learning throughout life and the ability to think independently, which is the basis for acquiring specialized skills.

So, what can we do to motivate ourselves to continue learning for the rest of our lives and acquire the ability to think independently? Let's delve into history here. There is 'Goju' (neighborhood association), a unique education of the Satsuma domain in the Edo period. It is also famous for the education received by Takamori Saigo (a Japanese samurai and nobleman, 1828-1877), who played an active role in Japan's Meiji Restoration. A great feature of Goju education is that it does not have a specific, charismatic adult leader. A group of people, such as older brothers and seniors from a general children's association, gather together and voluntarily teach various things. This is called 'Jikou-jiritsu' in Japanese by children, that is, they started new things by themselves and operated according to the standards they set for

themselves. In today's terms, it means that children up to high school age will become leaders and teach their juniors. The content of the class is called 'Sengi' in Japanese, and involves reading books such as war chronicles and conducting practical simulations. This is the fundamental educational method of Goju education. This is a type of training where everyone asks questions and announces their own opinions. It was respected to express one's thoughts and opinions properly and to have discussions.

The British mathematician and philosopher Alfred North Whitehead (1861-1947) had the motto, "When doing philosophy, I must always get inspiration from young people." Therefore, he gave lectures in the morning, and from the afternoon to the evening, he opened his house to interact with Harvard University students, and it is said that he often talked about things other than philosophy.

Enryō Inoue, a Japanese philosopher and founder of Toyo University, established the Tetsugaku-kan (the Philosophy Academy) in 1887 as a facility to disseminate philosophy to the general public. Enryō created a place where both intellectuals and ordinary people could transcend their own boundaries and engage in free, open-minded dialogue on topics related to philosophy and modern civilization.

In the world, there are existing frameworks related to each other, such as the East and the West, the traditional and the modern, and the relationships between industry, academia, government, people, and religion. Enryō believed that the method of transcending various frameworks was an open dialogue about philosophy. In other words, Enryō says, "Philosophy should be the starting point," in order to achieve popularity and openness through dialogue, and to transcend existing frameworks. Enryō placed great importance on dialogue education that nurtures humanity. Therefore, the atmosphere of the Tetsugaku-kan class was free, with frequent question-and-answer sessions on philosophy.

What is essential for philosophy dialogue to overcome the barriers between specialized fields and the barriers between science and humanities, and acquire the ability to philosophize more flexibly? The author proposes a method to acquire the thinking ability for that purpose through art thinking, design thinking, and Monozukuri thinking (Yoshida, 2016). Art thinking is problem-posing, whereas design thinking is problem-solving. First, the question is defined using art thinking, and once the direction has been determined, the question is reframed using design thinking.

Here are the rules for philosophical dialogue: (Reference: NHK for School)

- (1) The purpose is to think rather than talk! Speak slowly.
- (2) If you don't understand what they are saying, ask questions and try to understand.
- (3) Just listening is OK, silence is OK. However, you will not give up thinking.
- (4) Listen until the end of the remarks of the person who is speaking! Let's create a place

where everyone can talk with peace of mind.

(5) It is OK to talk freely about anything as long as the remarks are not hurtful to others.

(6) Questions are more important than opinions. That's where the 'Q Word' is used.

'Q Word' consists of 8 questions, "Why?" "Any other thoughts?" "What about your opposition?" "What if...?" "In the first place?" "Why don't you change your position?" "For example?" "Compare?". 'Q Word' can also be used to practice philosophical dialogue.

2.3. Learn How to Learn

Sato Issai (a Japanese Confucian Scholar, 1772-1859) said, "One who studies in young age will do something in middle age. One who studies in middle age will not decline in old age. One who studies in old age will become immortal" (Aspirations Recorded Late in Life (in Japanese *Genshibanroku* 言志晩録)). This describes the fact that people continue to learn throughout their lives. This word can be understood as follows: for the six layers of a company (new employees, young employees, mid-career employees, junior managers, middle managers, senior managers), an education plan that enhances the skills necessary for each, and personal himself/herself awareness and motivation are necessary. Moreover, a report by the Central Council for Education of Japan's Ministry of Education, Culture, Sports, Science and Technology (2012) states that "human resources with the ability to continue learning throughout their lives and the ability to think independently are necessary."

The speed of change in the environment and business is increasing, and the skills required of working people are also changing. In addition, the time required for acquisition has increased due to the combination and sophistication of skills. However, business skills are valid for five years, but intensive learning once every five years cannot keep up with changes. You can't fill the gap unless you learn a little bit each day. Therefore, the need for reskilling, which is learning while working, is increasing. Reskilling is retraining employees in the job skills and techniques that companies will need in the future.

In 'recurrent education', employees think about what they should learn to improve their skills. 'Reskilling education', on the other hand, requires managers to think about what they should learn in order to improve the skills of their employees. In the latter, therefore, it is important for companies to keep their employees motivated to learn. In other words, it is important to increase workers' motivation for reskilling. In addition to reskilling, in today's world full of uncertainty, a constant learning attitude is essential to respond to change. 'The power to keep learning' should be the power to survive in the future.

It is necessary to develop learning for learning, or Learn How to Learn as a method to increase learning motivation. It is important for both employees and managers to know the existing techniques to increase their willingness to learn, and based on that, develop a Learn How to Learn that suits them. The techniques are shown below.

(1) It is important to understand one's psychological state correctly. Control your comfort zone and homeostasis (Ellison, 2016) well to make good learning a habit (learning zone).

(2) Willingness is neither inherent nor absent. It is created, enhanced, and sustained using a variety of motivational techniques.

(3) Be conscious of the Ebbinghaus forgetting curve (Loftus, 1985) and repeat the review. Confucius said, "Learn as if you could not reach your object, and were always fearing also lest you should lose it." (The Analects of Confucius).

(4) Learning Pyramid developed by National Training Center (USA); Most students only remember about 10% of what they read from textbooks, but retain nearly 90% of what they learn through teaching others.

(5) Pomodoro Technique (Cirillo, 2009): A long-term practice of repeating short periods of work and short breaks as a way to improve concentration and immerse yourself in your work.

3. PROPOSED COURSE

In summary, the author proposes a business training course to develop human resources who can enthusiastically take on the challenge of creating new value in order to respond to the VUCA world that surrounds reality. Next to the subject is the approximate class time allocation.

◆ Introduction (compulsory subjects)

Why is continuous learning important? 1.5hr

What is the difference between reskilling and recurrent? 1.5hr

From PDCA to OODA loop (observe, orient, decide, act) 1.5hr

◆ liberal arts (elective subjects)

Psychology 4.5hr

Sociology 4.5hr

Anthropology 4.5hr

Pedagogy 4.5hr

Aesthetics 4.5hr

Design 4.5hr

◆ Philosophy (elective subjects)

Tetsugaku-gaku (philosophy learning) 4.5hr

Keisho 4.5hr

Shi-dogaku 4.5hr

Art thinking, Design thinking, and Monozukuri thinking 4.5hr

◆ Learn How to Learn (compulsory subjects)

Comfort zone 1.5hr

Evaluating forgetting curves 1.5hr

Learning Pyramid 1.5hr

Pomodoro Technique 1.5hr

◆ Practice (elective subjects)

Philosophical dialogue 4.5hr

Philosophical role model research 4.5hr

Visualization of unconscious mind (Yoshida, 2021) 4.5hr

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THE ROLE OF COMMUNICATIONS MANAGEMENT IN RECYCLING PLASTIC WASTE PROJECTS IN VIETNAM

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Abstract.

The environmental-related issue has widely been recognized in the modern world with severe human-induced consequences, especially concerning recycling plastic waste. Vietnam is facing the problem of marine plastic pollution when the plastic consumption increases quickly in Vietnam and the awareness of the majority of people about environmental protection is still limited. Therefore, the development of community recycling programs and the encouragement of participation by individuals in such programs are essential. To become a successful project, communications management plays an important role in helping projects be delivered smoothly and accurately. Through researching previous literature on the topic, 8 main communications management factors are summarized for hypotheses testing their impact on project delivery of the recycling waste project in Vietnam. These attributes are constructed into a questionnaire survey using a five-point Likert scale to collect information on how officers who take part in environmental projects in Vietnam evaluate the impact of communications management factors. After analyzing data, 3 remaining factors affect the environmental project in Vietnam: Stakeholders' frame of references, Technology and System, and Context of an environment. It creates a foundation for future studies to make recommendations to help improve the effectiveness of environmental campaigns which have the same model.

***Keywords:** communications management, project delivery, recycling plastic waste projects*

1. INTRODUCTION

The environmental issue is not an exception to the effect of the globalization process, of which tentacles have reached every corner and every single aspect of our daily basis. The rapid growth in population and socialization comes along with waste and worsened living conditions. It is a common sight that tourists and visitors are taking their meals carried on plastic while traveling from place to place, from one hand it may serve the purpose of convenience, on the other hand, that will seriously affect our future generation, not only to our environment but also to human health and genetic quality in the long run. Plastic waste has become one of the most concerning environmental issues as it has contributed to many environmental threats such as pollution of groundwater, marine litter climate change, and the release of hazardous substances. Unchecked plastic waste keeps entering Vietnam's extensive maritime

environment, endangering marine biodiversity and poisoning marine life, all of which have negative economic effects. Vietnam's beaches will lose tourists if they force them to swim and sunbathe next to piles of plastic rubbish, or, as in my case, thrash in dread when a nylon bag engulfs their leg while swimming, while its fish catch will become less tasty when tainted with micro-plastics (Carolyn Turk, 2021). It was estimated that about 8 million metric tons of plastic waste has been entering the ocean annually and Vietnam is among the top five polluters globally (Jambeck et al, 2015). During the period from 2012 to 2017, Vietnam's plastic industry grew on average by 11.6% a year, faster than the world plastics industry's 3.9% growth and faster than Vietnam's average GDP growth of 6.2% over the same period (FPTS, 2019). That leads to the demand for activities from environmental projects to raise citizens' awareness of reducing plastic waste, however, they still have limitations and have not completely achieved the desired results. And one of the key components to having a successful project is communications management, which is a necessary part of project management and clarifies the expected process of appropriate preparation, gathering, distributing, and retrieving project data among the task members. The absence of adequate communications management in organizations and projects harms aspects such as inadequate identification of project requirements; conflicts among team members due to lack of collaboration, respect, and trust; failure to achieve the proposed objectives, hindered the effectiveness of project offices, low level of maturity of organizations in project management (F Y Hernández *et al*, 2019). In previous times, many studies are showing the influence of communications management on the success of a project. One of the noticeable projects that can be mentioned is "Joining hands to reduce plastic waste" (<https://chungtaygiamnhua.com>), which was built through the collaboration between the Institute of Strategy and Policy on Natural Resources and Environment and domestic and international organizations to call for the community to join hands to reduce plastic waste in Vietnam (VNA, 2021). European Union and the German Ministry for Economic Cooperation and Development fund the project. It is supported by stakeholders in Vietnam to perform various forms of communication expected to bring about the most effective influences to promote changes in behaviors of the whole society. Therefore, an evaluation was done to analyze how communications management factors are important in the project delivery of the recycling plastic waste project in Vietnam.

2. LITERATURE REVIEW

Ralph L. Kliem, 2007 revealed that communication is consistent with the sender, receiver, message, and medium. The sender develops the message to be sent to the receiver, while the receiver is informed and then deals with the message accordingly. Furthermore, there are many types of communication-based on different perspectives (project, organization, formality, channel). But in any way, the message is the key to this procedure as it starts the relationship between the sender and the receiver. Communication is critical to project success – especially amongst the stakeholders; because it often hinges on cross-team communication

(Hassan Oman, 2011). It is also at the heart of all good management when forth-five of working time is spent in some kind of communication.

George Lewis, 2016 revealed that it is the fundamental part of the venture the board that characterizes the expected cycles of appropriate preparation, gathering, disseminating, and recovery of project data among the task members. It includes 3 main processes as follow:

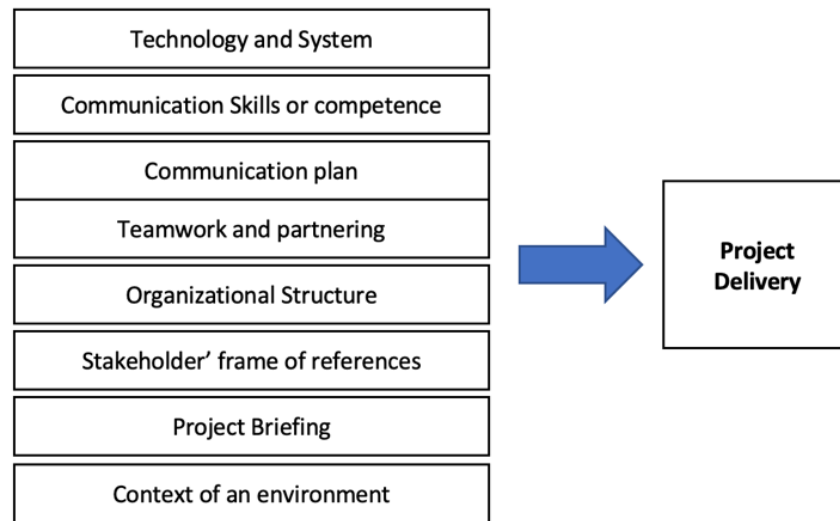
- Plan Communications Management: The process of developing an appropriate approach and plan for project communications based on stakeholders' information needs and requirements, and available organizational assets.

- Manage Communications: The process of creating, collecting, distributing, storing, retrieving, and the ultimate disposition of project information following the communications management plan.

- Monitor Communications: The process of monitoring and controlling communications throughout the entire project life cycle to ensure the information needs of the project stakeholders are met.

Culo et al (2010) identified those factors in communication management that can impact a project: A clear and concise communication plan and the availability of technology. Perumal et al (2011) discovered that using the proper system, organizational structure, and communication skills are good approaches to make sure the correct performance of the project. Meanwhile, Hoezen et al (2006) suggested that the following factors influence communication in the Dutch construction industry: Organization of the construction process; the stakeholders' frame of reference; Preparation of the project brief; Openness about the budget available, and mutual responsibility. Louw et al (2003) further underline that communication does not exist in a vacuum; but it takes place within the context of physical, social, historical, psychological, and cultural issues. By researching previous studies, Mavuso, N.M. and Agumba, J.N. (2016) compiled and organized 8 main communications management factors which have an impact on project success, specifically in the construction industry: Technology and system, Communication Skills or competence, Communication plan, Teamwork and partnering, Organizational Structure, Stakeholder' frame of references, Project Briefing, Context of an environment. These eight factors will be selected and tested by having staff working in the environmental project field in Vietnam assess their impact on the delivery of the project. Since then, 8 hypotheses were made for this research to evaluate the impact of the mentioned communication management factors on the delivery of projects in the field of plastic waste recycling in Vietnam:

Figure 1: Hypotheses about the impact of communications management factors on project delivery



3. METHODOLOGY

3.1. Data Collection

The study used both primary data by using questionnaires and secondary data by collecting through project reports, newspapers, journals, etc. The questions in this research are used to identify how officers who work on environmental projects in Vietnam evaluate the importance of communications management factors in their project delivery. It consists of 40 attributes for 8 main factors of communications management. These attributes were rated using a five-point Likert scale ranging from 1-5 where 5=strongly agree; 4=agree; 3= Neither agree nor disagree; 2=disagree and 1=strongly disagree. The impact of each communications management factor on environmental project delivery in Vietnam is carefully investigated in this research. The questionnaires for this research consisted of two categories. The first category was to gather the general information of the respondents. And the second category consisted of the set of communications management factors. These questionnaires are distributed anonymously to staff working on environmental projects in Vietnam. A total of 155 responses to the research questions were qualified and collected to analyze the data. By comparing and collating the data according to the similarity in the variables used, the most influential factor will be chosen.

3.2. Data Analysis

SPSS was used to analyze the data. It was followed by reliability analysis (Cronbach's Alpha) to measure the internal consistency of the data set, that is, how closely a set of items are related; exploratory factor analysis (EFA) to reduce to a smaller set of factors so that they are significant but still retain the information content of the original set of variables, and regression analysis to estimate the equation that best fits the observed result sets of the dependent variable

(8 communications management factors) and the independent variable, in that research is Project delivery in an environmental projects in Vietnam.

4. RESULTS

The questionnaire of the research was answered by 155 officers who work on environmental projects in Vietnam out of which 84.5% are bachelors, 12.9% are Masters, and 2.6% are Doctors as shown in Table 1:

Table 1: Participant demographic of project staff for the survey

Demographic Characteristics	Respondents No.	Percentage
Size of organization		
Less than 100	91	58.7%
100-1000	42	27.1%
More than 1000	22	14.2%
Education level		
Bachelor	131	84.5%
Master degree	20	12.9%
Doctor Degree	4	2.6%
Work experience		
Less than 1 year	77	49.7%
1-5 years	69	44.5%
More than 5 years	9	5.8%

Regarding work experience, officers with less than 1 year of experience and from 1-5 experience account for 49.7% and 44.5% respectively, shows that most of the respondents of the survey are young employees, accounting for the majority and using a lot of communication in the project's operating system. Regarding the size of the organization, more than half of the results show that these are small organizations, and medium organizations account for about a quarter.

Starting with reliability analysis, 40 attributes for 8 main factors of communications management as independent variables and project delivery as a dependent variable are analyzed by using SPSS.

All observed variables have a suitable corrected Item-Total Correlation (≥ 0.3). Cronbach's Alpha coefficient value = $0.944 \geq 0.6$ should meet the requirements of reliability.

After 4 times of Exploratory Factor Analyses, we have Kaiser–Meyer–Olkin (KMO) value = $0.824 > 0.7$, factor analysis is accepted with the research data set; Sig Barlett's Test

value = 0.000 < 0.05, factor analysis is appropriate.

Table 2: The fourth Total Variance Explained Table

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %	Total	% Of Variance	Cumulative %
1	9.79	37.65	37.65	9.79	37.65	37.65	5.81	22.36	22.36
2	2.17	8.35	46.00	2.17	8.35	46.00	3.41	13.12	35.49
3	1.99	7.69	53.69	1.99	7.68	53.69	3.40	13.08	48.57
4	1.43	5.50	59.19	1.43	5.50	59.19	2.22	8.55	57.13
5	1.34	5.15	64.34	1.34	5.15	64.34	1.87	7.20	64.34

In Total Variance Explained Table, there are 5 factors extracted based on the criterion of eigenvalue greater than 1, so these 5 factors summarize the information of 26 observed variables included in EFA in the best way. The total variance extracted by these 5 factors is 64.34% > 50%, thus, the 5 extracted factors can explain 64.34% of the data variation of 26 observed variables participating in EFA.

Table 3: The fourth Rotated Component Matrix Table

Item	Component				
	1	2	3	4	5
6.4	.747				
4.4	.747				
5.4	.739				
6.5	.721				
5.3	.681				
8.1	.659				
4.1	.630				
6.1	.622				
6.3	.610				
4.2	.597				
8.5	.554				
1.2		.858			
1.1		.842			
1.3		.829			
1.4		.687			
6.2			.810		
7.3			.754		
5.1			.618		
7.1			.611		
3.3			.576		

2.2	.758
2.4	.720
2.3	.568
2.5	.534
8.3	.846
8.2	.811

The results of the rotation matrix show that 26 observed variables are classified into 5 factors, all observed variables have Factor Loading coefficients greater than 0.5 and there are no bad variables. Therefore, after running an EFA for the independent variable, 5 new groups of factors were created:

- Factor 1: Stakeholders' frame of references (because the number of variables of the old factor 6 makes up the majority of the number in this new factor)
- Factor 2: Technology & System
- Factor 3: Communication factor in the planning project process (This is the common feature to which all variables in this factor are related)
- Factor 4: Communication Skills or Competence
- Factor 5: Context of an Environment

Next, the correlation result of many variables was entered at the same time in SPSS as shown in Table 6.

Table 4: Correlation

		General Assessment	Stakeholders' frame of references	Technology & System	Communication factor in the planning project process	Communication Skills or Competence	Context of an Environment
General Assessment	Pearson Correlation	1	.76**	.68**	.66**	.46**	.32**
	Sig. (2-tailed)		.00	.00	.00	.00	.00
	N	77	77	77	77	77	77
Stakeholders' frame of references	Pearson Correlation	.76**	1	.49**	.69**	.40**	.24*
	Sig. (2-tailed)	.00		.00	.00	.00	.04
	N	77	77	77	77	77	77
Technology & System	Pearson Correlation	.68**	.49**	1	.51**	.38**	.12
	Sig. (2-tailed)	.00	.00		.00	.00	.31
	N	77	77	77	77	77	77

	N	77	77	77	77	77	77
Communication factor in the planning project process	Pearson Correlation	.66**	.69**	.51**	1	.41**	.16
	Sig. (2-tailed)	.00	.00	.00		.00	.16
	N	77	77	77	77	77	77
Communication Skills or Competence	Pearson Correlation	.46**	.40**	.38**	.41**	1	.27*
	Sig. (2-tailed)	.00	.00	.00	.00		.02
	N	77	77	77	77	77	77
Context of an Environment	Pearson Correlation	.32**	.24*	.12	.16	.27*	1
	Sig. (2-tailed)	.00	.04	.31	.16	.02	
	N	77	77	77	77	77	77

****.** Correlation is significant at the 0.01 level (2-tailed).

*****. Correlation is significant at the 0.05 level (2-tailed).

Pearson correlation's Sig value of independent variables (5 communications management factors) with dependent variable General Assessment (Project delivery) is less than 0.05. Thus, there is a linear relationship between these independent variables and the dependent variable "Project Delivery". Between Project delivery and "Stakeholders' frame of references" has the strongest correlation with an r coefficient of 0.76, and between "Project delivery" and "Context of an Environment" has the weakest correlation with an r coefficient of 0.32. Several pairs of independent variables have a high correlation with each other, thus, there is a high probability that multicollinearity will occur.

Regarding the regression analysis part, the final result is confirmed after 2 times running the analysis. Table 7 shows the result of the 2nd model summary:

Table 5: Model Summary^b of regression analysis

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.855 ^a	.731	.720	.27167	1.806

a. Predictors: (Constant), Context of an environment, Technology & System, Stakeholders' frame of reference

b. Dependent Variable: General Assessment

The coefficient of determination, or R Square, is equivalent to 0.731, indicating that the independent variable is included in the influence regression 73.1% of the variation of the dependent variable and 26.9% of the variation due to out-of-model variables and random error, so this model is suitable. Durbin - Watson coefficient = 1,806, in the range of 1.5 to 2.5, so

there is no first-order sequence autocorrelation phenomenon.

Table 6: ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.627	3	4.876	66.059	.000 ^b
	Residual	5.388	73	.074		
	Total	20.014	76			

a. Dependent Variable: General Assessment

b. Predictors: (Constant), Context of an Environment, technology & System, Stakeholder' frame of reference

In the Anova Table, the Sig F test is equal to $0.00 < 0.05$, so, the multiple linear regression model fits the data set and can be used.

Table 7: Coefficients^a

Model		Unstandardized B	Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Collinearity Tolerance	Statistics VF
1	(Constant)	.56	.25		2.24	.03		
	Stakeholders' frame of reference	.47	.06	.53	7.43	.00	.73	1.37
	Technology & System	.27	.05	.41	5.90	.00	.76	1.31
	Context of an Environment	.09	.04	.15	2.35	.02	.94	1.06

a. Dependent Variable: General Assessment

In the second time doing regression analysis, the Sig test t regression coefficient of all independent variables is qualified with a value below 0.05. The coefficient Variance inflation factor (VIF) of them is less than 2, proving that there is no multicollinearity phenomenon. In the Standardized Coefficients Beta Column, the result shows that all the independent variables included in the regression analysis are dynamically separated in the same direction as the dependent variable when the regression coefficient is greater than 0. Based on the normalized regression coefficient beta, the order of effects from the strongest to the weakest of the independent variables on the dependent variable "Project delivery" is Stakeholders' frame of references (0.53) > Technology and System (0.41) > Context of an environment (0.15). Therefore, 3 hypotheses of these communication management factors are proven, while the remaining 5 hypotheses are rejected because they do not meet the requirements. Thus,

Stakeholders' frame of reference has the most positive influence on the delivery of the environmental project in Vietnam, Technology and System has the second biggest positive influence on the delivery of the environmental project in Vietnam, and Context of an environment has the third biggest positive influence on the delivery of the environmental project in Vietnam. The three hypotheses of these independent variables are proven, while the five hypotheses of the remaining communications management factors are rejected because they have no evaluative significance for project delivery. The result findings indicate 3 communication management factors including Stakeholders' frame of references, Technology and System, and Context of an environment play an important role in improving the delivery of recycling waste projects in Vietnam

5. DISCUSSION

With the use of 8 communication management elements that have been applied and proven their influence in projects in other fields, when moving to the areas of sustainable development and environmental protection, through the analysis of analyzed by software, 3 remaining factors affect the environmental project in Vietnam: Stakeholders' frame of references, Technology and System, Context of an environment.

Hassan Osman (2011) mentioned methods to help improve communication, especially focusing on technology applications. However, with tools with the application of technology, if you do not know how and fully understand how it works, it can become a double-edged sword, directly affecting project results. The author believes that managers should be well aware of the characteristics of online collaboration software and need to become experts in planning, information management, and project software, and clearly understand the applicability of each software to limit duplication of information confuses the team. In addition, determining the right process for the technology to use, and deciding which technology to use or integrate are important prerequisites before establishing the proper process and communication flow. Besides that, The report about The Essential Role of Communications (PMI, 2013) shows that project success depends on getting the right information to the right stakeholders and utilizing language that resonates with the target audience, which leads to better project and program management, more productive work, high standards, and less cost. And to do that, the report covers four strategies: Close the communications gap around business benefits; Tailor communications to different stakeholder groups; Acknowledge the value of project management, including project management communications; Use standardized project communications practices, and use them effectively. Communication is hampered by the communication environment (Ștefan Vlăduțescu, 2014). Contextualizing communication refers to adjusting the communication behavior to the changing context, as well as communication reflects particular environmental restrictions. The communication environment, whether it is the overall context, the particular scenario, or the particular framework, has an impact on the communication decisions that are made.

Environmental projects in Vietnam still face many difficulties in implementing plans as well as mobilizing people to participate to raise their awareness of environmental issues. Survey respondents, who are members working on environmental projects, most of them agree that the attitudes and behaviors of stakeholders have a great impact during project implementation. With an environmental project, the main purpose is to change each individual's awareness of a common problem, here it is about the environment; Therefore, it is extremely necessary to pay attention to the perception, not only of the target audience that the project is targeting but also of those who are working and supporting the project implementation process, especially in terms of communication. Applying trendy and advanced technologies, and arranging a suitable system for the organization is also a way to improve communication in the organization. Regularly updated technologies as well as the application of computers in work will streamline the work process, help the information flow become clear and coherent as well as reduce the workload for employees. In addition, it is also an effective tool for reaching people-friendly, helping the project's message become closer and more viral when compared to traditional and specific implementation methods. more than the applicability of social networks and the birth of several educational applications about the environment. And last but not least, is the impact of environmental contexts on information transmission. As we know, stakeholder perception or applicability of technology and systems are all things that can influence the flow of information, and when they are applied in different contexts, lead to certain changes to the efficiency of information transmission. In fact, the communication for people to understand about plastic waste in Vietnam has many and has also achieved certain effects. Currently, for a successful plastic waste recycling project, it is necessary to completely synchronize the system from classification, collection, recycling, reuse, and alternative solutions to using plastic bags. And communication is an essential element to complete that system. In order to do that, communication, both internally and externally, affected positively or negatively, depends on whether it is placed in the right context, from historical, physical, to cultural context.

6. CONCLUSIONS

Although in Vietnam, the problem of plastic waste treatment and recycling is still an urgent issue when plastic waste is increasing and people are not aware of the dangers to health and life, environmental projects still have many limitations when they have not received much attention and investment. Communication is always one of the means people use the most when operating environmental projects, but in terms of communication management, when compared to projects in developed countries, Vietnam has not yet optimized it to improve the output quality of the projects they are working on.

This study shows the multifaceted interrelationship between these influential factors. in terms of communications management, Stakeholders' frame of reference is the factor that has the most influence on the delivery of environmental projects in Vietnam. Officers who work on these projects argue that Technology and Systems are the most influential causes immediately

after it. And finally, Context of an environment is assumed to have the least impact on project delivery.

The study consists of limitations and can be further extended and discovered. It is yet to be understood whether such a research study raises awareness in improving communications management in Vietnam recycling plastic waste, however, further research is recommended for emphasizing the role of communication management with environmental projects like this in a developing country like Vietnam.

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STUDY ON PERCEPTION AND ADAPTATION OF JAPANESE AND THAI EMPLOYEES TOWARDS THAI MANAGEMENT STYLE

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Abstract

Trade policies and promotion of foreign investment in accordance with the JTEPA treaty have encouraged trade growth via tax reductions, trade facilitation, and cooperation. Consequently, Japan's economic development activities have continuously expanded in Thailand, and several Japanese corporations have established manufacturing bases in Thailand. The difference in cultural norms and values between Thailand and Japan is a challenge that needs to be addressed by these companies, as these differences can obstruct inter-company collaboration and internal communication. IoT is critical that Thai and Japanese employees understand each other's different characteristics. This research aims to investigate Japanese employees' perceptions of the Thai working style and adaptability. The study was conducted by distributing a questionnaire to 44 Japanese and 44 Thai employees. The descriptive statistics analysis and t-test were used to determine the significant differences between Japanese and Thai employees using a Likert-scale questionnaire. There are significant differences in short-term orientation, power distance, respecting seniority, patronage system, work environment, ego orientation, and work flexibility. In comparison with Thai people, Japanese perceived a higher level of short-term orientation and perceived lower level of power distance dimensions based on the Thai management style. Additionally, the Japanese perceive a higher-level regard for respecting seniority. By contrast, Thais perceived a higher level of patronage system, work environment, ego orientation, and work flexibility than Japanese. The findings are likely to show the differences between the two countries' working cultures and can be beneficial to HR management and workplace practices.

Keywords: Perception, Adaptation, Organization management, Thai management style, Thai working value,

1. INTRODUCTION

Due to the ongoing growth of technology and infrastructure Asia has become one of the centers of business activity in the period of economic globalization. Thailand is home to a diverse range of industrial clusters, where other countries are interested in investing. Japan's investment accounts for 26 percent of total foreign investment in Thailand. Japan and Thailand have a long history of promoting investment and economic cooperation between the two countries, including many employees who are sent to Thailand as part of their business

operations. Although, the fact that some Japanese multinationals have successfully transferred the essential elements of their high-performance manufacturing systems to affiliates geographically and culturally distant from Japan. However, the effective management practices in one culture may not be fit in another culture (Mead, 2009). The Japanese management system may be one of the best practices for increasingly significant corporations, but it may not fit the context of traditional other countries. The styles of Thai and Japanese organizational management have their own characteristics depending on national culture, beliefs, and values. The perception of Thai characteristics by Japanese employees who work in a Thai context is therefore an interesting topic for study to reduce conflict. The attitudes of Japanese employees toward Thai management styles and how they adapt to the Thai workplace context will be explored throughout this study

2. LITERATURE REVIEW

2.1. Concept of Culture and Management

Culture is the product of a society. Each behavioral pattern has its own distinguishing characteristics, one of which is different from the others. Culture is perceived as a framework of people's thinking, beliefs, and actions. It can be passed on, learned, and shared from one generation to another. Although people all around the world have similar physical appearances and live in social groupings, the way they perceive, express, and react to the environment means individuals differ in the end. On the other hand, we can identify numerous variables in different cultures that explain the variances in people's behavior (Komin, 1990). Cultural influences personality traits in terms of thinking and acting in response to external environmental factors. It comprises a collective society's attitudes, values, motives, ideas, expressions, and behavioral patterns that can be clearly seen by others from each individual (Wejyanon, 2000). Additionally, the culture influences behavior, practices, and decision-making of each nation. National culture influences a country's management style in terms of cooperation culture. Due to this reason, Thai management style differs from Japanese management style.

2.2. Thai-style management

The Thai style of management was derived from a combination of factors derived from social cultures, Buddhism, Chinese management practices, and Western management practices. (Panpae, 2011). An important component of this management is the interaction between Thai culture and religion (Atmiyanandana & Lawler, 2003). Thais place a high value on psychological aspects emphasizing interpersonal feelings and relationships as highly concerned (Wejyanon, 2000; Keeley, 2006). Based on previous studies and information gathered, the following are the characteristics of Thai management style:

2.2.1 Short-term orientation

This dimension has been referenced in many articles and measurement scales to define the difference of each nation's culture. It is defined as the degree to which a culture encourages people to focus on short-term results and goals as opposed to long-term planning and investments. According to Hofstede (2010), it refers to the degree to which a culture values long-term versus short-term rewards. Short-term orientation is typically seen as a more individualistic approach to time and planning, as opposed to a long-term orientation which is seen as a more collective and communal focus on the future.

2.2.2 Power distance

Dimension of power distance is used to characterize the degree of inequality in a society, organization, or group. It indicates the degree to which individuals of a community tolerate the uneven distribution of power and authority. This concept was established by Dutch social scientist Geert Hofstede and is predicated on the premise that members of a community respect the authority of a leader (Hofstede, 2010).

2.2.3 Collectivism

Collectivism is the degree to which individuals in a particular culture prioritize the collective good of their group over individual needs (Hofstede, 2010). This dimension is particularly relevant to understanding how cultures interact and how certain behaviors are valued in different contexts. Panpae (2011) mentioned Thai work culture as a collectivism orientation; focus on groups or parties rather than individual interests.

This is an accurate description of the Thai work culture.

2.2.4 Respecting seniority

Respecting seniority involves recognizing the experience, knowledge and skills of more senior employees and providing them with the appropriate level of respect, support, and recognition. This includes acknowledging their contributions to the organization, following their lead, and offering advice in a respectful manner. In Thai culture norms, seniors are generally treated with greater respect than juniors. It may be difficult for subordinates to disagree with their superiors due to cultural norms. There may be a fear of retribution or social stigma that prevents them from speaking up and expressing their own opinions (Panpae, 2011).

2.2.5 Interpersonal relationship

These dimensions include power, intimacy, trust, communication, commitment, and satisfaction. Power is the ability to influence another person's behavior and is typically seen as a measure of control. Intimacy is the closeness and understanding between two people, and is typically based on shared experiences and mutual respect. Thai firms place a significant focus on interpersonal interactions, both between subordinates and superiors and among coworkers

(Wechyanon, 2000). Furthermore, Thais place a high value on relationships with not only friends, coworkers, and superiors, but also customers and dealers; for example, on a special occasion or birthday, they usually give a gift to a customer or dealer (Chonthicha, 2017).

2.2.6 Patronage system

A patronage system is a system in which a person, typically with wealth and power, provides resources to someone in exchange for political or personal support. This system is based on personal connections and favors, which are used to secure jobs and promotions (Panpae, 2011). The patronage system is based on mutual respect and trust and is seen to ensure loyalty and cohesion within the organization. In addition, this system provides a way for people to advance their career and gain recognition from their peers.

2.2.7 Work environment

Thai workers often strive to maintain a sense of balance and harmony in the workplace and are willing to compromise to avoid conflict. There is a Sabai Sabai phase, which refers to a relaxed and harmonious workplace. Thai people believe that working and pleasure are not separate things; they can happen at the same time (Petison, 2009). Thai management style may be characterized by a preference for resolving conflicts through compromises that emphasize maintaining relationships between parties (Rattanasimakool, 2009). Generally, Thais are not tolerant of stress and place more emphasis on the psychological aspects. Thus, it could be stated that the Thai environment was driven by a fun-pressure orientation (Phichapop, 2011).

2.2.8 Ego orientation

The main character of this dimension is face-saving behavior. This behavior is based on the idea that an individual should avoid appearing foolish or embarrassing himself or herself in order to maintain a positive self-image and earn respect from others. People who engage in face-saving behavior often go to great lengths to avoid putting themselves in uncomfortable or awkward situations, or to avoid making mistakes that could lead to embarrassment.

2.2.9 Work flexibility

Flexibility allows individuals to respond to their environment and to take advantage of opportunities as they arise. On the other hand, honesty is a more rigid set of values that can limit opportunity. This value orientation affects how people interact with others, how they approach business, and how they go about making decisions.

3. METHODOLOGY

The purpose of this study aimed to comprehend the Japanese perceptions and adaptations toward Thai management practices that are deeply rooted in Thai organizations, specifically how Japanese employees perceive and adapt to Thai management culture within Thai organizations that differs from their own, and the consistency between Thai and Japanese

cognition in the contemporary organizational context. The questionnaire was designed to investigate the perception of nine characteristics of Thai management style. The targeted population and sample size were chosen randomly from Japanese and Thais who have work experience in Thailand. The online survey was used to reach the targeted respondent through the Google form. The collected data was then organized into Excel sheets for further analysis by being sorted into different categories and organized into different sheets to make the analysis easier. The item-objective congruence (IOC) and Cronbach's alpha were used to determine the validity and reliability of the questionnaire, respectively. The data was then examined using SPSS and the Python programming language in order to compute the large number of variables between the two groups. The data was used to determine the relation between the variables. Using exploratory factor analysis to identify research results has the additional benefit of identifying groups of interrelated variables between two groups. Also, the t-test is useful for comparing the means of two independent samples or the means of one sample with a known theoretical value. Statistical significance can also be determined by comparing two means. The results of the analysis were then interpreted and presented in the form of tables.

4. RESULT

4.1. Response Rate

The responses were graded on a five-point Likert scale, with 1 being strongly disagreeing and 5 being strongly agreeing, and the overall score was calculated and interpreted according to Table 1.

Table 1: Five-point Likert Scale Interpretation

Weighted average	Result	Result Interpretation
4.20 - 5.00	Strongly Agree	Very high
3.40 - 4.19	Agree	High
2.60 - 3.39	Uncertain	Moderate
1.80 - 2.59	Disagree	Low
1.00 - 1.19	Strongly Disagree	Very low

4.2. Descriptive Characteristics of respondent

4.2.1 Descriptive characteristics of Thais respondent

The majority of the sample group of Thai people surveyed were between the ages of 20 and 39 (25%), with 47.7% being male and 50% being female. 50% of respondents had a bachelor's degree, 40.9% had a master's degree, 6.8% had a doctor's degree, and 2.3% had a high school diploma. Most respondents were managers (63.6%), while 36.4% were in staff positions. The majority of respondents (52.3%) had worked between 1 and 11 years.

Table 2: Thai demographic and personal information

Thais			
		Number	Percent%
1. Gender			
Male		21	47.7
Female		22	50.0
Other		1	2.3
2. Age			
	20-29	10	22.7
	30-39	11	25.0
	40-49	8	18.2
	50-59	8	18.2
	60-69	7	15.9
3. Education			
	High school	1	2.3
	Bachelor's degree	22	50.0
	Master's degree	18	40.9
	Doctorate degree	3	6.8
4. Position			
	Manager	28	63.6
	Staff	16	36.4
5. Working period			
	<1	3	6.8
	1-11	23	52.3
	11-21	4	9.1
	21-31	9	20.5
	31-41	5	11.4

4.2.2 Descriptive characteristics of Japanese respondent

The sample group of Japanese people was mainly composed of male respondents, with 26 respondents being males, or 59.1%. University graduates accounted for the majority, with 42 people having a bachelor's degree, or 95.5%. Most of the respondents were in staff positions, with 34 people in that role, or 77.3%. The majority of respondents (88.6%) had been with their current company for 1 to 11 years.

Table 3: Japanese demographic and personal information

	Number	Percent%
1. Gender		
Male	26	59.1
Female	18	40.9
Other	0	0.0
2. Age		
20-29	2	4.5
30-39	18	40.9
40-49	11	25.0
50-59	11	25.0
60-69	2	4.5
3. Education		
High school Bachelor's degree	42	95.5
Master's degree	2	4.5
Doctorate degree	0	0.00
4. Position		
Manager	10	22.7
Staff	34	77.3
5. Working period		
<1	2	4.5
1-11	39	88.6

Japanese Personal information

11-21	2	4.5
21-31	1	2.3
31-41	0	0.0

4.3. Thai-Japanese perception and adaptation on nine characteristics of Thai-style management

In this study, t-tests were used to identify significant disparities between the Thai and Japanese populations. A factor analysis of the nine survey variables provided the comparative foundation. For the t-test, SPSS was used to compare Thai and Japanese respondents, while Python was utilized to compare two groups for sub-questions due to Python's efficiency in comparing several variables between two groups.

Table 4: Graphical representation for Short-term orientation

	Q1	Q2	Q3	Q4	Q5	Average	Interpretation
Thai	3.30	2.93	2.91	2.73	4.50	3.27	High
Japanese	2.75	3.89	3.98	3.98	4.80	3.88	High

Short-term orientations basically refer to long-term fulfillment, traditional values, family heritage, the past, and persistence. Thai respondents have a high level of immediate satisfaction (Q1) at 3.30 points, considered high. In contrast, Thais rated short-term orientation less positively. Short-term frames do not appear to be as important to them as short-term frames do to the Japanese.

Table 5: Graphical representation for Power distance

	Q6	Q7	Q8	Q8	Average	Interpretation
Thai	2.89	2.16	3.55	3.82	3.10	High
Japanese	2.59	1.68	3.75	2.75	2.69	High

In terms of power distance, the table above shows Thai respondents have a higher score than Japanese respondents on the power distance dimension, indicating a higher level of perception in aspects such as acceptance and respect for the boss's decisions (Q6), roles in the organization (Q8), and unequally shared power in the organization (Q9).

Table 6: Graphical representation for collectivism

	Q10	Q11	Q12	Q13	Q14	Q15	Average	Interpretation
Thai	3.73	4.57	3.55	3.48	2.98	3.89	3.70	High
Japanese	4.50	4.57	4.23	3.14	4.48	1.59	3.75	High

Japanese individuals are more mission-oriented (Q10) and team-oriented (Q12) than Thai people. Both cultures value collaboration (Q11). Japanese and Thai collectivism varies slightly.

Table 7: Graphical representation for respecting seniority

	Q16	Q17	Q18	Q19	Q20	Average	Interpretation
Thai	3.91	3.48	1.68	2.34	1.55	2.59	Low
Japanese	4.36	4.30	2.07	2.95	2.52	3.24	Moderate

The table above shows that Japanese respondents respect seniors (Q16) more than Thai respondents. The Japanese respondents also view seniority as having a more important role in the organization due to their experience (Q17). Additionally, both the Thais and Japanese respondents have a low to moderate view of seniority.

Table 8: Graphical representation for interpersonal relationship

	Q21	Q22	Q23	Q24	Q25	Q26	Average	Interpretation
Thai	4.32	4.36	4.25	3.64	4.11	3.41	4.02	High
Japanese	4.39	4.34	4.20	4.00	4.36	3.89	4.20	Very high

The data above shows that Thais and Japanese both emphasize relationships with coworkers (Q21), bosses (Q24), customers, and business partners (Q25). They are also highly accepted within the organization and are willing to help their colleagues (Q23). They both also have good relationships with friends and customers. Overall, the Japanese and Thai have slight differences in interpersonal relationships.

Table 9: Graphical representation for patronage system

	Q27	Q28	Q29	Q30	Average	Interpretation
Thai	3.36	2.55	2.70	2.66	2.82	Moderate
Japanese	2.32	1.70	2.48	3.48	2.49	Low

In terms of the patronage system, Thais perceive this dimension at a moderate level, believe they work for the boss rather than the company (Q28) at a low level, view recruitment based on satisfaction (Q29) at a moderate level, and view work requiring more personal relationships than potential (Q30) at a moderate level. The Japanese, on the other hand, consider this dimension to be lower than that of Thais.

Table 10: Graphical representation for work environment

	Q31	Q32	Q33	Q34	Q35	Average	Interpretation
Thai	3.82	3.93	4.52	4.39	4.00	4.13	High
Japanese	2.91	3.98	3.32	3.43	2.77	3.28	Moderate

Thais appear to have a higher level of work-related happiness (Q33) than Japanese. This is evident from the higher scores in the survey questions regarding work-related happiness (Q32), satisfaction, the belief that happiness is the key to success at work (Q33), and the perception of preferred relaxing environments (Q34). The Japanese tend to have a lower level of perception in these areas.

Table 11: Graphical representation for ego orientation

	Q36	Q37	Q38	Q39	Q40	Q41	Average	Interpretation
Thai	3.91	3.77	3.00	4.16	1.82	2.32	3.16	Moderate
Japanese	4.25	4.18	2.14	3.98	1.27	2.02	2.97	Moderate

In terms of ego orientation, Thai and Japanese people have a strong sense of their own personality and identity (Q36). They are more likely to give advice and make comments on their boss's decisions (Q41), yet they are more likely to avoid criticism or arguments during meetings (Q39). They are both of moderate ego orientation.

Table 12: Graphical representation for work flexibility

	Q42	Q43	Q44	Q45	Q46	Average	Interpretation
Thai	3.55	3.86	3.34	3.34	2.52	3.32	Moderate
Japanese	2.27	2.48	1.55	1.32	2.36	2.00	Low

Thais and Japanese have different views on work flexibility, with Thais being more focused on results than processes (Q42) and not seeing rules and regulations as necessary (Q45), whereas Japanese have a low level of agreement in these areas. The Japanese also prefer to strictly follow the rules and regulations (Q44) and think it is important.

Table 13: Mean comparison between Thais and Japanese on nine dimensions

Dimensions	Japanese	Thai	p value
Short-term	3.88	3.37	0.00
Power distance	2.69	3.11	0.00
Collectivism	3.75	3.65	(NS)
Respecting	3.24	2.67	0.00
Interpersonal relationship	4.20	3.98	(NS)
Patronage system	2.49	2.87	0.00
Work Environment	3.28	4.13	0.00
Ego orientation	2.97	3.17	0.01
Work Flexibility	2.00	3.34	0.00

The t-test was employed to assess the statistical difference between Thai and Japanese opinions of nine features of Thai-style management. The primary distinctions between Thai and Japanese respondents in the table above involve short-term orientation, power distance, patronage system, work environment, ego orientation and work flexibility.

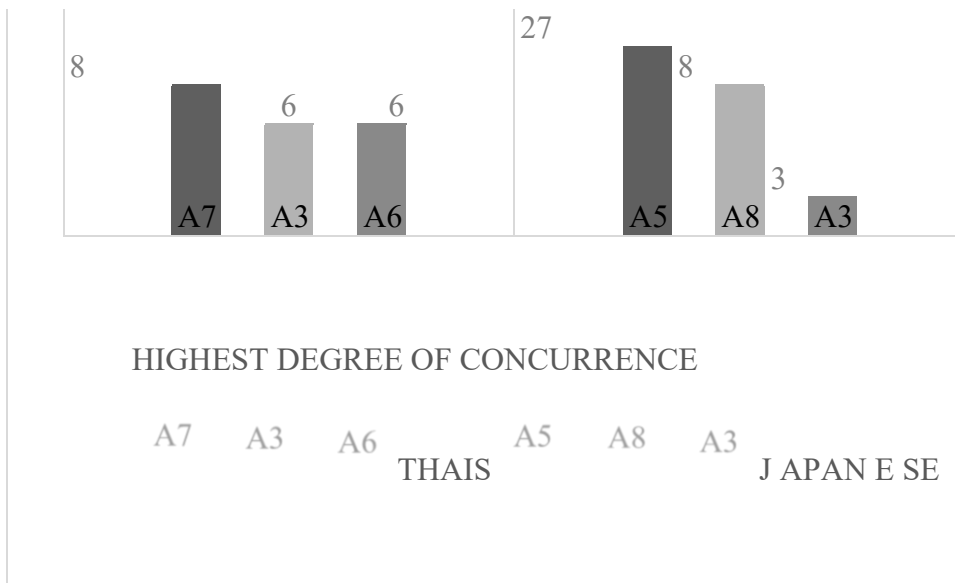
Thais score lower on short-term orientation, higher on power distance, higher on patronage system, higher on the work environment, higher on ego orientation, and lower on work flexibility compared to Japanese respondents. There is only mutual perception on collectivism and interpersonal relationships. These differences can be attributed to cultural and background differences between the two groups.

4.4. Description of the beneficial characteristics of Thai-style management as seen by the Thais and the Japanese

Rating scales concluded the questionnaire. The rating scale questions assess satisfaction with Thai management culture and effectiveness as well as adaptability. Participants rated the following items from 1 to 10, where 1 means strongly agree and 10 means lowest agree or disagree:

1. Short-term planning (A1)

2. Hierarchical chain of commander (A2)

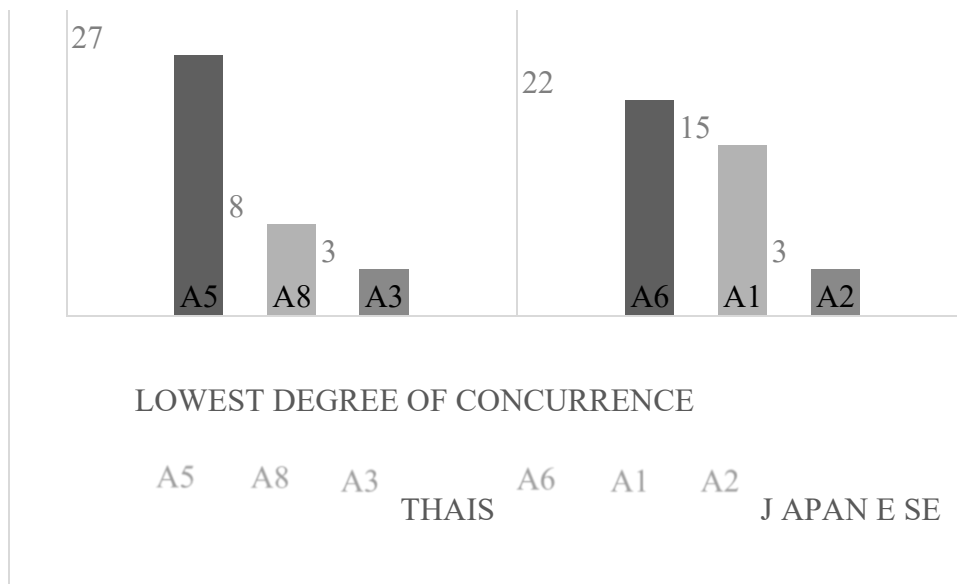


3. Collectivism (A3)
4. Seniority system (A4)
5. Emphasis on interpersonal relationship (A5)
6. Patronage system (A6)
7. Fun-pleasure orientation (A7)
8. Ego orientation (A8)
9. Work Flexibility(A9)
10. Reciprocity of goodness, thoughtfulness, and generosity (A10)

Figure 1: Ranking question statistic of highest ranking

The above figure illustrates the top three characteristics that each respondent group considers to be favorable. At 8 points, the Thai respondents are most in agreement that fun-pleasure orientation (A7) is a beneficial characteristic that should be fitted to the organization. The patronage system (A6) and collectivism (A3) were both voted as secondary fundamental characteristics of the organization and received the same score. On the other hand, Japanese respondents rated the emphasis on interpersonal relationships (A5) as positive and as something that should be adapted to the organization with a score of 27. Work flexibility (A8) was rated as the second most important attribute, followed by a hierarchical chain of command structure (A3) with scores of 8 and 6, respectively.

Figure 2: Ranking question statistic of lowest ranking



The above figure depicts the lowest three favorable characteristics. At 27 points, Thai respondents placed the focus on interpersonal ties (A5) as the least advantageous trait for the organization. The characteristic of ego orientation (A8) was deemed the second detriment to the organization with a score of 8 points, followed by collectivism (A3) as the third unfavorable trait of Thai-style character. In contrast, Japanese respondents ranked the patronage system (A6) as the most negative aspect of Thai culture with a score of 22. Moreover, short-term planning (A1) of Thai-style character was selected as having the second-lowest negative influence on the organization, followed by the command chain's hierarchical structure (A2).

In conclusion, Thai and Japanese respondents differ in their views of the most and least favorable characteristics of a Thai-style organization. While the Thai respondents ranked fun-pleasure orientation as the most favorable and interpersonal relationships as the least favorable, the Japanese respondents ranked interpersonal relationships as the most favorable and the patronage system as the least favorable. Thus, the two groups had different perspectives on the desirable and undesirable traits of a Thai-style organization.

4.5. Exploratory analysis

Exploratory analysis is conducted to analyze the dataset. The Pearson correlation was used to understand the correlation between each of Thai management dimension. The exploratory analysis conducted on the Thai management dimensions showed that there are negligible correlations between certain aspects. It could not indicate further on very low significant correlations that have a relevant on any each dimension on Thai management characteristics. The results of this analysis suggest that there is no clear correlation between the different dimensions of Thai management. While some correlations may be present, they are too small to draw any meaningful conclusions. Additionally, due to the limited sample size,

further research is needed to confirm any potential correlations between the different aspects of Thai management.

5. DISCUSSION

The significant difference in short-term orientation indicated that Thais place more emphasis on immediate satisfaction. Although Thais may have a tendency to consider the long-term perspective as advantageous, they value immediate satisfaction over better future outcomes. This conclusion is relevant to what Swierczek and Onishi (2003) found, which mentioned that Thais place an emphasis on speed and quick judgments, whereas Japanese are more meticulous in their decision-making processes. Regarding the result, the Japanese seem to perceive more benefits from shorter-term characteristics within the organization. It should be highlighted as evidence that the Japanese are beginning to become accustomed, since it indicates they have accepted the Thai tendency toward short-term focus. The difference between the two nations' levels of short-term orientation may be attributable to their distinct cultural values and beliefs. However, Thais feel that long-term planning is more advantageous for the firm, but their opinion underscores the necessity for companies to be adaptable and adopt various tactics based on the situation. According to Petison (2009), Thai and Japanese people appear to place more emphasis on long-term time than westerners, but Japanese people place more emphasis on long-term time than Thai people. Furthermore, the economic and political systems of the two countries may influence the degree of short-term orientation. Japan's government and society are more stable, which may result in a greater emphasis on long-term planning. In Thailand, however, the economic and political climate is more turbulent and uncertain, which might result in a stronger focus on short-term planning.

There is a shared perception of a focus on the collectivist dimension. In Japanese individualist societies, the relationship between employer and employee is primarily regarded as a business transaction (Hofstede, 2010). In Thai culture, Petison (2009) defined Thai working culture as placing more importance on group than individual; they greatly focus on the relationships of people in the circle or department and expect to develop a strong relationship with companions. In conclusion, the mutual perception of an emphasis on the collectivism dimension is an indicator of Japanese adaptation because it represents an acceptance of Thai tendencies toward group work. As well as the interpersonal dimension, Thais and Japanese have a mutual interest in placing importance on the relationships between coworkers, supervisors, and even customers.

From the Japanese perspective, they believe that experience and knowledge gained with age should be respected and valued, and that senior staff should be respected for their contributions and experience. The Japanese also place a significantly different level of emphasis on respecting seniority due to the Japanese culture's expectation that the younger members of society will show respect and deference to their elders. In Thai culture, there is a "Kraeng cai"

value; this relationship is based on the concept of "kreng jai," which is a term that conveys the idea of being considerate, accommodating, and willing to let others have their way. This means that employers are expected to show respect and care for their employees, and employees are expected to show loyalty and commitment to the organization. As Firkola (2014) points out, seniority-based approaches can slow and limit the early years of a career. In a similar manner, Thai people believe that respecting seniority may act as a means of suppressing the younger generation. Thais believe that seniority systems should be balanced with merit-based promotion to ensure that everyone is given a fair and equal opportunity to succeed. At the same time, the contributions and experience of the older generations should be respected and valued. On the other hand, Japanese culture is much stricter and more hierarchical than Thai culture. Japanese society is based on a strict system of hierarchy and respect for elders, while Thais are generally more relaxed in this regard and do not always show the same level of respect towards elders.

Hey (2014) describes traditional Thai society as one governed by hierarchies and patronage by people who understand their position within the system. The patronage system in Thailand is based heavily on relationships and personal connections. This means that people who know each other well or have a strong relationship are more likely to be successful in obtaining jobs or promotions. In contrast, Japanese companies typically focus more on merit and performance than personal relationships. Thais perceive unfair treatment and discrimination in the workplace differently than Japanese. They also sense that the personal connection has a big influence on the promotion and recruitment systems. In Sirirattana (2011), most Thai organizations use their personal relationships in many ways, such as recruiting acquaintances or introducing family members into the organization. Thai employees, on average, have significantly more positive perceptions of how relationships and personal connections influence work within the company. Japanese seem to have a sense of unfair treatment in the workplace at a low level compared to Thai people.

The Thai workplace is characterized by a sense of harmony and compromise. This trait is shown in "Sabia Sabia" work, relating to a peaceful workplace and harmony (Luekens, 2015). According to the results, Thais seem to favor happiness and relaxation during work hours. They believe that working in a stressful atmosphere would decrease efficiency and production in accordance with Petison (2009) mentioned that Thais generally think work and fun are not separate things. They also like to balance their work life with leisure activities and relaxation. Generally, both cultures recognize the importance of a healthy balance between joy and relaxation and challenging work. However, they have different opinions on how to achieve this balance. While the Thais prefer a relaxed work environment, the Japanese view stress as an important factor for success.

Thai people tend to be more indirect and avoid confrontational situations. They also place a strong emphasis on caring for the feelings of others. This concept is often seen in the workplace, where Thai employees are reluctant to be overly critical or openly challenge authority. A criticism of any kind is a social affront and an insult to the individual. It may be necessary to use indirect means when necessary (Komin 1990).

There is a consensus among both Japanese and Thais about avoiding making comments or criticisms during meetings in public, especially about the boss's decision. Mainly, both Japanese and Thai cultures emphasize avoiding confrontational situations and caring for others as important factors associated with maintaining a harmonious workplace. However, the statistics show that the Japanese have a lower perceived ego orientation compared to Thai people.

Thais prefer flexible work practices over strict compliance with the company's rules and regulations (Wedchayanon, 2000). Additionally, Thais tend to place greater importance on accomplishing a desired outcome than on adhering to established norms and regulations. According to Petison (2009), the Japanese prefer long-term scenario planning and are resistant to change due to their long-term orientation. The Japanese also value hard work and dedication to their jobs; they believe that putting in long hours will yield better results. The statistical outcome showed that there is a significantly different perception in this dimension. The Japanese place a high value on rules and regulations. On the other hand, Thais dislike strict rules and regulations. In accordance with Swierczek and Onishi (2002), their findings show that Thailand's employees feel that Japanese management adheres too strictly to regulations and rules, which makes them uncomfortable. In a similar manner, Thai subordinates prefer to be flexible. Overall, the statistics show that there is huge diversity in the perception of flexibility in Thai and Japanese groups. Japanese tend to be more rigid in their work practices, while Thais prefer to be more flexible.

6. CONCLUSIONS

The findings of the analysis demonstrated significant differences in short-term orientation, power distance, patronage system, ego orientation, work flexibility and collectivism and interpersonal relationship dimensions between Thai and Japanese cultures. The Japanese adapt to Thai culture by emphasizing the collectivist and interpersonal relationship dimensions, which could lead to improved communication and cooperation between the two countries. This could ultimately lead to better working relationships and mutual understanding. The mutual adaptation between Japanese and Thais is evident in their perceptions of collectivism and interpersonal dimensions. These dimensions are indicative of a willingness to accommodate each other's cultural preferences, demonstrating a commitment to the development of mutually beneficial relationships. Furthermore, the mutual adaptation of

these dimensions serves to foster a more harmonious work environment and to improve the overall efficiency of the organization.

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Table 1: Five-point Likert Scale Interpretation

Table 2: Thai demographic and personal information

Table 3: Japanese demographic and personal information

Table 4: Graphical representation for Short-term orientation

Table 5: Graphical representation for Power distance

Table 6: Graphical representation for collectivism

Table 7: Graphical representation for respecting seniority

Table 8: Graphical representation for interpersonal relationship

Table 9: Graphical representation for patronage system

Table 10: Graphical representation for work environment

Table 11: Graphical representation for ego orientation

Table 12: Graphical representation for work flexibility

Table 13: Mean comparison between Thais and Japanese on nine dimensions

Table 1: Pearson correlation on Thai group

Dimensions		Shortterm	Power distance	Collectivism	Respecting seniority	Interpersonal relationship	Patronage system	Work environment	Ego orientation	Work flexibility
Shortterm	Pearson Correlation	1	.334*	0.140	.489**	.360*	0.161	0.292	0.072	.422**
	P value		0.05	(NS)	0.01	0.05	(NS)	(NS)	(NS)	0.01
	level of correlation		negligible	(NS)	negligible	negligible	(NS)	(NS)	(NS)	negligible
Power distance	Pearson Correlation	.334*	1	-0.001	.441**	0.082	0.122	-0.043	-0.051	0.232
	P value	0.05		(NS)	0.01	(NS)	(NS)	(NS)	(NS)	(NS)
	level of correlation	negligible		(NS)	negligible	(NS)	(NS)	(NS)	(NS)	(NS)
Collectivism	Pearson Correlation	0.140	-0.001	1	0.055	0.127	-.380*	-0.128	-.466**	-0.273
	P value	(NS)	(NS)		(NS)	(NS)	0.050	(NS)	0.010	(NS)
	level of correlation	(NS)	(NS)		(NS)	(NS)	negligible	(NS)	negligible	(NS)
Respecting seniority	Pearson Correlation	.489**	.441**	0.055	1	0.195	0.079	0.088	-0.121	.332*
	P value	0.01	0.01	(NS)		(NS)	(NS)	(NS)	(NS)	0.05
	level of correlation	negligible	negligible	(NS)		(NS)	(NS)	(NS)	(NS)	negligible
Interpersonal relationship	Pearson Correlation	.360*	0.082	0.127	0.195	1	0.061	.532**	-0.014	0.139
	P value	0.05	(NS)	(NS)	(NS)		(NS)	0.01	(NS)	(NS)
	level of correlation	negligible	(NS)	(NS)	(NS)		(NS)	negligible	(NS)	(NS)
Patronage system	Pearson Correlation	0.161	0.122	-.380*	0.079	0.061	1	0.117	.530**	0.199
	P value	(NS)	(NS)	0.05	(NS)	(NS)		(NS)	0.01	(NS)
	level of correlation	(NS)	(NS)	negligible	(NS)	(NS)		(NS)	negligible	(NS)
Work environment	Pearson Correlation	0.292	-0.043	-0.128	0.088	.532**	0.117	1	0.246	0.113
	P value	(NS)	(NS)	(NS)	(NS)	0.01	(NS)		(NS)	(NS)
	level of correlation	(NS)	(NS)	(NS)	(NS)	negligible	(NS)		(NS)	(NS)
Ego orientation	Pearson Correlation	0.072	-0.051	-.466**	-0.121	-0.014	.530**	0.246	1	0.078
	P value	(NS)	(NS)	0.01	(NS)	(NS)	0.01	(NS)		(NS)
	level of correlation	(NS)	(NS)	negligible	(NS)	(NS)	negligible	(NS)		(NS)
Work	Pearson	.422**	0.232	-0.273	.332*	0.139	0.199	0.113	0.078	1

Acknowledgement

flexibility	n Correlation									
	P value	0.01	(NS)	(NS)	0.05	(NS)	(NS)	(NS)	(NS)	
	level of correlation	negligible	(NS)	(NS)	negligible	(NS)	(NS)	(NS)	(NS)	

Table 2: Pearson correlation on Japanese group

Dimensions		Short-term	Power distance	Collectivism	Respecting seniority	Interpersonal relationship	Patronage system	Work environment	Ego orientation	Work flexibility
Short-term	Pearson Correlation	1	.386**	.433**	.491**	.328*	-.314*	-0.093	-0.083	-0.131
	P value		0.01	0.01	0.01	0.05	0.05	(NS)	(NS)	(NS)
	level of correlation		negligible	negligible	negligible	negligible	negligible	(NS)	(NS)	(NS)
Power distance	Pearson Correlation	.386**	1	0.047	.319*	0.123	0.276	0.296	-0.297	0.060
	P value	0.01		(NS)	0.05	(NS)	(NS)	(NS)	(NS)	(NS)
	level of correlation	negligible		(NS)	negligible	(NS)	(NS)	(NS)	(NS)	(NS)
Collectivism	Pearson Correlation	.433**	0.047	1	.417**	.359*	-0.246	0.099	-0.006	0.040
	P value	0.01	(NS)		0.01	0.05	(NS)	(NS)	(NS)	(NS)
	level of correlation	negligible	(NS)		negligible	negligible	(NS)	(NS)	(NS)	(NS)
Respecting seniority	Pearson Correlation	.491**	.319*	.417**	1	.339*	-.350*	-0.021	0.108	-0.109
	P value	0.01	0.05	0.01		0.05	0.05	(NS)	(NS)	(NS)
	level of correlation	negligible	negligible	negligible		negligible	negligible	(NS)	(NS)	(NS)
Interpersonal relationship	Pearson Correlation	.328*	0.123	.359*	.339*	1	-0.169	0.271	-0.070	-0.082
	P value	0.05	(NS)	0.05	0.05		(NS)	(NS)	(NS)	(NS)
	level of correlation	negligible	(NS)	negligible	negligible		(NS)	(NS)	(NS)	(NS)
Patronage system	Pearson Correlation	-.314*	0.276	-0.246	-.350*	-0.169	1	.592**	-0.155	0.205
	P value	0.05	(NS)	(NS)	0.05	(NS)		0.01	(NS)	(NS)
	level of correlation	negligible	(NS)	(NS)	negligible	(NS)		negligible	(NS)	(NS)
Work environment	Pearson Correlation	-0.093	0.296	0.099	-0.021	0.271	.592**	1	0.083	.445**
	P value	(NS)	(NS)	(NS)	(NS)	(NS)	0.01		(NS)	0.01
	level of correlation	(NS)	(NS)	(NS)	(NS)	(NS)	negligible		(NS)	negligible
Ego orientation	Pearson Correlation	-0.083	-0.297	-0.006	0.108	-0.070	-0.155	0.083	1	.358*
	P value	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)		0.050
	level of correlation	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)		negligible
Work flexibility	Pearson Correlation	-0.131	0.060	0.040	-0.109	-0.082	0.205	.445**	.358*	1
	P value	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)	0.010	0.050	
	level of correlation	(NS)	(NS)	(NS)	(NS)	(NS)	(NS)	negligible	negligible	

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EFFECT OF TASK ACHIEVEMENT BEHAVIOR ON THE RELATIONSHIP BETWEEN MEMBER SATISFACTION AND PROCESS QUALITY IN SMALL-SCALE PROJECTS

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Abstract.

The purpose of this study is to investigate the effect of task achievement behavior on the relationship between member satisfaction and process quality in small-scale projects. An experiment was conducted on 38 students of 2022 project management exercise (Project Based Learning) at Chiba Institute of Technology. Participant's satisfaction was investigated in a five-step evaluation based on the questionnaire survey, and process quality was investigated in terms of the planned number of days and the sufficiency of the implementation number of days for each process. In this study, quantification type 1 was employed. Quantification type 1 is a method of explaining or predicting the value of a quantitatively measured target variable based on information on category data (qualitative data) such as name and order scales. To check the consistency of the analysis results, coefficient of determination was evaluated. In this study, the satisfaction and process quality of members are used as explanation variables (category data) and the number of task achievement actions is used as criterion variables (quantity data). However, the data applied to quantification type 1 should satisfy the formula "Individual > Total Category - Description Variable Item Count + 1". Therefore, the standard deviation of each item of member satisfaction was found and explanatory variables were selected. As a result, Q1, Q2, Q4, Q6, Q13, Q14 and Q18, programming, test, specification change, internal design, and delivery became explanatory variables. The coefficient of determination was 0.892, and it was proved that the number of task-achieving actions influenced the relationship between member satisfaction and process quality. It was found that project managers' low satisfaction with skills and communication related items increased the number of task-achieving actions.

1. INTRODUCTION

The theory of leadership behavior of project managers is one of the most important factors that have a significant impact on the success of a project. System development projects have become more complex in recent years. Therefore, project managers must manage their teams in accordance with the Leadership Behavior Theory in order to lead their projects to success. However, even if the project succeeds in managing the team in accordance with the Leadership Behavior Theory, are the members satisfied with the team management? If we can extract the processes of successful projects with high satisfaction of members and followers, and derive appropriate team management methods by project managers, we believe that the likelihood of successful projects will increase.

Leadership behavior theories are divided into task-achievement-oriented and human-relationship-oriented theories. Misumi (1990) found that if the supervisor was oriented toward both task achievement and human relations, the workers would have the highest productivity and satisfaction with the supervisor and their work and tested the question of why productivity and satisfaction are higher than for supervisors who are only relationship-oriented. Ouchi (2000) also analyses that follower satisfaction with work is also a function of the supervisor's leadership and success or failure in the task, and that there are categories of planning and pressure in task achievement-oriented behavior, and status quo maintenance and expectation support in human relations-oriented behavior. The analysis shows that there are categories of planning and pressure in task achievement-oriented behavior, and status quo maintenance and expectation support in relationship-oriented behavior.

In a small-scale system development project, when the project ends and the member's satisfaction is investigated, it tends to be high overall. It is considered that the reason for this is the sense of accomplishment of completing the project and the consideration of the high quality of the product. In other words, in the satisfaction survey conducted at the end of an existing small-scale project, the sense of accomplishment, process quality, and product quality are mixed up, so it seems that an accurate survey of member's satisfaction with process quality is not being conducted. By conducting this research, we will identify the influence of the project manager's task achievement behavior on the relationship between member satisfaction and process quality.

2. METHODS

After the project management exercise, a survey of member satisfaction and task achievement behavior was conducted on the research subjects using a questionnaire, and data on process quality and task achievement behavior was collected from the deliverables of the project management exercise, using Google Colaboratory. Source code was created to perform Quantification I using Python, and data analysis was conducted with task achievement behavior as the objective variable and member satisfaction and process quality as explanatory variables.

The research targets are students who belong to the Faculty of Social Systems Science of Chiba Institute of Technology in the academic year 2022.

2.1. Task-achieving behavior

In this study, task-achieving behavior is defined as behavior to achieve group goals and solve problems. Examples include the following four.

- Appropriate elemental decomposition of objectives and design of appropriate intermediate indicators and intermediate targets.

- The implementation plan for achieving the objectives is rigorously constructed and implemented.

- Timely and appropriate progress management and intervention to ensure implementation.

- Takes the initiative in complying with organizational rules and ensures that members comply with them.

In the course of a project, depending on the progress of team and individual tasks, not only top-down task accomplishment behavior from the project manager but also cooperative outsourcing between members is considered to exist, so when investigating task accomplishment behavior, a questionnaire is administered not only to the project manager but also to all members, including members and engineers.

2.2. Member satisfaction

Member satisfaction refers to the level of satisfaction with the project as a whole and the level of satisfaction of the members with the leader at the end of the project in each project team.

The 17 questions were developed by myself with reference to the 13 items of Ouchi (2000), and used as the members' satisfaction survey in this study.

2.3. Questionnaire survey

Q1 and Q2 are used to classify the research subjects, Q3 to Q19 are questions about member satisfaction, and Q20 and Q21 are questions about task achievement behavior.

Table 1: Questionnaire survey

Number	Questions	Response item
Q1.	The team to which you belong	A · B · C · D · E · F · G
Q2.	Your position	Project manager · Member · Engineer
Q3.	Overall project satisfaction	Very satisfied · Somewhat satisfied · Neither satisfied nor dissatisfied · Somewhat dissatisfied · Very dissatisfied
Q4.	Team performance	Very satisfied · Somewhat satisfied · Neither satisfied nor dissatisfied · Somewhat dissatisfied · Very dissatisfied
Q5.	Overall team morale	Very satisfied · Somewhat satisfied · Neither satisfied nor dissatisfied · Somewhat dissatisfied · Very dissatisfied
Q6.	Communication between leaders and members	Very satisfied · Somewhat satisfied · Neither satisfied nor dissatisfied · Somewhat dissatisfied · Very dissatisfied

Q7.	Communication among members	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q8.	Leader and members cooperation	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q9.	Cooperation among members	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q10.	Trust between leaders and members.	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q11.	Trust among members	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q12.	Satisfaction with being part of the team.	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q13.	On the management of leader	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q14.	Leader's competence	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q15.	Member's competence	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q16.	Engineer's competence	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q17.	Member's understanding of the team situation.	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q18.	Troubleshooting within the team	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q19.	Teamwork as a whole	Very satisfied ▪ Somewhat satisfied ▪ Neither satisfied nor dissatisfied ▪ Somewhat dissatisfied ▪ Very dissatisfied
Q20.	What is task achievement behavior?	(Descriptive expression)
Q21.	How many times did you performed the task achievement behavior?	(Descriptive expression)

For item 1, respondents were asked to select from the "A, B, C, D, E, F, G" ; for item 2, they were asked to select from the "Project manager, Member, Engineer" ; and for items 3 to 19, a five point Likert scale was used, with a five-point rating of "Very satisfied, Somewhat satisfied, Neither satisfied nor dissatisfied, Somewhat dissatisfied, Very dissatisfied". Items 20 and 21 are descriptive expression.

2.4. Process quality

Generally, process quality refers to the quality of project processes.

In this study, based on the content of the lectures in the project management exercises, the project processes are the specification change sheet, internal design documents, contract, programming, test, manual, and delivery.

The process quality is evaluated according to the sufficiency of the process implementation status of these processes. In other words, 'planned days > implemented days' is assessed as sufficient, while 'planned days < implemented days' is assessed as not sufficient.

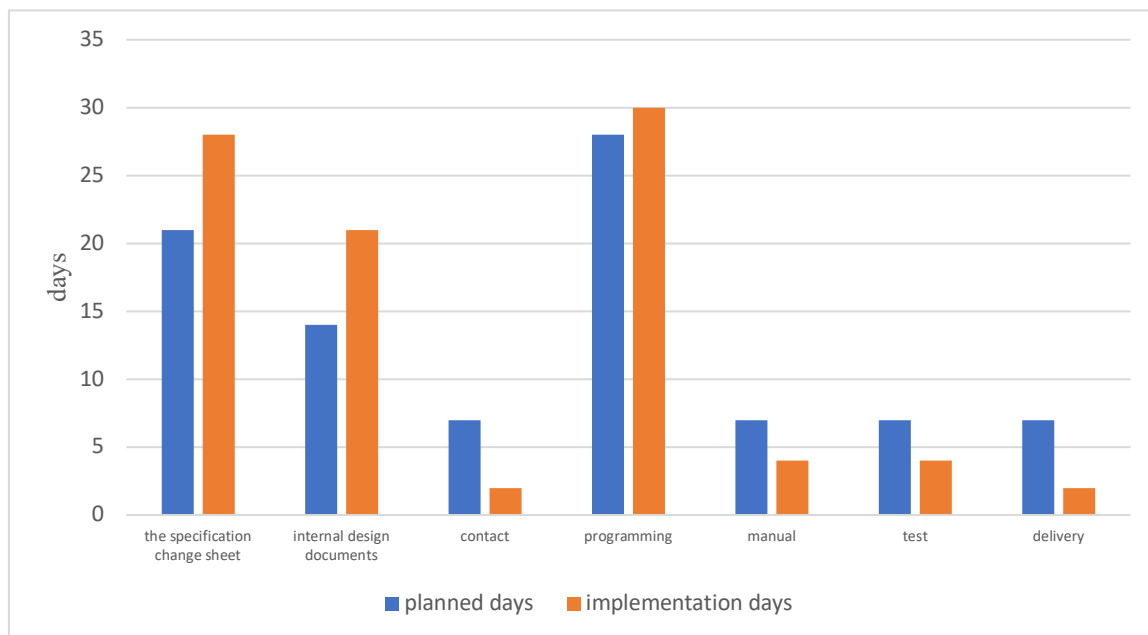


Figure 1: Example of planned days and implementation days

Using this graph as an example to measure the sufficiency of process quality:

- Specification change sheets are not sufficient because 'planned days < implementation days'
- Internal design documents are not sufficient because 'planned days < implementation days'

- This contract is sufficient because 'planned days > implementation days'
- Programming is not sufficient because 'planned days < implemented days'.
- Manual is sufficient because 'planned days > implementation days'.
- Test is sufficient because 'planned days > implementation days'.
- Delivery is sufficient because 'planned days > implementation days'.

2.5. Quantification I

In this study, Quantification I is used as a data analysis method with reference to Nagazoe et al. (2008) and Suga (2016).

Quantification I is a method for explaining or predicting the value of an objective variable based on the information about the explanatory variables. Explanatory variables in quantification I refer to categorical data (qualitative data) such as nominal and ordinal scales. As examples, name, gender, ranking and a five-point scale for grades are explanatory variables. Objective variables in quantification type I refer to quantitative data measured quantitatively, such as interval scales and proportional scales. For example, temperature, deviation, price, and size are target variables.

The explanatory variables in this study are member's satisfaction and process quality, and the objective variable is the number of task achievement actions. Therefore, the analysis measures the influence of the explanatory variables, member satisfaction and process quality, on the objective variable, the number of task-achieving actions and predict the number of task-achieving actions from the conditions of the explanatory variables.

According to Suga (2016), data to be applied to quantification type I must satisfy the following formula: "number of individuals > total number of categories - number of explanatory variable items + 1".

The number of individuals is the number of subjects studied, which in this study is 38.

The total number of categories is the sum of the number of categories for each explanatory variable: 7 for Q1, 3 for Q2, 5 for each of Q3 to Q19 and 2 for each process for process quality, making a total of 104 categories.

The number of explanatory variable items refers to the number of items in the explanatory variable. In this study, the number of items for satisfaction is 19 and the number of items for process quality is 7, so the total number of explanatory variable items is 26.

Substituting each number into "total number of categories - number of explanatory variable items + 1" results in "104 - 26 + 1 = 79", which greatly exceeds the number of individuals of 38, so the data to be applied must be classified. Q1 is about the team you belong

to, and Q2 is about your position in the team. These two items cannot be removed because they are different from satisfaction and process quality.

However, as the number of items is very large for satisfaction excluding even Q1 and Q2, in order to classify the data to be applied, a score was given to the content of the answers to each item, the standard deviation was obtained, and the items were applied in order from the one with the largest standard deviation. For this reason, in this study, for the satisfaction question items, scores were given as follows: 5 points for very satisfied, 4 points for somewhat satisfied, 3 points for neither satisfied not dissatisfied, 2 points for somewhat dissatisfied and 1 point for very dissatisfied, and the standard deviation was calculated. The following table shows the results.

Table 2: Standard deviation and Rank of Explanatory variable

Explanatory variable	Standard deviation	Rank
Q3	1.075	6
Q4	1.163	3
Q5	1.075	6
Q6	1.097	4
Q7	0.867	15
Q8	1.010	11
Q9	1.061	8
Q10	1.054	9
Q11	1.038	10
Q12	0.897	14
Q13	1.260	2
Q14	1.293	1
Q15	0.792	17
Q16	0.815	16
Q17	0.986	12
Q18	1.076	5
Q19	0.969	13

For process quality, the data used for process quality is 'Specification Change Document, Internal Design Document, Programming, Testing and Delivery', as all teams had sufficiency in the manual and the process of this contract, and no variances were found.

The data for the items "Q1, Q2, Specification changes, internal design, programming, testing, delivery" are not removed, so the total number of categories is 20 and the number of items in the explanatory variable is 7.

Substituting this number into "Total number of categories - Number of items of explanatory variables + 1" yields "20-7+1=12", which is 26 less than 38. 4 items from Q3 to Q19 are added per item, so the highest value of x that satisfies "38>12+4x" is 6. Therefore, add the six items in order from the one with the largest standard deviation. Six items should be added in order of increasing standard deviation, but as Q3 and Q5 are the sixth largest items, the five items to be added are Q14, Q13, Q4, Q6 and Q18.

3. RESOLT

The coefficient of determination was 0.892, which means that the accuracy of the analysis was high.

The regression coefficients and category scores for each explanatory variable are shown in the table below.

Table 3: Regression coefficient and Category scores

Items of explanatory variables.	Regression coefficient	Category scores
Q1_A	-0.091	0.018
Q1_B	-0.702	-0.592
Q1_C	0.010	0.120
Q1_D	-0.842	-0.733
Q1_E	1.226	1.335
Q1_F	-1.225	-1.115
Q1_G	1.626	1.735
Q2_Project Manager	1.629	1.498
Q2_Member	0.634	0.503
Q2_Engineer	-2.263	-2.394
Q4_Very Satisfied	-1.578	-1.960
Q4_Somewhat Satisfied	-0.442	-0.824
Q4_Neither satisfied nor dissatisfied	1.046	0.664
Q4_somewhat dissatisfied	3.658	3.276
Q4_Very dissatisfied	-2.684	-3.066
Q6_Very Satisfied	-2.265	-1.378
Q6_Somewhat Satisfied	0.141	1.028
Q6_Neither satisfied nor dissatisfied	0.036	0.923
Q6_Very dissatisfied	2.088	2.975
Q13_Very Satisfied	-5.203	-4.065
Q13_Somewhat Satisfied	0.857	1.995
Q13_Neither satisfied nor dissatisfied	-0.307	0.831
Q13_somewhat dissatisfied	4.617	5.755
Q13_Very dissatisfied	0.036	1.174
Q14_Very Satisfied	1.778	2.243
Q14_Somewhat Satisfied	-6.124	-5.659
Q14_Neither satisfied nor dissatisfied	7.606	8.071
Q14_somewhat dissatisfied	-5.980	-5.515
Q14_Very dissatisfied	2.720	3.184
Q18_Very Satisfied	-2.287	-1.205
Q18_Somewhat Satisfied	-2.384	-1.302

Q18_ Neither satisfied nor dissatisfied	1.970	3.052
Q18_ somewhat dissatisfied	2.701	3.783
Specification change sheets_available	4.677	2.954
Specification change statement_none	-4.677	-6.400
Internal design documents_available	4.677	2.954
Internal design documents_none	-4.677	-6.400
Programming_available	1.511	1.670
Programming_none	-1.511	-1.352
Test_available	1.672	0.968
Test_none	-1.672	-2.376
Delivered_ Yes	1.672	0.968
Delivery_None	-1.672	-2.376

The following graph shows the items and category scores of the explanatory variables in an easy-to-read format.

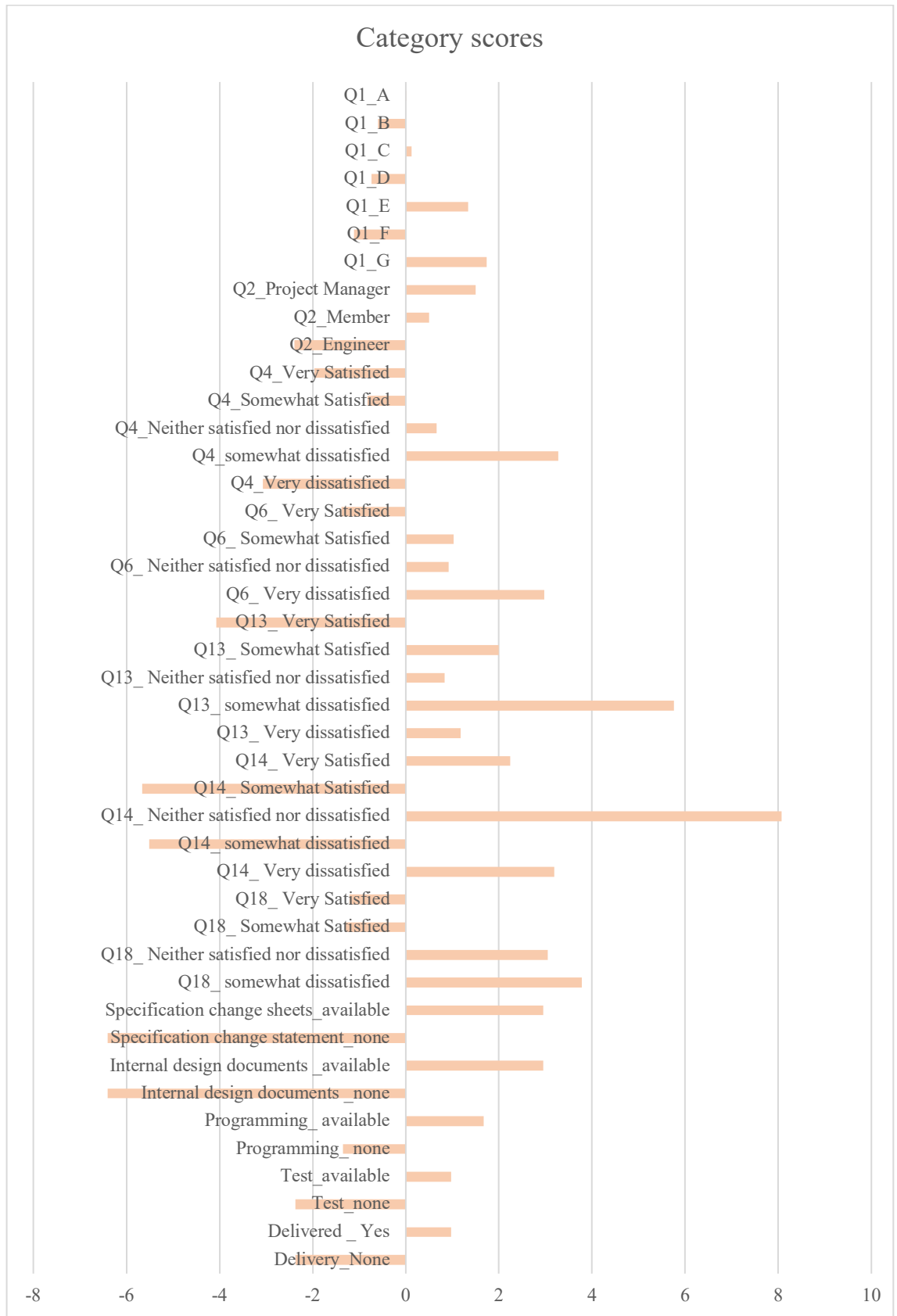


Figure 2: Category scores

4. DISCUSSION

It was found that in the items of satisfaction, task-achieving behavior decreased as satisfaction increased, and task-achieving behavior increased as satisfaction decreased in all items except Q14.

In terms of satisfaction, Q14 was found to have the greatest influence on task achievement behavior.

For position, it was found that task-achieving behavior increased for leaders and members, while task-achieving behavior decreased for engineers. For leaders and members, it was also found that the task-achieving behavior increased more for the position of leader.

All process qualities were found to increase task accomplishment behavior when sufficiency was present.

Among the processes, specification change sheets and internal design sheets were found to have a significant influence on issue accomplishment behavior.

The maximum number of task-accomplishing actions was predicted to be 37 when the item content was under the following conditions.

Q1. Your team _G

Q2. Your position is _Project Manager

Q4. Your team's performance _somewhat dissatisfied

Q6. Communication between leader and members _somewhat dissatisfied

Q13. Leader's management _somewhat dissatisfied

Q14. Leader's competence _neither satisfied nor dissatisfied

Q18. Handling of problems in the team _somewhat dissatisfied

• Testing _Sufficient

• Programming _sufficient

• Specification changes _sufficient

• Internal design documentation _sufficient

• Delivery _sufficiently

5. CONCLUSION

In this study, the coefficient of determination was 0.892 as a result of the analysis by quantification class 1. Since it can be judged that the accuracy of analysis by quantification type I is very good, it was proved that task achievement behavior affects the relationship between member satisfaction and process quality.

For almost all explanatory variables related to satisfaction, the number of task-achieving behaviors increases when the member's satisfaction is low. In particular, when the level of satisfaction with project manager's skills and communication is low, the number of task-achieving behaviors increases. This is thought to be due to the fact that leaders who do not have management skills give instructions while communication with members is lacking, and the members are dissatisfied with the fact that it becomes a useless task.

Among the process quality explanatory variables, the category scores for two items, specification change sheets and internal design documents, were higher than for the other items, suggesting that low satisfaction increases the number of task-fulfilment actions in processes with long durations and many members involved.

In process quality, we had considered that the value of the programming category score would be larger, but we believe that the value of the category score was smaller because of the outsourced team.

As a future perspective, in this study, the number of individuals in the data was 38, which reduced the number of items of explanatory variables that could be used. Therefore, if the number of individuals is increased, more items of explanatory variables can be applied and a more accurate analysis may be possible.

The category score of Q14 was wider than the other satisfaction items, but the leader's ability was expressed vaguely, so if the leader's ability could be set in detail and the level of satisfaction measured, it would be possible to investigate the influence of a clearer level of satisfaction on task achievement behavior.

In the process quality section, data was collected on the sufficiency of each process, so it may be possible to investigate the influence of process quality in more detail if it is calculated as a percentage and divided into several classes for analysis.

In addition, this study was conducted after the project had finished, but as the project under investigation finished after 13 to 15 weeks, it would be possible to collect clearer data if a weekly questionnaire survey of satisfaction and task-achieving behavior was conducted. However, in this case, the level of satisfaction would be irregular, changing from week to week, and data analysis may not be possible.

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A STUDY ON THE ESTIMATION OF APPROPRIATE PLANNED VALUES OF EARNED VALUE MANAGEMENT FOR SMALL SCALE PROJECTS

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Abstract.

EVM (Earned Value Management) is one of the important tools that quantitatively evaluates how a project is being executed in terms of planned PV (Planned Value) and budgeted AC (Actual Cost) and allows the cost efficiency and progress rate EV (Earned Value). The merit of this method is to evaluate project progress quantitatively. On the other hand, the limitation of EVM requires accurate PV estimation for evaluating project progress properly. Depending on the knowledge and experience of the project managers, the estimation of the PV could be inaccurate. In this study, we proposed A-PV (Appropriate Planned Values), an index based on the trend of previous EV data of similar software development projects. A-PV was calculated with reference to six similar software development projects. It is completed by showing the EV as a percentage against the total budget EAC (Estimate At Completion) and taking the average value. Since the unit of A-PV is a percentage, it can be used for projects with different budgets. A-PV was introduced to project-based learning to the inexperienced participants by providing standard WBS (Work Breakdown Structure), which enabled the participants to estimate the PV accurately. As a result, A-PV contributes to estimating the cost overrun and schedule delay accurately.

Keywords: *Project Management, EVM, Scheduling, Quantitative Management, Software Development*

1. INTRODUCTION

The use of progress management tools is necessary to monitor and control projects. One of the effective progress management tools is EVM, a method of managing whether a project is progressing as planned by displaying Planned Values (PV), Earned Value (EV), and Actual Cost (AC) for each period on a line graph. By comparing the planned values with the EV and actual values, schedule and cost variances can be grasped immediately. Since the unit of measure is based on the Actual Cost (AC), project management is considered in terms of cost rather than time. Therefore, quantitative evaluation is possible. To make an objective evaluation with EVM, an accurate estimate of PV is necessary. Since EV and AC are evaluated based on PV, a wrong estimation of PV will lead to a wrong interpretation of the project's progress.

In this paper, an experiment was conducted with students who were conducting a

software development project-based learning (PBL) using EVM. We then presented a method for planning appropriate PVs and accurate project evaluation.

Table 1 Some Basic EVM Terminologies

Term	Formal name	Explanation
BAC	Budget At Completion	Budget or planned cost to complete.
PV	Planned Value	The amount of output (cost) assigned to each task at the time of planning. The amount of output (cost) originally assigned to
EV	Earned Value	the work completed up to the present time. For example, even if a project that was assigned an output (cost) of 10 at the time of planning is completed at a cost of 20, the actual output (EV) will be 10.
AC	Actual Cost	The actual cost incurred to do the work.
SV	Schedule Variance	$SV=EV-PV$ The difference seen from the schedule side of each work is shown.
CV	Cost Variance	$CV=EV-AC$ The difference seen from the cost aspect of each work is shown.
EAC	Estimate At Completion	An estimate of the total cost to complete estimated to date.
ETC	Estimate To Complete	Estimated cost of remaining work estimated from now to completion.

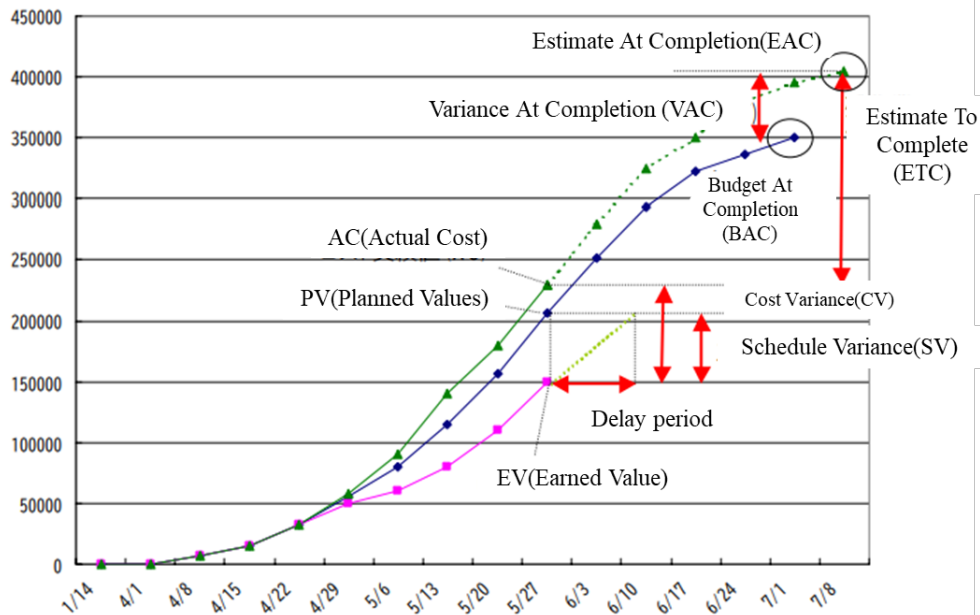


Figure 1 EVM

Source: Guideline for Introduction of EVM-based Project Management (2003).

2. METHOD OF STUDY

2.1 Research Procedure

- (1) Investigate the EVM used in the PBL named "PM Exercise" in the Department of Project Management at Chiba Institute of Technology in the year 2021.
- (2) Create WBS (Work Breakdown Structure). Pick up the necessary tasks by referring to the past data. Examine the time required for the work and summarize it.
- (3) Plan according to the PV graph created in (1) in accordance with the estimate in (2).
- (4) The flow from (1) to (3) is summarized on a single Excel sheet, and the format for creating the appropriate PV is presented.
- (5) In the PBL of the PM exercise for third-year students of the Department of Project Management in FY2022, create and operate an EVM using appropriate PV as an indicator.

2.2 The Project Management Exercise

The Project Management Exercise (first semester of the third year) is a continuation of the Project Management Experiment (second semester of the second year) of the preceding year. In the project management experiment, students learn basic management methods related to project management and then work in teams of six to seven students to create specifications for a management system. The principal rules regarding the theme of the system were to be developed, but the system should meet social acceptance requirements. The scale of

development was set at 10 million JPY, and the project management experiment involved the creation of documents necessary for the upstream process of a software development project. In the “Project Management Exercise,” which was the subject of the experiment, the team was reorganized, took over the specifications created in the “Project Management Experiment,” and moved to the downstream process. The teams are reorganized to take over the specifications for the new system, develop the system after revising the documents, and prepare the deliverables required for delivery, such as test reports and manuals. The documents to be submitted for the “Project Management Exercise” include the following 10 items: client setup document, business analysis document, system proposal, basic plan, external design document, internal design document, manual, test plan, test report, and programming code, and each item is subject to acceptance inspection by the faculty member acting as the user. Since the development model is basically a waterfall model, the milestone is set at the acceptance inspection of the 10 documents. The project period is approximately three months, with a progress report meeting held in the middle of the project and a completion report meeting held on the delivery date. The “Project Management Exercise” focuses on downstream processes, but the upstream processes taken over from the “Project Management Experiment” are also subject to correction and deliverables, making it closer to real-life system development. For this reason, the “Project Management Exercise” was also adopted in this study.

2.3 WBS

WBS (Work Breakdown Structure) is a structural diagram in which the entire project is broken down into detailed work. It is useful to manage projects properly and efficiently by dividing the work of the project into small tasks step by step.

3. EXPERIMENTAL RESULTS

3.1 EVM trends for 2021 PM exercises

Figure 2 shows the average PV and EV of the 6 teams in the 2021 “PM Exercise”. Projects with different budgets can be compared by dividing the PV and EV by the BAC and converting the units per day to a percentage. At the start of the project, tasks were proceeding as scheduled, but after that, we observed the gap between PV and EV. This is caused by inaccurate estimate for the programming phase. The tasks on programming, especially documentations, were undervalued. It is thought that the gap between PV and EV were However, it took longer time on the document than planned. and it is thought that the gap between PV and EV has widened due to insufficient estimation of PV.

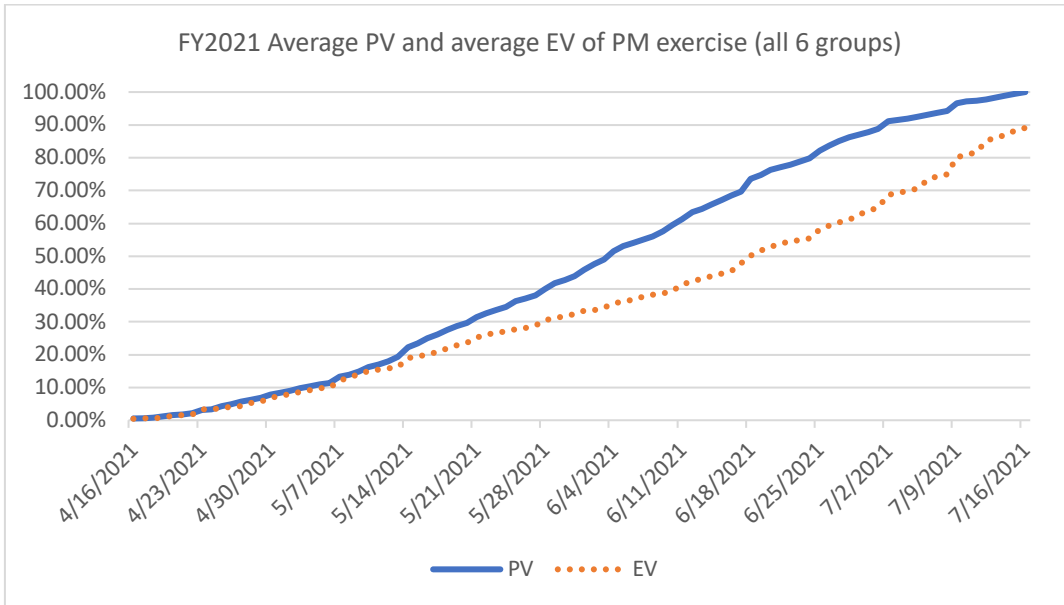


Figure 2 FY2021 Average PV and average EV of PM exercise (all 6 groups)

3.2 A-PV

3.2.1 Appropriate PV hypothesis

It was supposed that the average value of EV in FY2021 would be useful for planning proper PV in FY2022. However, many of the projects of FY2021 were incomplete. PV will not reach 100% by estimating based on this incomplete data. The appropriate PV (A-PV) was introduced as this solution. The appropriate PV is around the average of PV and EV in 2021.

3.2.2 How to create A-PV

The procedure is as follows.

- (1) Take the median value AVERAGE (PV: EV) between the average PV and EV.

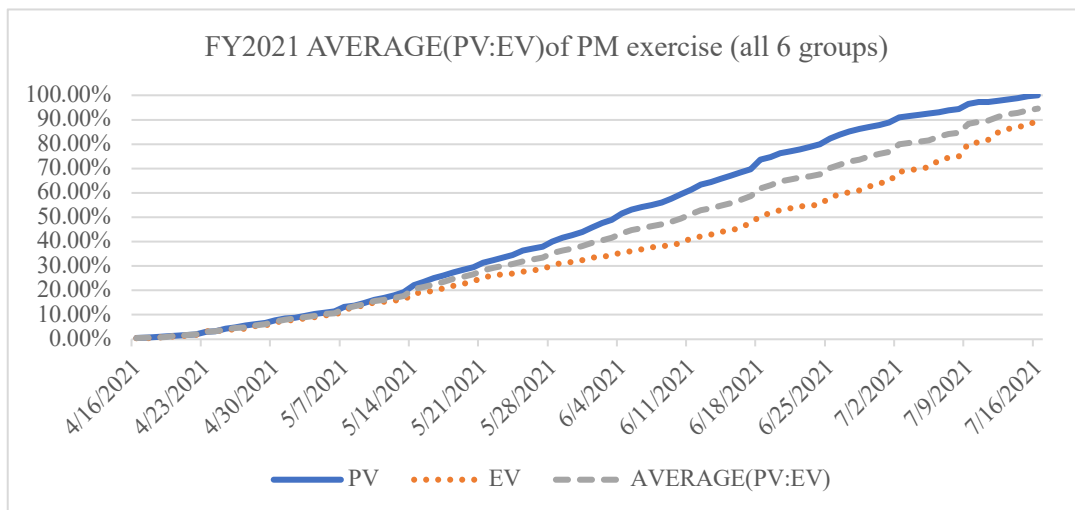


Figure 3 FY2021 AVERAGE(PV:EV)of PM exercise (all 6 groups)

(2) Add the remaining tasks calculated from the ES to the median AVERAGE (PV: EV).

i) Calculate the estimated completion date and time based on ES

ES (Earned schedule), proposed by Lipke (2003), refers to the date on which the current EV is expected to be achieved, and is used as a new schedule indicator.

The formula is.

$$SV(t) \text{ (Schedule variance on time)} = ES - AT$$

$$SPI(t) \text{ (Schedule performance index on time)} = ES / AT$$

AT (Actual time) is the time from the start of the project to the present time.

This concept also yields an expected completion date (EAC).

$$\text{Time EAC} = PD \text{ (planning period)} / SPI(t)$$

$$SV(t) = 7/2 \text{ (day 78)} - 7/16 \text{ (day 92)} = -14 \text{ days}$$

$$SPI(t) = 78/92 = 0.848$$

$$\text{Time EAC} = 92/0.85 = 108$$

The estimated completion date is 92 days, and the expected completion date is 108 days, so $108 - 92 = 16$

As a result, the estimated completion date is 16 days after the scheduled delivery date.

ii) BAC (%) - Calculate remaining tasks with EV (%) on the final day of the project.

iii) Calculate the average progress rate for the whole day and adjust it according to the remaining tasks in.

This time, the remaining 11% of tasks will be completed in 16 days. The average overall progress rate is 0.97%, and since there is a tendency for activities to increase on Fridays before the due date, 0.97% is set for days other than Fridays, and activity days are set using the same value as past progress rates.

Table 2 A-PV value

	DAYSDAYS	PV	EV	Progress rate	AVG, (PV:EV)	A-PV	A-PV (Per day)
Fri	7/2/2021	91.03%	68.74%	4.01%	79.88%	82.2%	4.01%
Sat	7/3/2021	91.56%	69.21%	0.47%	80.38%	83.2%	0.97%
Sun	7/4/2021	91.95%	69.94%	0.73%	80.94%	84.1%	0.97%

Mon	7/5/2021	92.41%	70.54%	0.60%	81.48%	85.1%	0.97%
Tue	7/6/2021	93.00%	73.26%	2.72%	83.13%	86.1%	0.97%
Wed	7/7/2021	93.74%	74.42%	1.17%	84.08%	87.0%	0.97%
Thu	7/8/2021	94.30%	74.99%	0.57%	84.64%	88.0%	0.97%
Fri	7/9/2021	96.54%	80.19%	5.20%	88.36%	93.2%	5.20%
Sat	7/10/2021	97.18%	80.79%	0.61%	88.99%	94.2%	0.97%
Sun	7/11/2021	97.32%	81.72%	0.93%	89.52%	95.1%	0.97%
Mon	7/12/2021	97.69%	84.98%	3.26%	91.33%	96.1%	0.97%
Tue	7/13/2021	98.33%	86.15%	1.17%	92.24%	97.1%	0.97%
Wed	7/14/2021	98.91%	86.75%	0.60%	92.83%	98.1%	0.97%
Thu	7/15/2021	99.50%	88.30%	1.55%	93.90%	99.0%	0.97%
Fri	7/16/2021	100.00%	89.07%	0.77%	94.54%	100.0%	0.98%

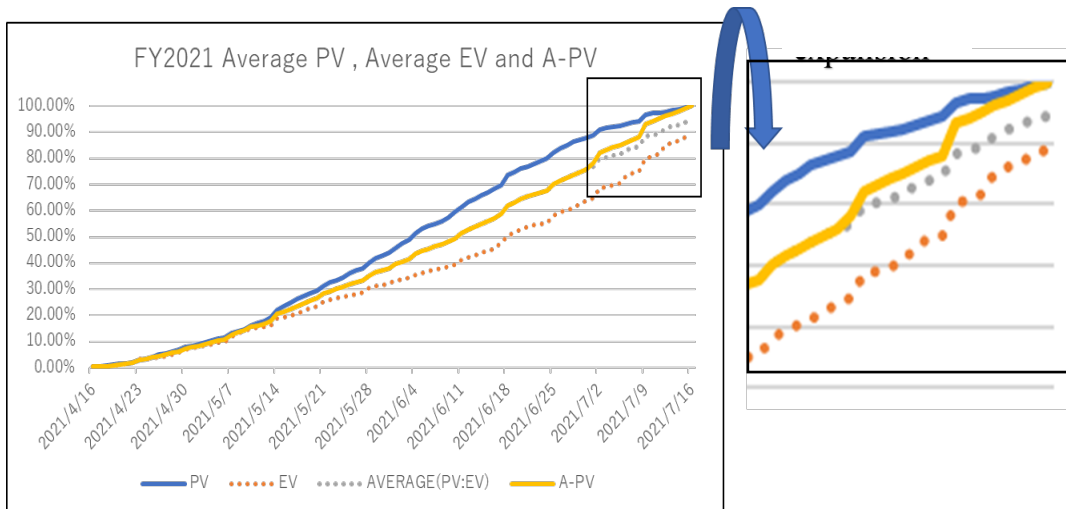


Figure 4 A-PV

3.3 Introduction of EVM creation format reflecting A-PV

To test whether A-PV can be used, we will prepare an EVM creation format that reflects A-PV. Summarize PV estimates, schedule adjustments, and AC and EV operation procedures in an Excel sheet and create a general-purpose format for each project. The procedure is as follows.

Step 1. Create WBS.

This WBS is based on the WBS used in past project management exercises and has been brushed up with the minimum necessary items.

Step 2. Compute a work package estimate and total budget.

The project leader works for 3000 yen per hour, and the members work for 2000 yen per hour. Determine the person in charge of each work package and calculate the PV per work package. The estimation method is calculated from past materials.

Table 3 WBS and Work Package Quotation

WBS	Task	Work package	Responsible	Time to finish the task Unit: hours		Hourly wage		PV
				Manager(PM)	Member(MB)	¥ 3,000	¥ 2,000	
Preparation	Read all materials	Read customer settings	All members	1	4	¥ 3,000	¥ 8,000	¥ 43,000
		Read business analysis report	All members	1	4	¥ 3,000	¥ 8,000	¥ 43,000
		Read system proposal	All members	1	4	¥ 3,000	¥ 8,000	¥ 43,000
		Read the basic plan	All members	1	4	¥ 3,000	¥ 8,000	¥ 43,000
		Read external design document	All members	1	4	¥ 3,000	¥ 8,000	¥ 43,000
	Schedule management	Create WBS	A	2		¥ 6,000	¥ -	¥ 6,000
		Determine the budget	A	2		¥ 6,000	¥ -	¥ 6,000
		Creating PV	A	2		¥ 6,000	¥ -	¥ 6,000
		Create a weekly schedule	A	2		¥ 6,000	¥ -	¥ 6,000
		Create a Gantt chart	A	2		¥ 6,000	¥ -	¥ 6,000
specification change document	Customer-configured documentation	Typo correction	B		1	¥ -	¥ 2,000	¥ 2,000
		Review of system background	A	1		¥ 3,000	¥ -	¥ 3,000
		Meeting	All members	1	4	¥ 3,000	¥ 8,000	¥ 43,000
	Business analysis document	Correction of typos in business settings	B		1	¥ -	¥ 2,000	¥ 2,000
		Meeting	All members	1	4	¥ 3,000	¥ 8,000	¥ 11,000
	System proposal document	Typo correction	C		1	¥ -	¥ 2,000	¥ 2,000
		Meeting	All members		1	¥ -	¥ 2,000	¥ 2,000
	Master plan document	Typo correction	D		1	¥ 3,000	¥ 2,000	¥ 5,000
		Meeting	All members	1	4	¥ 3,000	¥ 8,000	¥ 11,000
	External design document	External design details	E		1	¥ -	¥ 2,000	¥ 2,000
		HIPO	E		4	¥ -	¥ 8,000	¥ 8,000
		DFD	B		4	¥ -	¥ 8,000	¥ 8,000
		Logical database	C		2	¥ -	¥ 4,000	¥ 4,000
		Screen transition diagram	D		2	¥ -	¥ 4,000	¥ 4,000
		Meeting1	All members	1	1	¥ 3,000	¥ 2,000	¥ 5,000
Meeting2		All members	1	1	¥ 3,000	¥ 2,000	¥ 5,000	
Meeting3	All members	1	1	¥ 3,000	¥ 2,000	¥ 5,000		

Step 3. The total budget is reflected in A-PV (%).

This format can calculate PV per day when the total budget (BAC) is entered. By planning with this amount as a guide, the project manager can plan PV in line with A-PV.

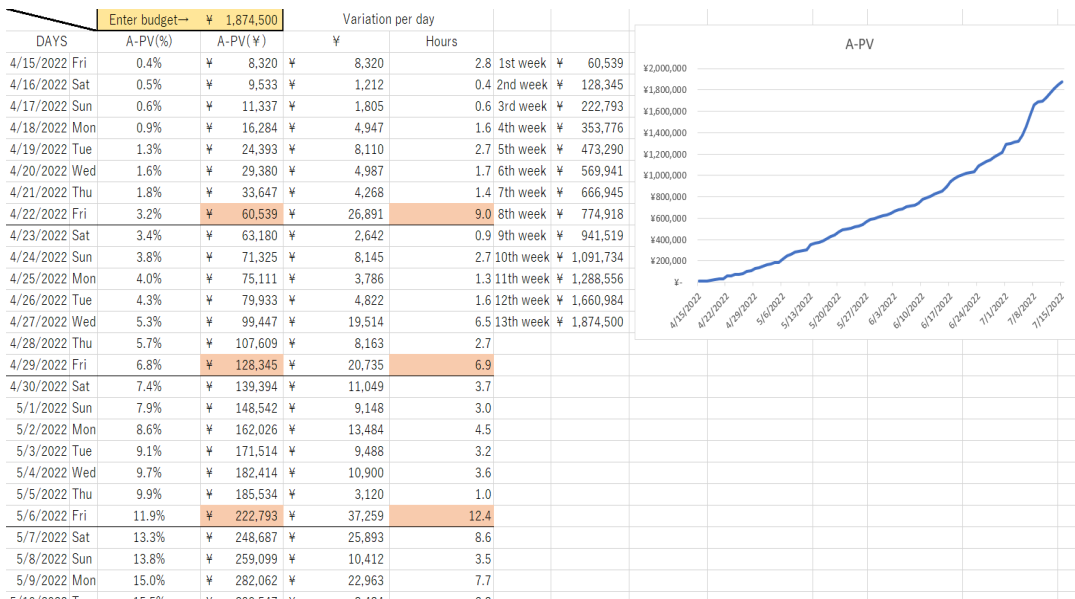
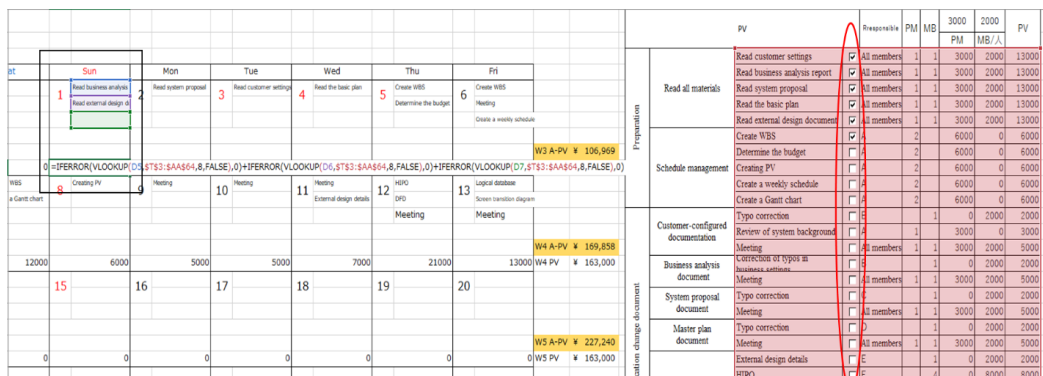
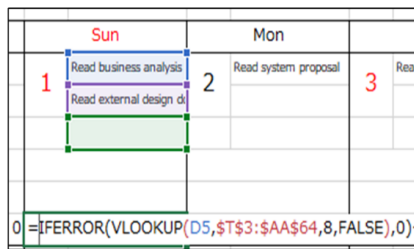
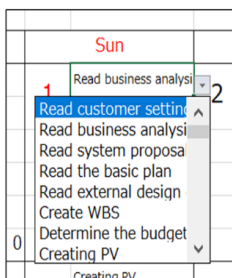


Figure 5 A-PV Excel screen

Step 4. Make a monthly schedule according to the weekly budget.



↓ Select a task from the WBS list.



↑ Expressed as the Excel function
IFERRPR(VLOOKUP(result cell, range, target column, FALSE),0)+.....

↑ This is the WBS list created in step 2. Put a check the items entered in the monthly schedule. Avoid duplicating tasks.

Figure 6 How to use monthly schedule Excel.

Step 5. Assign activities for each week and make a weekly schedule.

Create a weekly schedule for each member. Allocate tasks assigned in the monthly schedule to members.

In the weekly schedule, EVM is completed by entering PV, AC, and EV and combining the work records of all members.

The evaluation method of EV is "○ = 100%" when completed, "△ = 50%" when started, and "× = 0%" when not started.

Members assign activities based on work packages and detailed tasks. For example, the task of "Creating WBS" can be divided into "(1) Read past materials" and "(2) Export WBS". If the PV given to this task is 1 hour, each activity will be 30 minutes. EV is evaluated based on PV, so if you plan PV to complete this task in one day, a member with an hourly wage of ¥3,000 will have PV ¥3,000 and EV ¥3,000. By breaking it down into activities, it is possible to evaluate even if the task is not completed halfway.

For example, if "(1) Read past materials" is completed and "(2) Export WBS" is started but not completed, the EV is 75% and the EV is ¥2,250.

Week	work package	No	Activity	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Progress rate
Week 3											
Name: A				4/30	5/1	5/2	5/3	5/4	5/5	5/6	
Sat	Create WBS	1	Read past materials	○							
		2	Export WBS	△	○						
			degree of achievement	75%	25%						100%
Sun	Creating PV	1	Check member's schedule		○						
		2	Calculate your budget		×	○					
					50%	50%					100%
Mon	Create a weekly schedule	1	determine milestones			○					
		2	adjust amounts			○					
						100%					100%
Tue	Read business analysis re	1	adjust amounts				○				
		2	calculate profit				○				
							100%				100%
Wed	Read system proposal	1	Do a SWOT analysis					○			
		2	consider the merits of the system					×	○		
								50%	50%		100%
Thu	Create a Gantt chart	1	Creating a Gantt chart format						○		
		2	make an input						○		
									100%		100%
Fri	Meeting	1	Review of last meeting							○	
		2	get approval from customers							○	
										100%	100%
		Working hours		1	2	2.5	2	1	2	1	
		PV		3000	6000	6000	6000	3000	6000	3000	
		AC		3000	6000	7500	6000	3000	6000	3000	
		EV		2250	4500	9000	6000	1500	7500	3000	

Figure 7 weekly schedule

3.4 EVM survey results using A-PV in 2022 PM exercises.

Compare the average PV/EV of all groups with A-PV.

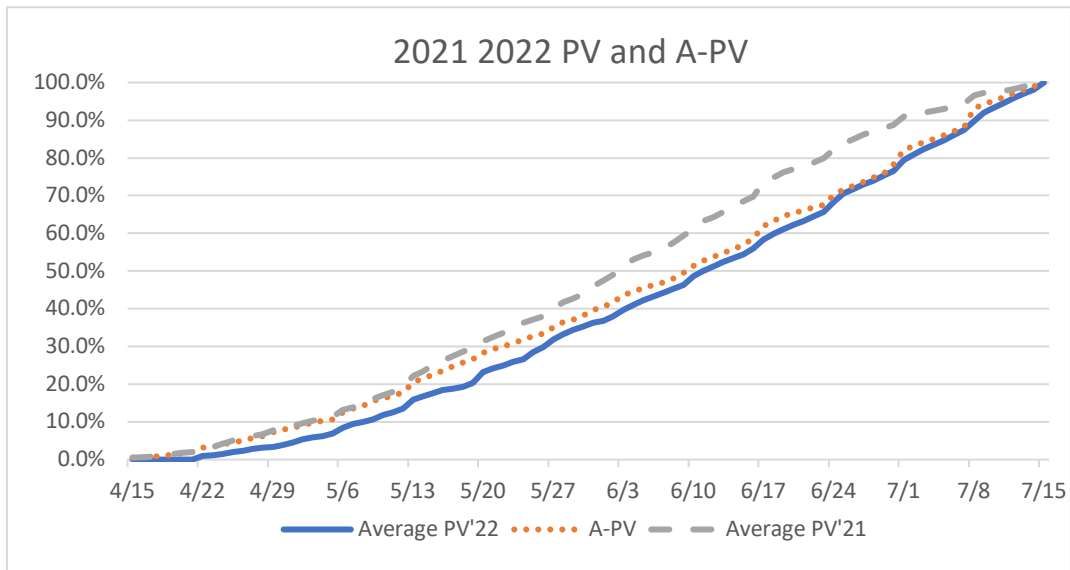


Figure 8 FY2021 FY2022 PV and A-PV

The PV is planned almost along the A-PV. The average difference between PV and A-PV was 5.1% in FY2021 and 2.9% in FY2022, and we were able to reduce the plan difference.

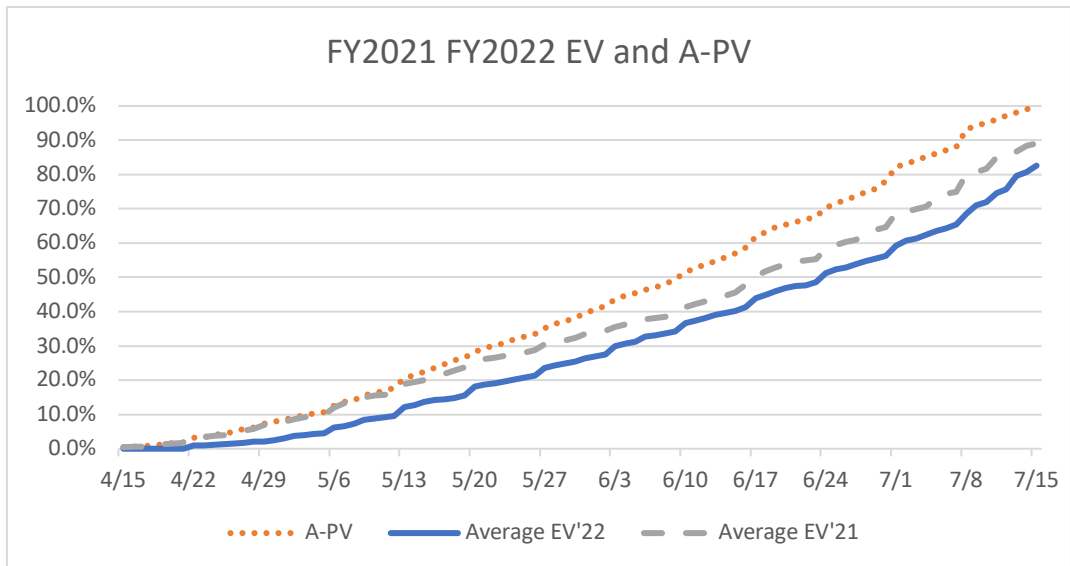


Figure 9 FY2021 FY2022 EV and A-PV

There is not much difference between 2021 and 2022 for EV. The error in the document submission date was 1 day, and the difference in the final EV points was about 6%.

In addition, by introducing A-PV, we were able to perform an objective evaluation. Figure 10 shows the initial evaluation of the project, and it seems that $PV = AC = EV$ is progressing smoothly. On the other hand, in Fig. 11, $PV > EV$ was delayed in the middle of the project, but compared with A-PV, it can be evaluated that $A-PV < EV$ is progressing smoothly.

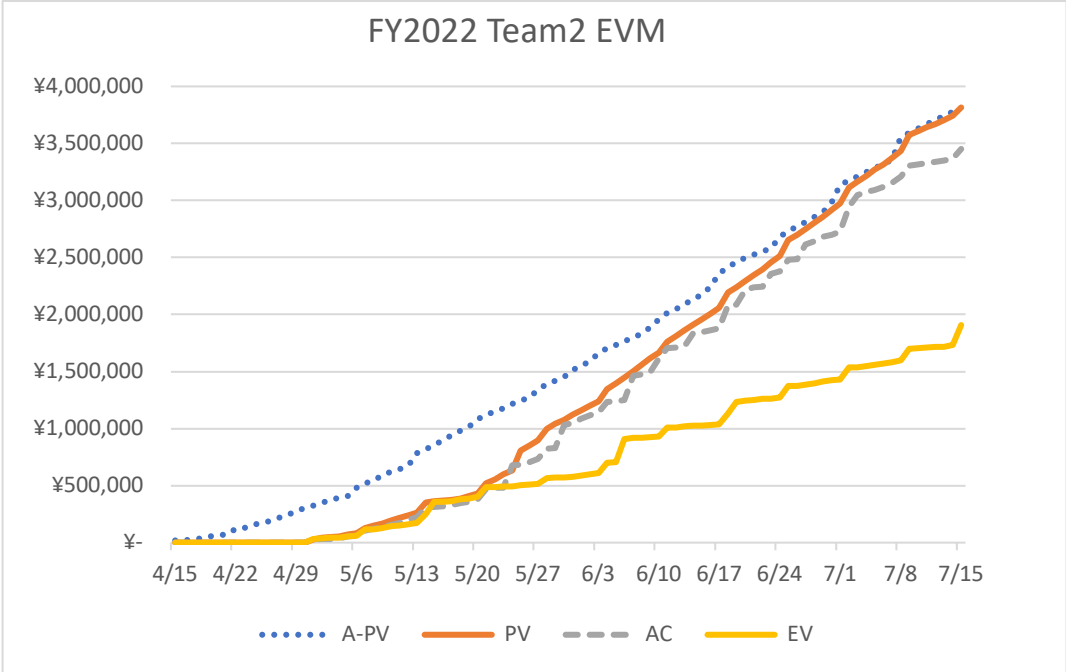


Figure 10 Optimistic EVM

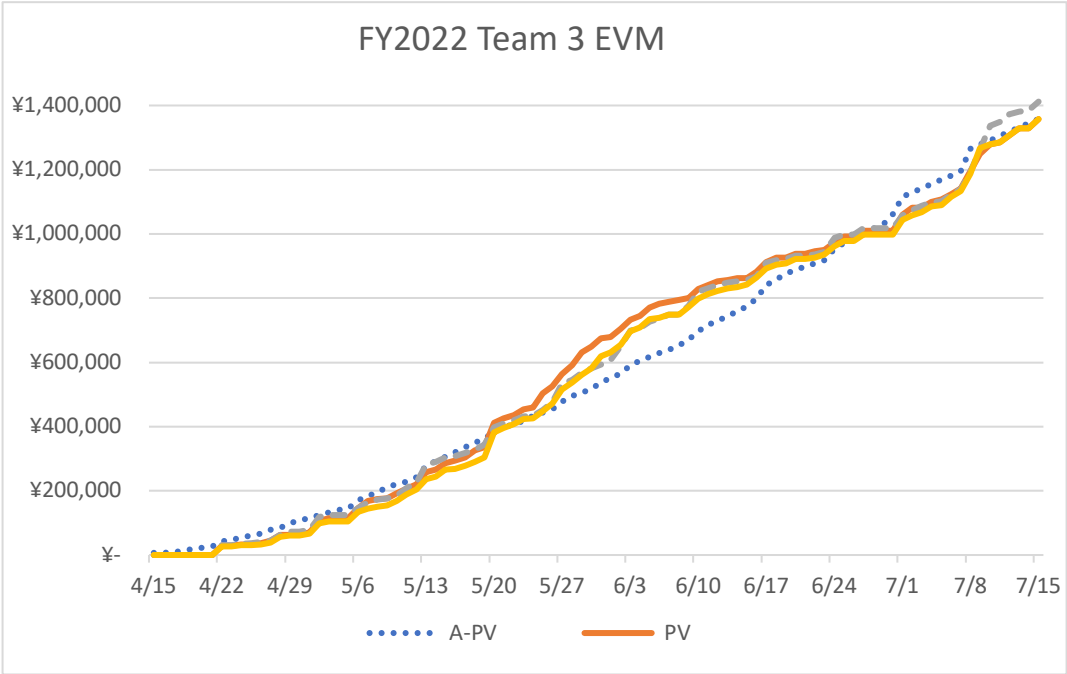


Figure 11 Pessimistic EVM

4. Conclusion

The purpose of this study was to make a more accurate schedule from the EVM of similar software development projects and to evaluate them objectively. Therefore, verification was performed by introducing A-PV, which reflects the average value of PV and EV, and the average task progress rate per day. The advantages obtained by introducing A-PV are as follows.

- (1) Even a project manager with little experience can create a PV that is not subjective.
- (2) The smaller the error from A-PV, the better the progress rate of the project.
- (3) Even if a PV deviates from the A-PV, it is possible to make an objective evaluation by comparing it with the A-PV.

A-PV shows the progress rate for each specified time unit (per day in this case), so it is easy to use as an indicator when making a schedule. If you refer to past projects only with documents, you tend to create schedules that are bound by precedents. It was also found to be highly versatile.

Table 4 Differences in scheduling between minutes and A-PV

Scheduling with meeting minutes				Scheduling with A-PV		
Task	completed date	Days spent doing tasks	Amount of money	date	A-PV	Amount of money
Customer specification	5/27	42 日	400,000	4/15	0.5%	¥ 8,906
business analysis	6/2	48 日	400,000	4/16	0.6%	¥ 10,056
system proposal	6/2	48 日	400,000			
basic plan	6/10	56 日	400,000	5/15	22.5%	¥ 404,455
External design document	7/9	85 日	500,000			
Internal design document	7/12	88 日	500,000	6/15	57.0%	¥ 1,026,374
agreement	7/9	85 日	28,000	6/16	58.8%	¥ 1,057,633
test	7/21	97 日	626,000			
manual	7/21	97 日	326,000	7/15	100.0%	¥ 1,800,000
Schedule list				Schedule list		
<ul style="list-style-type: none"> • Complete the customer setting document by May 27 • Complete the customer setting document by May 27 • Complete the basic plan by 6/10 				<ul style="list-style-type: none"> • Complete 22% of the total by May 15th. The estimated budget is 400,000. 80% of customer settings ¥ 320,000 20% of business analysis report ¥ 80,000 		

With the conventional scheduling method, we often refer to projects of the same development scale when making plans, but by using EVM, we were able to make quantitative schedules. This can be used not only for software development projects but also for temporary projects. This is presented as a means of raising not only the budget but also the schedule estimation system.

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A STUDY OF THE EFFECT OF GROWTH MINDSET ON THE STRESS RESILIENCE

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Abstract.

Mindset is a belief formed from experience and education, consisting of the belief that "ability is fixed and will never change" (fixed mindset) and the belief that "ability can be developed through effort" (growth mindset). Resilience is an individual's psychological resilience that allows to recover from a stressful mental state. The purpose of this study is to clarify the growth mindset and resilience, which are the mental resilience that all people can acquire. In accordance with previous studies, ten sub-scales of mindset and resilience were developed as follows; "optimism," "positive evaluation," "sociability," "affinity," "self-understanding," "understanding others," "social support," "significant others," "changeability," and "aspirational ability. A total of 213 university students were surveyed on all 34 items. The results of the correlation analysis showed that the growth mindset item, "changeability," had a correlation coefficient of 0.497 with "improvement. The correlation coefficient of 0.497 was found between the growth mindset item, transformativeness, and the ability to improve. The correlation coefficients between the 8 factors of resilience and changeability were less than 0.25, and those between resilience and improvement were less than 0.26. These correlations are rather weak. Four components were extracted as a result of principal component analysis. The cumulative contribution rate of the four components is 70%, which is appropriate. In the first principal component, six factors of resilience were above 0.55, and two factors of growth mindset were above 0.7 in the second principal component. From these results, it is supposed that resilience and growth mindset are independent of each other.

Keywords: *Mindset, Fixed thinking attitude, Growth thinking attitude, resilience.*

1. INTRODUCTION

According to the "Occupational Safety and Health Survey"¹ conducted in FY2020, 54.2% of workers feel anxious or stressed about their current work and working life condition strongly. The most common causes of stressed workers are "workload" which is experienced by 42.5% of them, followed by 35.0% of those who had "failure at work or incidence of responsibility" and 30.9% for "quality of work" and lastly 30.9% for "quantity of work." However, stress cannot be eliminated completely. Therefore, human resources with high resilience who can resist those stresses and demonstrate high performance even in difficult situations are required.

Table 1. Proportion stress related to work and occupational life.

Category	total percentage of worker	total percentage of worker subjected to stress
Reiwa 2year	100.0	54.2
1.age group		
less than 20 years	100.0	14.7
20~29years	100.0	53.1
30~39years	100.0	55.6
40~49years	100.0	57.2
50~59years	100.0	58.3
above 60 years	100.0	38.4
2.Gender		
Male	100.0	58.4
Female	100.0	49.0
3.Occupation		
full time worker	100.0	59.1
contract employee	100.0	52.6
part-time employee	100.0	35.2
temporary worker	100.0	53.9
Heisei 30year	100.0	58.0

Table 2. the content of stress.

Category	the content of stress (classified into 3 main topics)				(Unit:%)
	The nature and quality of job.	work pressure	work quality	Interpersonal relationship (power/sexual harrasement)	Stress from job and position changes
Reiwa 2year	56.7	42.5	30.9	27.0	17.7
1.age group					
less than 20 years	28.2	16.8	26.0	17.7	1.4
20~29years	51.4	38.3	26.6	31.2	15.2
30~39years	57.8	40.8	31.6	26.6	21.5
40~49years	55.0	43.5	31.3	29.5	16.3
50~59years	62.9	47.6	32.8	24.6	18.6
above 60 years	47.8	32.2	28.0	16.9	13.8
2.Gender					
Male	60.2	44.4	34.7	24.7	19.6

Female	51.6	39.8	25.3	30.5	15.0
3.Occupation					
full time worker	60.3	45.0	33.5	25.8	19.8
contract employee	34.6	21.7	20.8	30.4	9.1
part-time employee	47.3	40.2	17.3	35.3	7.3
temporary worker	40.1	13.3	30.7	19.1	2.5
Heisei 30year	59.4	31.3	22.9

In addition, many IT companies are carrying out projects, and the projects are diversifying. In recent years, due to the adoption of digital transformation, it is expected that projects will become more complex in the future and that we will have to face many difficult situations. Since a project is a team activity, the thoughts and actions of individuals greatly influence the project. On top of that, the lack of knowledge of DX and the inability to respond to changes often lead to various difficulties and threats. So, individual's mindset is very important.

Mind Set is a fixed way of thinking or seeing things. Generally, mindsets are formed by innate characteristics, experiences, education, period in which people were raised which also includes one's personal beliefs and values. Carol S. Dweck (2006)² clarifies that the human mindset can be divided into two kinds of mindsets. A growth mindset, who believed that their intelligence could be developed. Whereas on the other hand, a fixed mindset is those who believed that their intelligence was fixed. It was found that the people having growth mindset outperformed those with fixed mindset.

Resilience literally means elasticity, stress repelling power, suppleness, etc. Originally, it was a term in physics to express the "elasticity of an object". Resilience in the business term focuses on the resilience of both "organization" and "employees". Resilience in social system sciences term, in organizational management. "Organizational resilience" is defined as the BCP (Business Continuity Plan) of a company against disasters and unforeseen situations and the response to diversity and inclusion. "Employee resilience," in which businesspeople recover from work-related stress. Employee resilience is given as much importance as organizational resilience. In this research, Resilience refers to positive adaptation, or the ability to maintain or regain mental health despite experiencing adversity³. Hirano(2010) hypothesized that there are two types of resilience factors: qualitative resilience; which is difficult to acquire and acquired resilience; which is easy to acquire. Qualitative resilience is resilience that is difficult to acquire. There are four main factors in qualitative resilience which are "optimistic behavior", "control ability", "sociability", and "doer behavior". Acquired resilience is resilience that is easy to acquire. There are three main factors are "problem-solving ability" "self-understanding," and "Empathetic behavior". Hirano stated that it is difficult to consider all factors as an acquirable factor.

Saito et al. (2014)⁴ clarified the relationship between resilience and self-esteem and

found that self-esteem is related to resilience. The people with high self-esteem promotes higher resilience. But the relationship between resilience and a growth mindset has not been clarified yet. Therefore, in this study, we will clarify what kind of influence resilience (which is the ability to flexibly respond to any difficult situation) has on the factors of growth mindset. We also aim to make proposals on how to improve both the growth mindset and resilience.

2.Purpose of research

In this study, the relationship between growth mindset and resilience was focused primarily. It was assumed that by clarifying the relationship between growth mindset and resilience, would further lead to improvement of growth mindset and resilience as well. And we thought that by improvement of individuals growth mindset and improved resilience would eventually lead to an improvement in the success rate of the project.

3.Hypothesis

We verify the following hypotheses.

We investigate the relationship between growth mindset and resilience.

- High growth mindset, high resilience
- High growth mindset, low resilience.
- People with low growth mindset and high resilience.

4. Research method

Survey target

First-year students of Department of Project Management, Faculty of Social Systems Science, Chiba Institute of Technology are targeted for this analysis. The first-year students of Department of Project Management in the Faculty of Social Systems Science, Chiba Institute of Technology, are selected as it is very important to understand the meaning of the question thoroughly to answer the survey in accurate manner.

4.1. Survey method

(1) To measure the mindset, growth mindset scale that can measure the growth mindset by referring to the mindset scale of Carol S. Dweck (2006), Watanabe (2017), Muto (2020) was created. We use this to measure the growth mindset. This scale consists of 2 items (transformability and upgradability) with 2 subitems each, and the responses are evaluated on a 5-point Likert scale of ``yes'', ``somehow yes'', ``neither'', ``somehow no'', and ``no''.

(2) Resilience was measured by referring to Hirano's (2010) two-dimensional resilience factor scale and Saito et al.'s (2012) RS-S, Kobayashi et al.'s (2013) dynamic resilience scale. Metric was created and use it to measure resilience. This scale consists of 8 items and 40 sub-

items. The responses are evaluated on a 5-point scale of “Yes,” “Somehow yes,” “Neither,” “Somehow no,” or “No.”.

(3) Using the data obtained from the questionnaire survey. Python and SPSS Correlation using analysis, principal component analysis is done.

(4) The result obtained from the analysis are considered.

5. Experimental results and discussion

5.1. Data Analysis

SPSS and Python are used for data analysis. Optimistic behavior, Affirmative behavior, sociability, sympathy, self-understanding capacity, empathy, social support, significant person, transformative behavior, and ambitious behavior were used to perform correlation analysis and principal component analysis.

Table3. Correlation Matrix table

	optimistic behaviour	Affirmative behaviour	Sociability	Sympathy	self understanding capacity	Empathy	Social Support	Significant Person	Transformative behaviour	Ambitious behaviour
optimistic behaviour	1.000000	0.432441	0.353226	0.472751	0.296493	0.334127	0.246829	0.190645	0.137027	-0.017244
Affirmative behaviour	0.432441	1.000000	0.496458	0.519124	0.202031	0.261802	0.307659	0.234647	0.288438	0.252064
Sociability	0.353226	0.496458	1.000000	0.818324	0.281874	0.512384	0.430108	0.227921	0.183646	0.126307
Sympathy	0.472751	0.519124	0.818324	1.000000	0.351712	0.484666	0.420624	0.268455	0.245094	0.193151
self understanding capacity	0.296493	0.202031	0.281874	0.351712	1.000000	0.379905	0.119208	0.146465	0.190311	0.232031
Empathy	0.334127	0.261802	0.512384	0.484666	0.379905	1.000000	0.340336	0.312915	0.132269	0.166961
Social Support	0.246829	0.307659	0.430108	0.420624	0.119208	0.340336	1.000000	0.407205	0.197615	0.078032
Significant Person	0.190645	0.234647	0.227921	0.268455	0.146465	0.312915	0.407205	1.000000	0.240523	0.128872
Transformative behaviour	0.137027	0.288438	0.183646	0.245094	0.190311	0.132269	0.197615	0.240523	1.000000	0.497416
Ambitious behaviour	-0.017244	0.252064	0.126307	0.193151	0.232031	0.166961	0.078032	0.128872	0.497416	1.000000

A correlation coefficient of 0.497 was found between transformative behavior and ambitious behavior, which is an item of growth mindset, and improvement. There is positive correlation between Transformative behavior and ambitious behavior. On the contrary there are weak correlation between the 8 factors of resilience and the transformative behavior(0.25), ambitious behavior(0.26).

Affirmative behavior and Sociability

Affirmative is the ability to interact positively with others, despite situations, and places. Sociability is the tendency and accompanying skills to seek out companionship, engage in interpersonal relations, and participate in social activities. Comparing these two items, both are related in communicating with others, and hence are closely related.

Social support and Empathy.

Social support refers to the practical or moral support and resources provided to other individuals. Empathy indicates the ability to easily read the emotions of others. It is the action of understanding, being aware of, being sensitive to, and vicariously experiencing the feelings, thoughts, and experience of another. It was believed that we can build good relationships with

others by understanding the psychology of the other. Therefore, the two components are closely related.

Social support and optimistic behavior.

Optimistic behavior is basically hopeful and confident future thinking. It is thinking of overcoming any difficulties and problem at any cost. The optimistic thinker believe that they can build good relationships with others. Therefore, the two components are closely related.

Self-understanding capacity and Significant Person.

Self-understanding capacity is the ability to grasp one's own characteristics and thoughts. A significant person is a person who has significant and influences on various aspects of an individual's life. It was believed that by emulating the significant person can greatly influence on grasping your own characteristics and thoughts from there. For that reason, the two components are closely related.

Ambitious behavior and transformative behavior.

These two are factors related to the growth mindset, and it is appropriate that they are closely related.

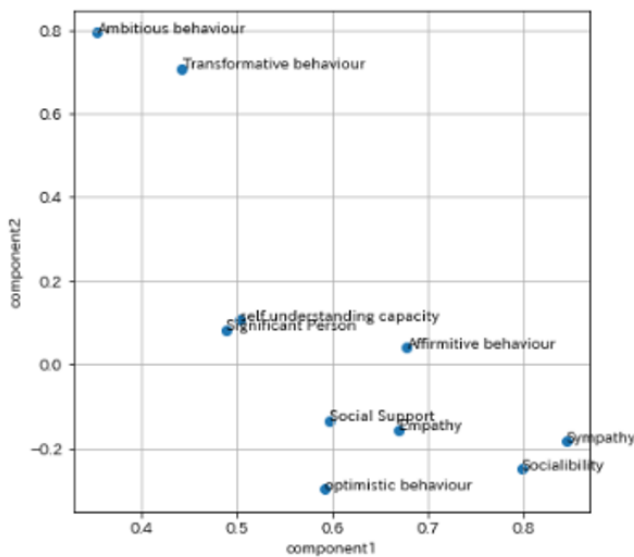


Figure1. Component loading scatter plot for each component (1st principal component and 2nd principal component)

Table4. Component loading

	eigenvalue	variance %	accumulation%
component1	3.776101	37.761007	37.761007
component2	1.377562	13.775625	51.536632
component3	1.045053	10.450526	61.987158
component4	0.909532	9.095323	71.082481
component5	0.778073	7.780728	78.863208
component6	0.552381	5.523814	84.387023
component7	0.520013	5.200126	89.587149
component8	0.490767	4.907671	94.494821
component9	0.391453	3.914532	98.409353
component10	0.159065	1.590647	100.000000

From the above figure, it was found that there are three components exceeding eigen value of 1. Component 1, which is the first principal component from the initial eigenvalues, has total variance of 37.761%. Component 2, the second principal component, has 13.776%. Component 3, which is the third principal component, has 10.451%. Component 4, which is the fourth principal component, has 9.10%. Since the cumulative total variance percentage rate up to component 4 exceeds 70%, it is said to be appropriate. The remaining components from 5 to 10 possess less total variance value and thus eliminated from the main component elements.

Table5: SPSS Component Matrix

	component1	component2	component3	component4
optimistic behaviour	0.591502	-0.297307	-0.224281	0.134623
Affirmative behaviour	0.677979	0.039970	-0.068116	0.485779
Socialibility	0.797973	-0.249535	-0.074154	0.158775
Sympathy	0.844613	-0.184024	-0.124977	0.155964
self understanding capacity	0.503403	0.107185	-0.491114	-0.538541
Empathy	0.669316	-0.156126	-0.058097	-0.443363
Social Support	0.596153	-0.134251	0.550364	-0.014252
Significant Person	0.489255	0.082575	0.632200	-0.314920
Transformative behaviour	0.441629	0.708330	0.081387	0.141121
Ambitious behaviour	0.353885	0.793097	-0.123386	0.001970

The first principal component is the combined value of resilience and growth mindset. Among them, sympathy, social support, sociability, affirmative behavior, empathy, and social support are high. It was found that the second principal component has high transformative behavior and ambitious behavior. The third principal component is high in significant person and social support. It can be said that the fourth principal component is high in affirmative behavior.

Component 1 is the first principal component. The five variables of sympathy, optimistic behavior, sociability, social support, empathy, and social support are strong. Which depicts that there shows a significant view on tendency to place importance on relationships and ideas with others rather than oneself. However, the numerical values regarding self-understanding capacity, ambitious behavior, and significant person, are lower than others. For these reasons, the first principal component can be defined as thinking from other's point of view rather than oneself, emphasizing the relationships and communications with others.

Component 2 is the second principal component. Among them, it can be seen from the numerical values that the two variables of "transformative behavior" and "affirmative behavior" are high. They tend to hold beliefs that encourages them to grow more. They believe they can improve their intelligence with effort. However, the five variables of "optimistic behavior", "sociability", "sympathy", "empathy", and "social support" are particularly low. Based on these showings, the second principal component values their own thoughts and growth, but are not good at communicating with others, and has no interest in relationships and thoughts of others.

Component 3 is the third principal component. Among them, it can be seen from the numerical values that the two variables of "social support" and "significant person" are high. However, the seven variables of "optimistic behavior", "positive evaluation," "sociability," "sympathy" "self-understanding," "empathy," and "transformative behavior" are particularly low. For these reasons, the third principal component places importance on people who influence them in various ways, but they are not good in communicating with others. In addition, they tend to have less interest in improving one self's intelligence through effort.

Component 4 is the fourth principal component. It was found that the numerical value of the variable "affirmative behavior" is high. However, the six variables of "optimistic behavior", "self-understanding capacity", "empathy", "social support", "ambitious behavior" and "transformative behavior" are particularly low. Based on these facts, the fourth principal component has the ability to grasp one's own characteristics and thoughts, but it is not possible to grasp things optimistically. In addition, it is the main component that is not good at communicating with others.

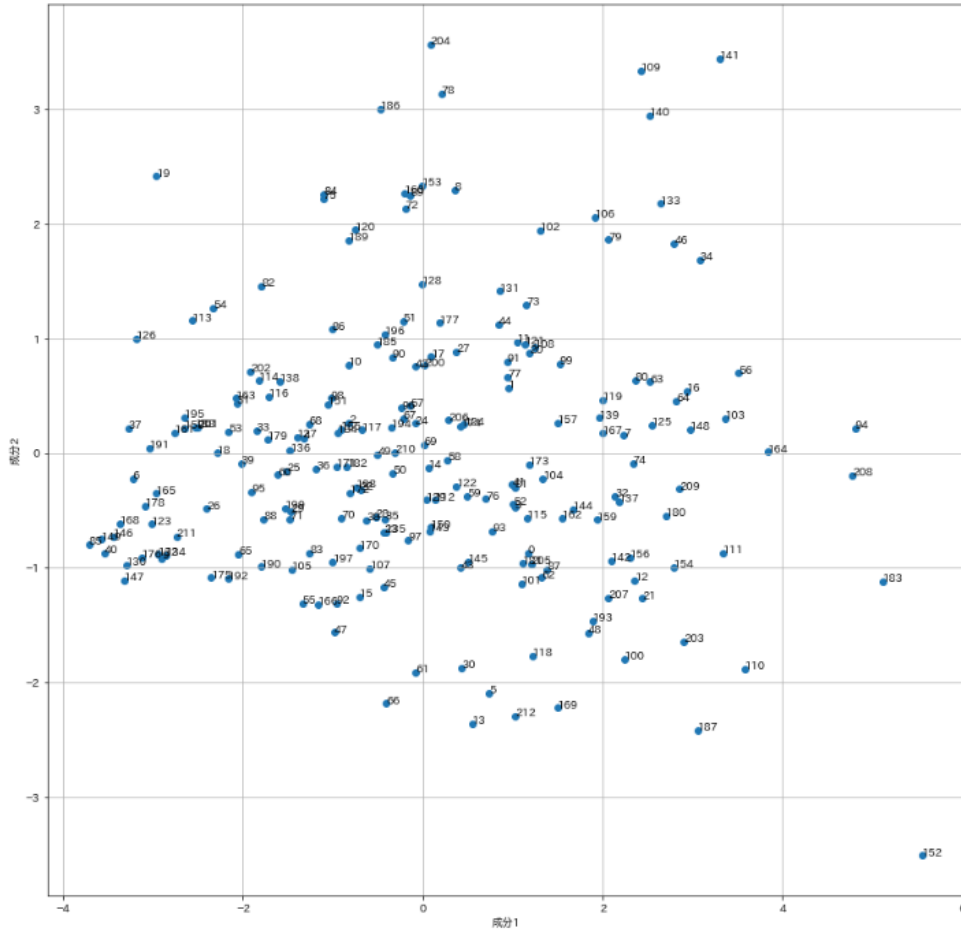


Figure2. Scatter plot of component loadings for subjects 1-213 (1st and 2nd principal components)

From the above figure, we can roughly perceive the characteristics of first-year students from Department of Project Management, Faculty of Systems Science, Chiba Institute of Technology.

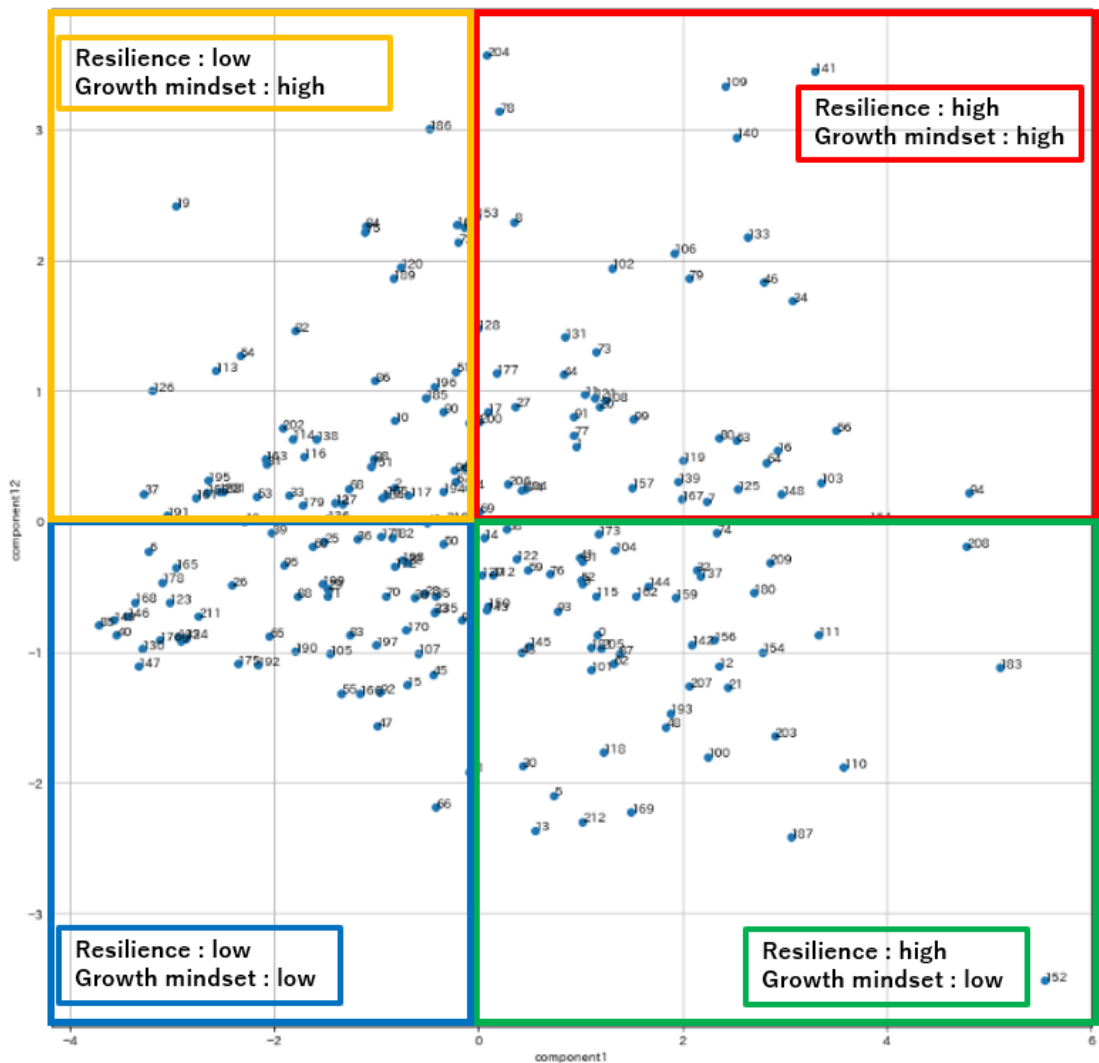


Figure3. Scatter plot of component loadings for subjects 1-213 divided into four categories (1st and 2nd principal components)

The center is average in both resilience and growth mindset.

In the upper right quadrant, both resilience and growth mindset are high.

In the bottom right quadrant, shows high resilience and low growth mindset.

In the upper left quadrant, shows low resilience and high growth mindset.

In the lower left quadrant, shows low resilience and low growth mindset.

6. Conclusion

The purpose of this research is to clarify the relationship between growth mindset and resilience. After clarifying the relationship between them, we will clarify the overall evaluation value of growth mindset and resilience by principal component analysis and propose ways to improve the growth resilience mindset.

Correlation analysis clarifies the relationship between growth mindset and resilience. Correlation analysis showed low correlation values between the two factors of growth mindset and the eight factors of resilience, indicating that growth mindset and resilience do not have a strong effect on each other.

From the principal component analysis, four principal components were extracted. The first principal component is the total value of growth mindset and resilience, and all 10 factors showed positive weights. The five variables of "affirmative behavior" "sociability," "sympathy" "empathy" and "social support" were particularly high. Variables like "Significant person," "transformative behavior," and "ambitious behavior" are low valued, the first principal component shows not thinking from one's own point of view, but thinking from the point of view of others, and it is a principal component that emphasizes relationships and communication with others. For the second principal component, positive weights are found "ambitious behavior", "transformative behavior," "self-understanding capacity," "significant person," and "affirmative behavior," while "optimistic behavior," "sociability," "empathy," "sympathy", and "Social Support" showed negative weights. From these, the second principal components value their own thoughts and growth, by valuing the people who have a positive influence on them, but they are not good at communicating with others, and aren't interested in relationships and thoughts of others. The third principal component has positive weights on "social support," "significant person," and "transformative behavior," but "self-understanding capacity", "sympathy", and "optimistic behavior" showed negative weights. For these reasons, the third principal component places importance on people who influence them in various ways, but they are not good at communicating with others. In addition, they have a pessimistic thought and tends to show less interest in improving through one's effort and thinking. For the fourth principal component, positive weights are given to "sociability" "affirmative behavior" "optimistic behavior," "sympathy," "transformative behavior" and "ambitious behavior". The variables of "self-understanding capacity", "empathy", and "social support" showed negative weights. From these facts, the fourth principal component has the power to understand one's own and others' thoughts but cannot grasp things optimistically.

From the above results, the following are the findings.

- Growth mindset and resilience are weakly correlated and have little effect on each other.

- From the principal component analysis, the first principal component has a strong weight of resilience, and the second principal component has a strong weight of growth mindset, and it can be said that they are independent of each other.

- People with a high growth mindset have high resilience.
- People with a high growth mindset have low resilience.
- People with low growth mindset have high resilience.
- People with a low growth mindset have low resilience.
- All four patterns have emerged.

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DESIGN AND VERIFICATION OF ITS EFFECTIVENESS REGARDING THE DIAGNOSTIC FRAMEWORK OF PERFORMANCE & RISK INDICATORS FOR OPERATIONS MANAGEMENT, AND ORGANIZATION & HUMAN RESOURCE ENGAGEMENT INHERENT IN CROSS-FUNCTIONAL OPERATIONS PROCESS.

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Abstract :

In this research, the following three objectives were implemented with the aim of realizing a cross-functional operations process that can quickly respond to changes in the internal and external business environments surrounding companies, (1) Redefinition of performance & risk indicators related to cross-functional operations process, (2) Design of diagnostic framework for organization & human resource engagement, and (3) Verification of its effectiveness. First, to improve "visualization and concrete management of cross-functional operations process", which is one of the weaknesses of BSC (Balanced ScoreCard) advocated by R. S. Kaplan and D. P. Norton ^[1], a framework for cross-functional operations process analysis including CF-KPI (Cross Functional - Key Performance Indicator) and PKRI (Preceding Key Risk Indicator) were advocated and its effectiveness was verified by using the case of the biggest state-owned company in Mongolia. Next, we presented a method for diagnosing organization & human resource engagement based on the 2015 model of organizational development proposed by C. G. Worley ^[2]. Finally, in order to realize an organizational culture that enables the sustainable development of the cross-functional operations, we considered specific countermeasures from the perspective of R. M. Ryan's intrinsic/extrinsic motivation theory ^[3] and G. Herzberg's Two Factor Theory of Job Satisfaction and Dissatisfaction ^[4].

Key Words : *BSC, organizational development, cross-functional operations process analysis, Performance & Risk indicators, organization & human resource engagement*

1. Introduction

This research aims to improve the cross-functional operations process, which is pointed out as one of the weak points of BSC, and to respond quickly to changes in the internal and external business environment surrounding companies. First, we advocated the new type of key performance & risk indicators inherent in the cross-functional operations process, then proposed a diagnostic framework for organization & human resource engagement from the perspective of organizational development that contributes to the sustainable development of

the organizational culture, and finally clarified its effectiveness.

2. Prior research and hypothesis setting

In recent years, the introduction of strategic management has progressed even in developing countries, and hard challenges are reaching a certain level. With regard to soft challenges including organizational development to sustainably develop such challenges, there are many examples of research in industrialized countries, but there are almost few studies in developing countries. Examples of research reports focusing on developing countries are limited to a few, such as Kurosaki's research on informality ^[5] and JICA's report on developing country development and project evaluation ^[6]. Therefore, from the viewpoint of management diagnosis aimed at improving corporate performance and productivity in regarding cross-functional operations process, it is a research area that needs to be strengthened.

In this research we set the following hypotheses and verified it corresponding to this issue.

Hypothesis: In cross-functional operations process management, a framework including CF-KPI and PKRI is effective.

3. Research framework and methods

3.1 Relationship between BSC and cross-functional Operations Process

BSC is a method of strategic business management that sets business goals/objectives and strategies in a well-balanced manner from multiple perspectives, and is now widely used even in developing countries.

BSC is an effective tool for visualization of goals/objectives and strategies, but there is a report that it is insufficient for visualization and specific management of cross-functional operations processes ^[7].

In this research, we newly proposed CF-KPI and PKRI related to the cross-functional operations process to compensate for the above weakness of BSC.

3.2 Cross-functional operations process analysis

In conventional BSC, KPIs are used as key performance indicators which are appropriate for comprehensive performance appraisal at the company-wide and divisional levels vertically. However, at the department/section /team level, multiple people are operating together horizontally and cross-functionally to achieve their common goals/objectives and KPIs. Accordingly, visualization of cross-functional operations process and the appraisal of the cross-functional achievement by using CF-KPI is required.

In this research, CF-KPI for the appraisal of the cross-functional operations process and PKRI which is a preceding key risk indicator to prevent KPI non-attainment were proposed instead of conventional reactive risk management.

The use of PKRI makes it possible to predict in advance that KPI will not be attained, and to prepare risk countermeasures (refer to the Figure 1).

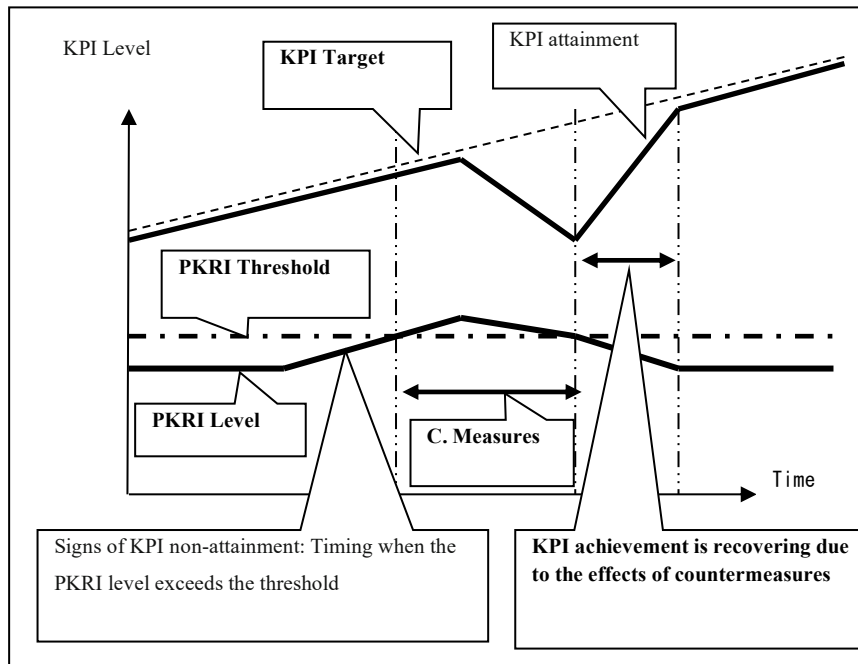


Figure 1. Relation diagram of KPI and PKRI

The framework for visualization and specific management of the cross-functional operations process designed in this research consists of the following elements (refer to the Figure 2).

- 1) Individual KPI and CF- KPI as an individual and cross-functional key performance indicator
- 2) PKRI as a preceding key risk indicator as a sign of KPI non-attainment

Cross-functional operations flow	Operations process #1	•	Operations
Operations, KPI and KPRI			
Main operation	① xxxxxxxx ② xxxxxxxx	•	① xxxxxxxx ② xxxxxxxx
Individual KPI	▪ KPI: xxxxxxxx	•	▪ KPI: xxxxxxxx
Cross-functions KPI	←—————→		
PKRI	▪ PKRI: xxxxxxxx	• •	▪ PKRI: xxxxxxxx

Figure 2. Framework of cross-functional operations process

3.3 Identification of KPI and PKRI

In KPI-based organizational performance management, it is common to set KPI targets at the beginning of the term (fiscal year), monitor the progress of the KPI attainment and provide feedback during the term, and appraise the final KPI attainment at the end of the term.

However, changes in the internal and external business environment that were not anticipated at the time the KPI target was set would result in the KPI target not being attained. For companies aiming for highly productive strategic management, failure to attain the KPI target is a major management issue, and require appropriate responses. The following two countermeasures are listed in this research.

1) Setting CF-KPI

CF-KPI is the key performance indicator which covers entire cross-functional operations process.

2) Set PKRI to minimize KPI non-attainment

In the conventional risk management, reactive risk response was common, and there was a limit as a means of predicting KPI non-attainment caused by changes in the internal and external business environment in advance, and taking risk countermeasures.

In this research, the preceding key risk indicator PKRI, which quantifies risk factors as a sign that KPIs cannot be attained is set at the beginning of the term in pairs with KPI and /or CF-KPI. It is possible to minimize KPI non-attainment by monitoring them during the term, predicting KPI non-attainment in advance (when the PKRI level exceeds the threshold: a sign of KPI non-attainment) and taking prompt countermeasures.

3.4 Model of organization & human resource engagement from the perspective of organizational development

In order to build an organizational/workplace culture that effectively and continuously manages and operates the cross-functional operations process, it is essential to change the awareness of the people involved, through organization & human resource engagement as means of organizational development.

D.D. Warrick, an authority on leadership and organizational development, pointed out the importance of the process perspective in organizational development [8].

Nakamura advocated the necessity of systematically grasping the target of organizational development with regard to the Survey Feedback, which is a method of organizational development that has been attracting attention recently [9]. Points to keep in mind are process-oriented and systematic approach.

For effective organizational development, C. G. Worley proposed the 2015 model which consists of four issues and interventions.

- ① Human relation process intervention
- ② Techno-structural intervention
- ③ HRM (Human Resource Management) intervention
- ④ Strategic intervention

In this research, we challenged an organizational development based on the Survey Feedback for the effective management of cross-functional operations process that contains CF-KPI and PKRI.

For the selection of necessary factors for organizational development, we expanded the concept of the 2015 model proposed by C. G. Worley, designed a new framework of organization & human resource engagement, and conducted the Survey Feedback.

The goal of organization & human resource engagement set for this research was to "improve the cross-functional operations process related to occupational safety and health based on engagement", and the following seven items were used as evaluation categories in Survey Feedback.

- ① Areas covered by the assessment
- ② Questions for evaluation
- ③ Perspective of evaluation
- ④ Evaluation criteria
- ⑤ Importance rating
- ⑥ Satisfaction rating
- ⑦ Reason of dissatisfaction

In addition, the following eleven items were set as evaluation items in order to cover four issues and interventions that are likely to occur within an organization proposed by D.D.Warrick .

- ① Goal & task setting
- ② Allocation of responsibility
- ③ Performance appraisal
- ④ Reward
- ⑤ Career development
- ⑥ Decision-making
- ⑦ Leadership

- ⑧ Workplace culture
- ⑨ Communication at organization level
- ⑩ Communication at workplace level
- ⑪ Employees participation

R. M. Ryan pointed out the importance of both extrinsic and and intrinsic motivation for effective implementation of organizational development and realization of workplace revitalization.

According to the R. M. Ryan's point, we assumed that the awareness of the people involved will change, the organizational culture will be activated, and at the same time, organization & human resource engagement will be promoted, by strengthening both hard challenges (extrinsic motivation) and soft challenges (intrinsic motivation).

Therefore, the evaluation items of the feedback survey were set to eleven items including extrinsic motivation and intrinsic motivation (refer to the Figure 3).

Hard challenges (extrinsic motivation)	Soft challenges (intrinsic motivation)
① Goal & task setting	⑥ Decision-making
② Allocation of responsibility	⑦ Leadership
③ Performance appraisal	⑧ Workplace culture
④ Reward	⑨ Communication at organization level
⑤ Career development	⑩ Communication at workplace level
	⑪ Employees participation

Figure 3. Classification of evaluation items

The questionnaire used for Survey Feedback of organization & human resource engagement at the Department of Occupational Safety and Health was created with above considerations in mind (refer to the Figure 4).

Goal of organizational development	Improve the cross-functional operations process related to occupational safety and health based on engagement				
	Evaluation item	Evaluation criteria	Importance rating	Satisfaction rating	Reason of dissatisfaction
① Goal & task setting	xxx	xxx	H/M/L	H/M/L	xxx
② Allocation of responsibility	xxx	xxx	H/M/L	H/M/L	xxx
③ Performance appraisal	xxx	xxx	H/M/L	H/M/L	xxx
▪	▪	▪	•	•	▪
▪	▪	▪	•	•	▪
⑩ Communication at workplace level	xxx	xxx	H/M/L	H/M/L	xxx
⑪ Employees participation	xxx	xxx	H/M/L	H/M/L	xxx

Figure 4. Questionnaire for Survey Feedback

4. Analysis and consideration

4-1. Identification of Cross-functional operations process analysis, including CF-KPI, PKRI

A project team consisting of 117 occupational safety and health managers from each department of the company with 6,000 employees was formed to conduct cross-functional operations process analysis including CF-KPI and PKRI. The common goal of the project was to "redesign and restructure the cross-functional operations process for occupational health and safety through effective use of CF-KPI and PKRI at the company-wide level."

Four core tasks of the Department of Occupational Safety and Health were used to validate the diagnostic framework.

- ① Occupational health and safety risk management
- ② Occupational health and safety audit
- ③ In-house training on occupational health and safety
- ④ Strengthening leadership

For the above core tasks, the following three cross-functional operations processes were analyzed including CF-KPI and PKRI.

- ① CF-KPI, PKRI, risk countermeasure planning process
- ② Risk management planning process
- ③ Risk management implementation process

Regarding occupational safety and health management, which includes a cross-functional operations, we conducted a cross-functional operations process analysis (based on the framework in Figure 2) that includes not only individual KPIs but also CF-KPIs and PKRIs.

When identifying PKRIs, we referred to the Accident Investigation and Analysis Guidelines of the National Transportation Safety Board (NTSB, US Government) ^[10], and determined the priority of risk factors that could cause KPI non-attainment.

Figure. 5 shows an example of cross functional operations process analysis regarding ① Occupational health and safety risk management.

For several years, the company had been implementing individual KPI management for each person in charge. However, it was pointed out that the CF-KPIs for cross-functional operations were not set and collaborative operations among departments were insufficient.

The analysis results confirmed that by setting CF-KPIs in addition to individual KPIs, common KPI goals covered multiple departments were clarified and cross-functional collaboration could be seamlessly implemented.

Furthermore, by adopting PKRI, which quantifies the preceding risk factor as a sign to predict the KPI non-attainment in advance, and it is possible to implement risk countermeasures at the stage when there is a sign that KPI will not be attained. As a result, we found the possibility of minimizing the KPI non-attainment during the term and bringing the KPI attainment level closer to the target at the end of the term.

Above mentioned analysis results, we were able to verify the hypothesis that “In cross-functional operations process management, a framework including CF-KPI and 1 PKRI is effective in “managing the performance and risks occurred in the cross-functional operations process.

Common goal of the project	Redesign and restructure the cross-functional operations process for occupational health and safety work through effective use of CF-KPI and PKRI.		
Target process	① Occupational health and safety Risk management		
Cross-functional operations process	① CF-KPI, PKRI, risk countermeasure planning process	▪	③ Risk management implementation
Main operation	<Planning of CF-KPI, PKRI, risk countermeasure > ▪ Planning Individual KPIs and CF-KPIs ▪ Identification of proceeding risk factors as indicators of	▪	<Thorough implementation of the PDCA cycle for risk management > ▪ Plan : Design and construction of risk management mechanism/system ▪ Do : Operation and

	<p>proceeding risk of KPI non-attainment</p> <ul style="list-style-type: none"> ▪ Prioritization of identified proceeding risk factors and planning of PKRI ▪ Planning of risk countermeasures 		<p>feedback of risk management</p> <ul style="list-style-type: none"> ▪ Check : Confirmation of the progress of risk management ▪ Action : Review & Kaizen activities when necessary
Individual KPI	<ul style="list-style-type: none"> ▪ PKRI setting ratio (70%) ▪ Countermeasures setting ratio against PKRI (90%) 	<ul style="list-style-type: none"> ▪ ▪ 	<ul style="list-style-type: none"> ▪ Deadline for establishing risk management (until the third quarter, 2022) ▪ Coverage of risk management (80% of all departments)
CF-KPI	Start time for initial emergency response in the event of an occupational accident (within 10 minutes)		
PKRI as a preceding risk indicator of KPI non-attainment	Rate of non-participation in initial emergency response training in the event of an occupational accident (20% or less) (Note: According to past data, if the rate of non-participation in initial emergency response training in the event of an occupational accident exceeds 20%, the start time for initial emergency response start time exceeds 10 minutes.)		
Risk Countermeasure to PKRI	Urgently summon risk managers of each department and conduct the initial emergency response training in the event of an occupational accident.		

Figure 5. Cross-functional operations process analysis including the content of CF-KPI and PKRI

4-2. Survey result of organization & human resource engagement

4-2-1. Survey result of importance

Among the evaluation items of the survey result, the highest Importance was (1) Goal & task setting.

4-2-2. Analysis result of Job satisfaction and Job Dissatisfaction

In order to increase the intrinsic & extrinsic motivation of employees and improve their engagement with work, as G. Herzberg states in Motivation/Hygiene Theory, both the motivation factor (Motivator) for job satisfaction and the Hygiene Factor for job dissatisfaction are indispensable.

However, G. Herzberg's theory of job satisfaction/dissatisfaction and R. M. Ryan's Intrinsic/Extrinsic Motivation Theory have different theoretical backgrounds, it is necessary to consider conceptual discrepancy of both perspectives. In this research we assumed that job satisfaction is related to intrinsic motivation (soft challenge) and job dissatisfaction is related

to extrinsic motivation (hard challenge). Analysis of the survey results revealed that the fields with the highest job satisfaction were ① Goal & task setting and ⑨ Communication at organization level (refer to the Figure 6). In particular, ① Goal & task setting is consistent with the analysis results of Importance in Survey Feedback (pointed out in 4-2-1), indicating that the goals within the department and the cross-functional operations process are strategically consistent.

As a result, it can be interpreted that the highest job satisfaction factors for organization & human resource engagement are ① Goal & task setting as an extrinsic motivation factor, and ⑨ Communication at organization level as an intrinsic motivation factor.

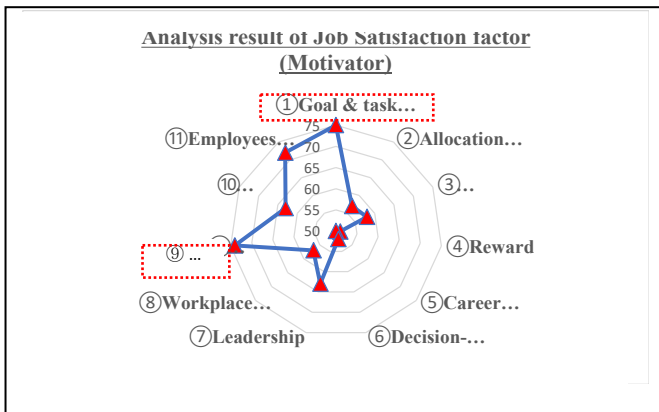


Figure 6. Analysis result of job satisfaction (Motivator)

On the other hand, the factors with the highest job dissatisfaction are ⑥ Decision-making and ⑦ Leadership, indicating that both factors as intrinsic motivation are insufficient (refer to the Figure 7).

Summarizing the above analysis results, in order to increase organization & human resource engagement with the aim of realizing the goal of redesigning and restructuring the cross-functional operations process, it is necessary to challenge both “the extrinsic motivation factor : ① Goal & task setting” and “the intrinsic motivation factors: ⑨ Communication at organizational level, ⑥ Decision-making , and ⑦ Leadership” simultaneously.

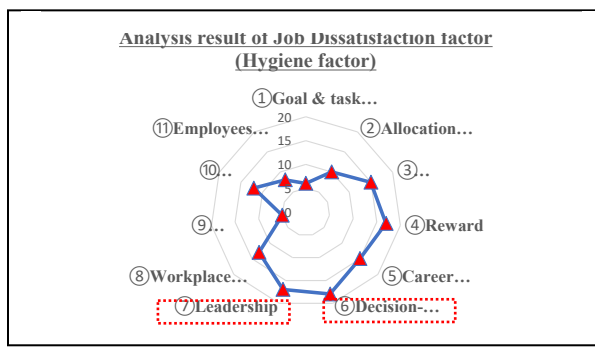


Figure 7. Analysis result of job dissatisfaction (Hygiene factor)

5. Conclusion

It is well known that strategic integration of risk management with organizational performance management based on KPIs are able to contribute to the improvement of the organizational ability to respond to rapid changes of business environment ^[11].

However, conventional risk management (reactive risk management) often focuses on identifying qualitative risk factors, and also risk countermeasures are taken after KPIs are not achieved.

This research utilizes PKRI which quantifies risk factors as a sign of KPI non-attainment in advance, and proposes a proactive risk management method that takes early action when the sign of KPI non-attainment appears.

Therefore, the method of strategic KPI & risk management proposed in this research draws a line with the framework of conventional KPI & risk management.

The target of this research was an internal business environment focused on cross-functional operations process related to occupational safety and health that included CF-KPI and PKRI. Therefore, it was relatively easy to tackle as the first trial.

We will continue to expand the scope of research to core operations processes such as production process and purchasing process, which are easily affected by the changes of external business environment.

Regarding organizational development based on Survey Feedback, we will deploy to all departments, and accordingly intensify organization & human resource engagement at the company-wide level.

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HOW DO SUCCESSION INTENTIONS DIFFER FROM BOTH FOUNDING AND EMPLOYEE INTENTIONS IN CAREER CHOICE REASONS?

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Abstract

There is a variety of influential factors for individuals' career choice intentions. However, research on how succession, founding, and employment intentions differ in its determinant factors is still scarce. This paper investigates how succession intentions differ from founding and employee intentions regarding career choice reasons. We conduct a paper-based survey (a valid response: 3,005 Vietnamese students) and apply multinomial logistic regressions. We find a significant difference in career motivation in terms of innovation, social mission, and roles among these three career choice intentions. Among seven career choice reasons (e.g., innovation, self-realization, financial success, social mission, roles, independence, and recognition), which are identified and validated using factor analysis, innovation has the highest significant impact on the founding intention, and roles motivation is shown in the strongest association with the succession intention, whilst social mission is the most important reason for the employee intention. Moreover, innovation is more important motivation for individuals to start a new firm rather than for employees, while individuals with the intention of being a successor offer a high motivation on roles reason than those with the willingness to be a founder and an employee. Respondents who opt for employment rate a higher score on social mission compared to both alternatives.

Keywords: *Career choice reasons; Employee intentions; Founding intentions; Succession intentions*

1. Introduction

The reasons for career choices in career path intentions have attracted research attention. For example, entrepreneurship scholars have investigated the reasons and motivations for pursuing a career path as an entrepreneur (Scheinberg & MacMillan, 1988; Shane, Kolvereid, & Westhead, 1991), between nascent entrepreneurs and non-entrepreneurs (Carter, Gartnerb, Shaver, & Gatewood, 2003; Kolvereid, 1996b), and males and females (Carter et al., 2003). Despite that, few studies have examined the reasons for career choices among employees, founding, and succession intentions, with the exception of Zellweger, Sieger, and Halter (2011), which focused on only within-family succession. Not all individuals with family businesses are willing to become successors. The International Survey on Collegiate Entrepreneurship (ISCE)

2006 reports that, of 9,904 students with a family firm background, 609 (6%) intended to continue their parents' business, 1,808 (18%) planned to open their own business, 2,946 (30%) intended to become employees, and 4,541 (46%) had not yet determined their career intentions (Zellweger et al., 2011). Schröder, Schmitt-Rodermund, and Arnaud (2011) show that about 51% of the children at German family firms (a sample of 106 firms) are likely to be successors, whereas approximately 33% of them prefer to become employees. In this case, business owners who are approaching retirement or cannot identify a suitable family successor can seek outside successors (Scholes, Wright, Westhead, Bruining, & Kloeckner, 2009). In other words, not all intentional successors come from family firms; rather, one can be a successor by purchasing an outside firm (a management buy-in) or by taking over one's former employer (a management buy-out) (Cooper & Dunkelberg, 1986). Employees can work in family or non-family firms (Block et al., 2015). Therefore, it is plausible to investigate the career choice motivation of intentional successors, founders, and employees. That may help not only investors but also policymakers to gain a better understanding of the most important motivation for an individual's career choice decisions (e.g., succession, founding, and employee intentions). We also aim to examine how succession intentions and others (e.g., founding, employee intentions) differ in the reasons for their career choices.

Conducting a paper-based survey (a valid response: 3,005) and applying multinomial logistic regression, we find a significant difference in career motivation in terms of innovation, social mission, roles, and recognition among three groups of intentional successors, founders, and employees. Among seven career choice reasons, innovation has the highest significant impact on the founding intention, roles motivation is shown in the strongest association with the succession intention, and social mission is the most important reason for the employee intention. Moreover, innovation is more important motivation for individuals to start a new firm rather than for employees, while individuals with the intention of becoming a successor offer a high motivation on roles reason than those with preferences for being a founder and an employee. Respondents who opt for employment rate a higher score on social mission compared to both alternatives.

This study makes several contributions to the entrepreneurship literature. First, it enriches empirical evidence in the entrepreneurship literature to confirm the motivations and reasons for preferring founding, succession, and employee as career choice intentions (Carter et al., 2003; Shane et al., 1991) and the determining factors of the paths to entrepreneurship (Block et al., 2013; Parker & Van Praag, 2012; Xi et al., 2018). Well-known studies have indicated that individuals who have a business idea, to exploit a specific business opportunity, express a higher preference for starting a new firm (Block et al., 2013; Kay & Schlömer-Laufen, 2016; Zellweger et al., 2011). We find that intentional founders place higher importance on innovation than do employees. This finding provides robust confirmation of the motivational distinctions in innovation regarding career choice intentions between founders and employees,

as pointed out by (Kolvereid, 1996a; Zellweger et al., 2011).

In addition, our findings reveal that intentional successors place higher importance on roles motivation than intentional founders and employees. In the family context, individuals prefer to take over an existing business rather than starting a new firm (Block et al., 2013; Parker & Van Praag, 2012), and their motivation can be to continue a family business. In an organization – for example, a family firm buyout – the familiarity between a predecessor and a successor is strongly related to business transfer success (van Teeffelen, 2010), in this case, predecessors who can be role models for intentional successors encourage them to be successors. This suggests that intentional successors seem to follow the example of a person (e.g., predecessor) whom they admire.

2. Literature review and theory development

Previous studies have identified different determining reasons for individual career paths using different approaches. Katz (1992) applies tracking models that focus on personal history and the social context to predict individual career choice decisions. Personal history, such as education, peers, and work experience, whereas the social context, including parental self-employment, education, and parents' or family members' occupation, are predictors of the employment status choice. In addition, people's psychosocial values, such as beliefs (Rehan et al., 2019; Audretsch et al., 2013), autonomy, and mastery values (Bauernschuster et al., 2012; Runst, 2013), creativity (Rauch & Frese, 2007) are considered among the most important values in predicting people's career choice intentions (Katz, 1992). Tucker III (1990) uses human capital theory to analyze the individual occupational choice decision to become self-employed. According to the theory, earnings and the value of marginal productivity are two measures of new firm creation by employees. That is, the probability that employees will engage in self-employment increases if their compensation is less than the value of the marginal product, and vice versa. Dyer Jr (1994) provides an integrative model of entrepreneurial careers and indicates that individual factors, social capital, and the economic environment play a significant role in leading individuals to have a career choice intention toward entrepreneurship.

Other authors have conducted empirical studies on the reasons for career choices; for example, Kolvereid (1996a) analyzes the different reasons for choosing self-employment versus organizational employment by conducting a survey of 372 Norwegian business graduates. He designs a questionnaire with 11 reasons for career choices: security, economic opportunity, authority, autonomy, social environment, workload, challenge, self-realization, participation in the entire process, avoidance of responsibility, and career. Kolvereid (1996a) shows that individuals who are willing to become employees place more importance on security, the social environment, the workload, avoidance of responsibility, and career, whereas people who prefer to become entrepreneurs emphasize the need for economic opportunity, authority, autonomy, challenge, self-realization, and participation in the entire process.

Carter et al. (2003) adopt 18 reason items based on prior studies to examine distinct motivations for entrepreneurs compared to non-entrepreneurs and males compared to females in the United States. They classify these 18 items into six types of reasons, including innovation, independence, recognition, roles, financial success, and self-realization. The authors show that nascent entrepreneurs place importance on only two reasons differently from non-entrepreneurs (e.g., recognition and roles). The two groups have non-significant differences with respect to other career motivations, such as innovation, independence, financial success, and self-realization (Carter et al., 2003). These results are in contrast to the findings of Kolvereid (1996a).

Focusing on variation in the reasons for career choices across countries, Scheinberg and MacMillan (1988) investigate the career motivation for stepping into a new venture across 11 countries (e.g., the US, Australia, Italy, Portugal, China, Sweden, Norway, Denmark, Great Britain, and New Zealand). Using 38 items divided into six reasons (e.g., need for approval, perceived instrumentality of wealth, communitarianism, need for personal development, need for independence, and need for escape) to compare entrepreneurs by country, Scheinberg and MacMillan find that independence is the most important reason for US and Australian entrepreneurs, whereas Chinese, Italian, and Portuguese entrepreneurs emphasize the need for communitarianism as an essential factor in starting a new business. The self-employed in Sweden, Norway, and Denmark place low importance on the instrumentality of wealth (Scheinberg & MacMillan, 1988).

Like Scheinberg and MacMillan (1988), Shane et al. (1991) conduct a comparison of the reasons for career choices among entrepreneurs across three countries – Great Britain, New Zealand, and Norway – rather than 11. The authors adapt 38 items from Scheinberg and MacMillan (1988) and reduce them to 21 items, then add two reasons regarding tax considerations. A total of 23 reasons are divided into four factors: recognition, independence, learning, and roles. The results from a survey of 597 owner-managers indicate that, with the exception of the role factor, career choice reasons offered by individuals starting their own business vary significantly across countries. Entrepreneurs in New Zealand and Great Britain place more importance on independence and recognition but low importance on developing an idea for a product and continuing to learn than those in Norway. In addition, Shane et al. (1991) show that having flexibility in one's personal and family life is a more important reason to start a new firm for New Zealanders than for Britons.

Unlike the earlier empirical papers, Zellweger et al. (2011) focus on comparisons among three groups of career intentions: organizational employment, founding, and succession. Beyond the analysis of career motivations, such as independence, and innovation, they examine how perceived behavioral control (e.g., locus of control and entrepreneurial self-efficacy) influence these three career choice intentions. Based on the TPB and a sample of students with a family firm background, they find that individuals with a succession intention stress the need

for independence, while having a founding intention demonstrates higher innovation than an employee intention. With regard to the effect of perceived behavioral control on career choice intentions, their findings show that having an internal locus of control is positively associated with the employee intention but no significant relation to the founding and succession intentions. This is in contrast to previous findings (Krueger & Carsrud, 1993; Krueger, Reilly, & Carsrud, 2000). However, self-efficacy has a stronger impact on self-employment and succession than institutional employment.

As shown in these studies, entrepreneurs emphasize the need for economic opportunity, authority, autonomy, challenge, self-realization, and recognition; by contrast, employees place more importance on security, social environment, and avoiding responsibility. Comparing successors with founders and employees, Zellweger et al. (2011) show that intentional successors give a higher rating to independence motivation than intentional employees, but they give a lower score to this reason compared to those with the intention of becoming founders. The founding intention places more importance on innovation than the succession intention, but Zellweger et al. focus only on the family firm context. We extend the ideas in Zellweger et al. (2011) and add more reasons for career choices (e.g., self-realization, financial success, social mission, roles, and recognition) based on previous studies (Carter et al., 2003; Scheinberg & MacMillan, 1988). We, therefore, expect the following hypotheses:

H1a: The founding intention has the highest association with innovation among seven career choice reasons (e.g., innovation, self-realization, financial success, social mission, roles, independence, and recognition).

H1b: The employee intention has the highest scores on social mission among seven career choice reasons (e.g., innovation, self-realization, financial success, social mission, roles, independence, and recognition).

A majority of succession studies are in the family business literature (Schröder et al., 2011; Stavrou & Swiercz, 1998; Zellweger et al., 2011). Well-known studies have pointed out that individuals in family businesses favor purchasing an existing firm rather than starting a new one (Block et al., 2013; Parker & Van Praag, 2012). One possible reason for this career choice is to continue a family tradition. Furthermore, not all intentional successors come from family firms, one can become a successor by purchasing an outside firm (a management buy-in) or taking over one's former employer (a management buy-out) (Cooper & Dunkelberg, 1986). Familiarity between seller and buyer is the best predictor of the success of a business transfer, for example, a family firm buy-out (van Teeffelen, 2010). Sellers or predecessors can be viewed as role models for a buyer (successor). The predecessor role model can have a strong effect on individual decisions to purchase an existing firm. In this case, we argue that the motivation of intentional successors is to follow the example of a person (predecessor) whom they admire.

With regard to starting a new firm, having a business idea is an essential element (Kay & Schlömer-Laufen, 2016). Additionally, starting a new venture is riskier than taking over an existing business because of the uncertain outcome. Also, starting a new business from scratch faces the challenges of finding a location, customers, and hiring employees (Block et al., 2013; Parker & Van Praag, 2012). In addition to these arguments and in line with previous suggestions (Kolvereid, 1996a), we propose that, among reasons for career choices, the succession intention places the highest importance on roles motivation; the founding intention has the highest association with innovation, and the employee intention has the highest scores on social mission. Also, compared with two alternative career choice intentions, the succession intention places higher importance on roles, the founding intention gives higher scores to innovation, and the employee intention emphasizes the need for a social mission. Moreover, we argue that individuals with a willingness to become self-employed demonstrate higher self-realization, financial success, independence, and recognition than those who prefer to become a successor, and that people who intend to become an employee place the least importance on these motivations. We, therefore, suggest the following hypothesis:

H2: Among seven career choice reasons (e.g., innovation, self-realization, financial success, social mission, roles, independence, and recognition), roles motivation is shown in the strongest association with the succession intention compared with founding and employee intentions.

3. Methodology

3.1. Sample

A total of 3,557 participants answering questionnaires from 21 universities nationwide, we excluded answers of foreigner students, questionnaires with incomplete answers, outliers. We also excluded respondents with indecisive options for their career choice intention (e.g., “do not know,” and “others”) (Kolvereid, 1996a; Walter & Block, 2016; Zellweger et al., 2011). For our analysis, we included only non-entrepreneurial respondents. We did not consider respondents who have already founded a firm because we focus on prospective reasons for individuals’ career choice intention, rather than retrospective reminiscence. “Retrospective accounts, particularly when describing prior intentions, have been shown to have a significant self-justification bias” (Carter et al., 2003, p. 16). Therefore, a final sample of 3,005 respondents is used for analyzing.

3.2. Variables

Dependent variable

An individual career choice intention is adapted from Sieger et al. (2016), and we asked students by the following question: “Which career path do you intend to pursue five years after the completion of studies?”. Respondents select only one option among career path choices,

namely an employee, a founder, a successor, and others. As mentioned in Section 6.3.1, we excluded the option “others” because the respondents are indecisive in their career choice intention (Kolvereid, 1996a; Walter & Block, 2016; Zellweger et al., 2011). From this question, we construct the dependent variable *career choice intention (three categories)* equals one (1) if the respondents choose “an employee,” two (2) if the respondents intend to be “a founder,” and three (3) if the respondents intend to be “a successor.” These three categories are used in a hierarchical multinomial logistic regression.

Independent and control variables

Based on the previous studies (Kolvereid, 1996a; Shane et al., 1991), we adopted 17 reason items from (Carter et al., 2003; Sieger et al., 2016) and asked respondents by the following question: “How important are the following reasons for choosing your career path right after completion of your studies?”. Respondents rated the importance of each item on a five-point-Likert-scale (1 = “very unimportant” to 5 = “very important”). Also, we controlled for a number of socioeconomic characteristics of the respondents, such as *age* (age in years in 2018), *gender*, *ethnicity*.

4. Analysis and results

4.1. Analysis

Model testing: an exploratory factor analysis of career choice reasons

We first run an exploratory factor analysis to category and identify the structure of the interrelationship of a set of a total of 17 career choice items. We conduct a principal component factor analysis with listwise deletion of missing values, varimax rotation, and employ a threshold of 0.40 for the varimax-rotated factor loadings. A statistically significant Bartlett’s test of sphericity, Kaiser-Meyer-Olkin measure of sampling adequacy: 0.82, $p < 0.001$ indicates the sufficient correlations exist among the variables to proceed. This analysis produced five factors with an eigenvalue above one. The first factor involves reasons: be innovative, at the forefront of technology, develop an idea for a product, achieve something, get recognition, and exploit a specific business opportunity that I recognized; the second factor includes: earn a larger personal income, financial security, gain a higher position for myself, get greater flexibility for personal life, and be my boss; the third factor consists of: challenge myself, realize my own dream, and grow and learn as a person; the fourth factor comprises: follow a social mission, and follow an environmental mission; the fifth one includes: build business children can inherit, continue a family tradition, and follow the example of a person I admire.

As discussed in Section 6.3.2, based on previous research (e.g., Carter et al., 2003; Kolvereid, 1996a; Shane et al., 1991), we developed these 17 reason items according to seven main categories including *innovation* represents an individual’s desire to exploit something new, develop a new idea for a product or be innovative; *recognition* describes an individual’s

intention to increase the status, achieve a higher position for themselves in society; *financial success* expresses an individual's aim to earn more money and be successful in financial security; *independence* describes an individual's desire for controlling one's own time, being freedom; *self-realization* represents an individual's intention of being challenged themselves, pursuing one's own dream; *roles* motivation represents an individuals' desire to continue a family tradition or follow the example of others; and *social mission* describes an individual's intention to contribute to the social or environmental development (Sieger et al., 2016). To assign better group identification identified by prior studies (Carter et al., 2003; Shane et al., 1991; Sieger et al., 2016), we set, therefore, a threshold value of 0.50 for loading significance and entered all 17 reason items into a factor analysis with extracting a 7-factor solution. The procedure shows that the eigenvalues of the sixth (0.906) and seventh factor (0.823) close to one, so these two factors are considered for inclusion as well (Hair, Black, Babin, Anderson, & Tatham, 1998). The seven factors retained represent 72.60% of the variance of the total of 17 reasons items.

As shown in Table 6.1, one of the 17 career items, career reason 15 – exploit a specific business opportunity that I recognized has significant cross-loadings on both Factor 1 (innovation) and Factor 6 (independence), if this career reason is dropped, the Cronbach' alpha for the scale would have been reduced or eliminated. So, to retain as many items as possible, we used the reliability criterion rather than the cross-loading criterion to keep this item – career reason 15 (Carter et al., 2003). These seven factors support the theoretical dimensions. Factor 1 – *Innovation* includes three items (“develop an idea for a product,” “be innovative, at the forefront of technology,” and “exploit a specific business opportunity that I recognized”). Factor 2 – *Self-realization* consists of three items (“challenge myself,” “realize my own dream,” and “grow and learn as a person”). Factor 3 – *Financial success* comprises two items (“financial security,” and “earn a larger personal income”). Factor 4 – *Social mission* includes two items (“follow an environment mission,” and “follow a social mission”). Factor 5 – *Roles* motivation includes three items (“continue a family tradition,” “build business children can inherit,” and “follow the example of a person I admire”). Factor 6 – *Independence* consists of two items (“be my own boss,” and “get greater flexibility for personal life”). Factor 7 – *Recognition* comprises two items (“gain a higher position for myself,” and “achieve something, get recognition”). We performed further analysis of Cronbach's alpha to measure the internal consistency of a set of items as a group. Table 6.1 presents the list of reason items, factor loadings, and Cronbach's alpha reliability of scales.

Table 6.1: Factor loadings for reasons items: seven factors solution.

Factor	1	2	3	4	5	6	7
	Innovation	Self-realization	Financial success	Social mission	Roles	Independence	Recognition
Sum of squared rotated loadings	2.054	1.900	1.842	1.795	1.739	1.544	1.426
Percentage variance accounted for	12.082	11.179	10.836	10.560	10.229	9.083	8.389
Cronbach alpha	0.748	0.653	0.813	0.850	0.604	0.607	0.682
Develop an idea for a product	0.859						
Be innovative, at the forefront of technology	0.794						
Exploit a specific business opportunity that I recognized	0.521					0.541	
Challenge myself		0.768					
Grow and learn as a person		0.702					
Realize my own dream		0.676					
Financial security			0.880				
Earn a larger personal income			0.844				
Follow an environment mission				0.883			
Follow a social mission				0.881			
Continue a family tradition					0.830		
Build business children can inherit					0.695		
Follow the example of a person I admire					0.559		
Be my own boss						0.801	
Get greater flexibility for personal life						0.629	
Gain a higher position for myself							0.792
Achieve something, get recognition							0.661

Notes: N = 3,003; Factor loadings smaller than 0.50 have been suppressed.

4.2. Results

Descriptive statistics

The findings show that of the 3,005 respondents (a valid response), 1,350 (44.9%) intend to choose an employee, 1,546 (51.5%) prefer a founder, 109 (3.6%) select a successor as their career path in the next five year after the completion of studies. The age of the respondents ranges from 18 to 25, with an average age of 20 years old. The number of females 1,703 (57%) is higher than that of male with 1,302 (43%). The majority of our respondents are Kinh, which is the main ethnicity in Vietnam. Concerning career choice reasons, the most important reason for the respondents' career path intentions is independence (mean = 4.42), followed by financial success (mean = 4.32), whilst roles reason is their least important motivation (mean = 2.81). Table 6.2 shows the correlation matrix for the dependent variable

career choice intention (three categories) and predictors. Computations of the variance inflation factor (VIF) report no serious issues of multicollinearity (VIF < 1.30).

Table 6.2: Correlation matrix.

Variable	1	2	3	4	5	6	7	8	9	10	11	VIF
Dependent variable												
1 Career choice intention - (three categories) ^a												1.07
Control variables												
2 Age	.00	-										1.03
3 Male	.07**	.14**	-									1.06
4 Ethnicity	.00	-.03*	.04*	-								1.01
Independent variables												
<i>Career choice reasons</i>												
5 Innovation	.19**	-.06**	.10**	-.04*	-							1.74
6 Self-realization	.09**	-.06**	.03*	-.01	.39**	-						1.40
7 Financial success	.02*	-.02*	-.03*	.00	.18**	.30**	-					1.30
8 Social mission	.03*	-.03*	-.04*	-.06**	.42**	.31**	.18**	-				1.37
9 Roles	.06**	-.02*	.03*	-.06**	.37**	.20**	.14**	.33**	-			1.34
10 Independence	.09**	-.07**	-.06**	-.03*	.37**	.41**	.38**	.29**	.14**	-		1.47
11 Recognition	.04*	-.07**	-.04*	-.05	.45**	.29**	.38**	.35**	.36**	.37**	-	1.56

Notes: ^a Coding: 1 = “employee”, 2 = “founder”, 3 = “successor”. **p<0.01, *p<0.05.

Main analyses

Table 6.3 presents the results of the hierarchical multinomial logistic regression. The coefficients in these models display the estimates for the career choice reasons focusing on comparisons of “employees” v.s “founders,” and “employees” v.s “business takeovers.” Model 1a and 1b focus on control variables only, whilst Model 2a and 2b focus on both control and independent variables. The findings report that age and ethnicity are not associated with career choice intentions, while gender has a significant impact on the likelihood of career path intentions. In comparison with women, men have a higher likelihood of being both intentional founders and successors.

With respect to career choice reasons, we find significant differences among three groups of intentional individuals (e.g., employees, founders, and successors) in terms of innovation, social mission, roles, and recognition (see Model 2a and 2b, Table 6.3). List of seven career choice reasons, innovation is the most important motivation for the founding intention (H1a is supported), roles motivation is the first priority regarding the succession intention (H2 is accepted), and social mission reason is a high priority on intentional employees’ list of reasons (H1b is confirmed). Furthermore, the findings in Model 2a indicate that innovation reason is significantly associated with founding and employee intentions. More precisely, individuals who intend to be a founder display a higher innovation motivation than those with the intention of being an employee ($\beta = 0.454$, $p < 0.001$), whereas we find no difference in this career reason between intentional successors and employees.

Concerning social mission, the results in Model 2a and 2b report that respondents with high levels of social mission motivation are less likely to opt for either a founder or a successor

than for an employee ($\beta = -0.122, p < 0.05$; $\beta = -0.347, p < 0.05$). Model 2a and 2b also show a significant difference in roles career reason for an employee, a founder, and a succession intention. That is, respondents who demonstrate a higher roles motivation have a lower likelihood to be a founder than to become an employee ($\beta = -0.147, p < 0.001$), however, those individuals with offering the high importance of roles motivation are more likely to embark on a career intention as a successor than an employee ($\beta = 0.361, p < 0.05$). Recognition career reason, there is no significant and different statistics for this motivation between succession and employee intentions. However, respondents with emphasizing the high need for recognition motivation less plan to engage in the founding intention than to be organizational employment (Model 2a, $\beta = -0.188, p < 0.001$). On the remaining three kinds of career choice reasons, such as self-realization, financial success, and independence, there is no difference among employee, founding, and succession intentions.

Table 6.3: Results of multinomial logistic regression analyses^a.

Model	1a	1b	2a	2b
Variable	Founding intention	Succession intention	Founding intention	Succession intention
Control variables				
Age	-0.020 (0.032)	0.012 (0.089)	0.021 (0.035)	0.041 (0.090)
Male	0.286*** (0.076)	0.441** (0.203)	0.178** (0.082)	0.329 (0.202)
Ethnicity	0.003 (0.178)	0.228 (0.527)	0.115 (0.190)	0.345 (0.527)
Independent variables <i>Career choice reasons</i>				
Innovation			0.454*** (0.060)	0.224 (0.159)
Self-realization			0.062 (0.069)	-0.098 (0.171)
Financial success			0.005 (0.058)	-0.131 (0.172)
Social mission			-0.122** (0.051)	-0.347** (0.136)
Roles			-0.147*** (0.051)	0.361** (0.153)
Independence			0.111 (0.073)	0.266 (0.187)
Recognition			-0.185*** (0.055)	-0.092 (0.149)
Pseudo R2	0.003	0.003	0.060	0.060
Log Likelihood	-2,460.868	-2,460.868	-2,315.885	-2,315.885
Obs.	3,005	3,005	2,996	2,996

Notes: ^aThe comparison baseline is “employee intention”. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

5. Conclusion

This study investigates how intentional successors differ from both intentional founders and employees regarding career choice motivations in Vietnam context – an emerging market as well as a transition economy (Santarelli & Tran, 2013; Tran, 2019), where this topic has been silent. We find that list of seven identified career reasons, innovation is the most important motivation for the founding intention, whereas roles motivation is intentional successors' first priority, and intentional employees' top priority is social mission. These have not previously been addressed. Moreover, our findings report that innovation motivation (e.g., being innovative, at the forefront of technology, developing an idea for a product, and exploiting a specific business opportunity) is more important reason for individuals to start a new firm rather than for employees, while no significant differences in innovation between intentional successors and employees. In fact, to start a new firm, individuals need to have a business idea, develop a new product, or find customers or distribution channels. As Kay and Schlömer-Laufen (2016) argue, having a business idea is more important for starting a new venture, whereas recognizing a sustainable firm is more valuable for taking over an existing one (Bastié, Cieply, & Cussy, 2013). Our finding is also consistent with suggestions of Kolvereid (1996a), who argues that individuals with a willingness to become an entrepreneur often offer reasons on economic opportunities.

In addition, our study reveals that intentional successor stresses the need for roles motivation compared to an employee, who rates, however, higher scores on this reason than those with the intention of becoming a founder. An intentional successor comes from family firms or a management buy-in/buy-out (Cooper & Dunkelberg, 1986). Within family firms, individuals prefer taking over a ready business to starting a new one (Block et al., 2013; Parker & Van Praag, 2012). One possible argument for this career decision can be reasoned by continuing a family tradition. Within family firm buy-out, individuals favor purchasing an existing business over starting a new creation because of avoiding risks (e.g., uncertain customers, distribution channels) (Bastié et al., 2013; Block et al., 2013). To succeed in the business transfer, the familiarity between a seller and a buyer is the best predictor (van Teeffelen, 2010). In this situation, sellers or predecessors, who can be viewed as a role model of buyers (successors), can encourage and motivate them to be a successor. Presumably, following in predecessor's footsteps may be a reason for individuals to buy an existing firm. By comparison with the succession and founding intentions, social mission is more important for the employee intention, which is in line with the arguments of Kolvereid (1996a).

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HOW SHORT-FORM VIDEO SHOPPING DRIVES THE CUSTOMER PURCHASE DECISION IN THE DIGITAL ERA: A CASE FROM TIKTOK IN VIETNAM

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Abstract:

The introduction of new e-commerce platforms has created a transition for customers' purchasing behavior in the digital age. Especially, when short-form video shopping (SFVS) became one of the most trending ways to market products, there are a great number of significant shifts have occurred in consumer purchase decisions. This paper aims to analyze how the purchase decision can be affected by the use of SFVS as a tool of digital marketing by looking at the case study of Tiktok in Vietnam. Being a later entrant than the competition in the Vietnamese market, Tiktok still witnessed unequivocal domination in the short-video category - with more than 39.91 million users aged 18 and above in Vietnam in early 2022. By interpreting the impact of Tiktok as the favorite short-video platform for Vietnamese consumers, the article gives a deeper understanding of how consumers make their purchases in the context of rising digital platforms. In addition, it also suggests some implications which aim to help marketers maximize the potential of SFVS for the growth of e-commerce in the future.

Keywords: *e-commerce, digital era, purchase decision, Tiktok, short-form video shopping.*

SKILLS, EDUCATION AND ECONOMIC DEVELOPMENT: VIETNAM IN REGIONAL CONTEXT

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Abstract

The search for understanding of how economic development (as measured by increase in GDP and other metrics) takes place has been undertaken for several decades, without conclusive results. It is evident that, although some factors are relatively consistent over time and space, other factors vary significantly with respect to where and when they take place. Among these factors, it is evident that educational outcomes and skills are vital to the formation of a productive labour force but it is not clear whether these should be regarded as consistently important or among those factors which wax and wane in relevance depending on circumstances. This paper explores the case of Vietnam, in regional perspective, to try to understand the importance of educational outcomes and skills in its own labour force under circumstances of export-oriented manufacturing and assembly through quantitative analysis of open source data provided by reputable sources (e.g. UNICEF, World Bank). A regional perspective is chosen to help understand the different forces acting upon the country and what alternatives may be open to it. The results are used to create models of labour force development which may be beneficial for the country and policy suggestions are derived from this process.

Keywords: *education outcomes, labour force, regional perspective, skills, Vietnam*

1. Introduction

Countries which have achieved rapid economic development over recent decades have often had powerful and even existential reasons to have attempted this growth. South Korea, for example, remains at war with its then more powerful neighbour, Singapore and Hong Kong continue as vulnerable city states attached to larger and not always friendly neighbours, Taiwan is threatened with forcible reincorporation to the mainland nation, while the Communist authorities in China and Vietnam require growth to demonstrate their continued legitimacy. To achieve development successfully and rapidly, states have embarked on varieties of a similar model featuring export-oriented, import-substituting intensive manufacturing based on low labour cost competitiveness based, initially, on drawing workers from farms into factories and, secondly, after the Lewisian point of equalisation of supply and demand for labour has been reached, through attempting to control the extent to which the benefits of growth are passed on

to the working classes. Control of the ideological state apparatus (Althusser, 2006) makes this last process more possible for states which may or may not have become pluralistic, at least to a certain degree.

Of course, economic development within a country does not take place in a vacuum. Instead, it is both affected by changes in the international environment and effects some changes on it in its own right. The Japanese economy benefited from the Korean civil war, while the Korean economy benefited from the war in Vietnam and so forth. As globalization has spread and intensified around the region, equalizing the spheres of production and consumption, the impact on individual states has become increasingly globalized rather than regionalized. The spread of the coronavirus pandemic is one obvious example of this but so too are less visible symptoms of the crisis, such as the effect of the disruption of global containerized shipping patterns as carefully laid plans to collect containers here and deposit them there were replaced by *ad hoc* arrangements following the collapse of both supply and demand factors. Clearly, therefore, the ways in which the various factors of production contribute to state-led economic development vary over the course of time and, consequently, with the place in which they are required to operate. It is possible to capture these effects at a particular moment in time and, consequently, with the place in which they are required to operate. It is possible to capture these effects at a particular moment in time (see, for example, Table 1) but it should be noted that such representations are properly understood as being dynamic in nature.

Table 1: Labour Productivity in Selected Countries (GDP per hour worker (GDP constant international \$ at PPP), 2021).

Source: ILO Stat (2022), available at ilostat.ilo.org/topics/labour-productivity/.

Country	Value	Country	Value
Singapore	73.7	China	13.8
Brunei	57.9	Indonesia	13.1
Taiwan	53.5	Philippines	9.9
Korea. Rep.	41.5	Vietnam	7.3
Japan	40.3	Lao PDR	7.1
Malaysia	26.0	Myanmar	4.1
Thailand	15.2	Cambodia	3.6

Numerous factors might a measure such as labour productivity, from the quality of local inputs to trade relations to the availability of production, Some of these are more controllable by a state than others. For example, states might encourage inward investment of technology by providing attractive special economic zones with tax benefits and other incentives. States with governments that recognize the desire and need for rapid development and consider how these might be improved in order to achieve state-level developmental goals. The measure used

to consider the set of all these factors, total factor productivity (TFP), dates from the work of Solow () and is considered to involve the input and output factors of both labour and capital, incorporating all forms of equipment, technology, transportation, management technology and so forth. Various ministries and public agencies will be mandated to consider how the aspects within their remit might be enhanced. The development of a labour force able and willing to conduct the tasks required of it at any one time is an important part of this process.

Many economic studies of development suffer from the willingness of their authors to treat the labour force as a homogeneous whole composed of interchangeable hands which might be set to this task or another with no discernible change in effect (even Marx spoke of the industrial reserve army in such terms). However, it is very obvious from observation of real life that, just as people are different in their characters and levels of opportunity, so too are they different in their ability to contribute at any moment in time. However, these abilities are not fixed but also dynamic. Human capital theory, dating from the works of Becker (1962) and Rosen (1976) but with a much longer intellectual heritage, argues that individual workers have a set of skills and abilities which can be applied to the jobs they have and which can be improved through on-the-job learning and experience but, also, by other forms of education. As people develop their skills and competencies, it may be found that they may locate a more suitable position in another line of work. This also demonstrates the fact that governments may take action through shaping and supporting the national education system so as to encourage the creation of employees more capable of meeting national goals.

Initially, governments will look to mould their workforce into pliable industry workers content to labour in mostly foreign-owned factories. However, as the era of import substitution gives way to the era of innovation, the needs of the workforce also vary, at least for some part of it. What are the social and economic conditions which will enhance the ability of people to innovate? It should be borne in mind that there are numerous ways in which innovation can be used in the process of production and, also, that it need not imply the completely new invention of an item but merely an incremental change at some stage of production. Often, the incremental change is borrowed or adapted from another product or process. In other words, the concept of the inventor as a kind of poetic, isolated genius is mostly obsolete in management terms and should be replaced by the concept of a systematic search for improvements in efficiency using an identifiable set of activities.

Nevertheless, the idea of innovation in much of management literature retains an element of charisma or mystery. The idea of the creative economy is also evolving, as new possibilities are continuing to emerge. UNCTAD (2022:1) observes that “The definition of creativity builds on the interplay between human creativity, ideas, intellectual property, knowledge, and technology, while creative economy encompasses all the industries relying on creative activities.” Consequently, it is receptive to sustained investment in human capital. This can involve, of course, investment in the quality and quantity of education at all stages but this

is not the only requirement. In a world in which the possibility of mobility for many millions of people has become realistic (setting aside the problems of the COVID pandemic for the moment), then they will want to move to places which appear to be more attractive. Research into understanding what factors make a place attractive in this context has focused on the convergence of talent, technology and tolerance (Florida,...). That is, people who express high levels of creativity either come from places with these three benefits or else will be motivated to move to where they are.

Inevitably, measuring the presence or otherwise of these benefits is a complex process involving a significant number of variables, some of which act as proxies for what is really intended. In their study of creativity within Southeast Asian cities, Florida and Fasche (2017) assembled a composite of variables in a wide range of different areas (see Table 2).

Table 2: Variables Included in a Study of Creativity in Southeast Asian Cities

Source: Florida and Fasche (2017:54-6).

Creative class	Tolerance towards ethnic and racial minorities
Educational attainment	Tolerance towards the gay and lesbian community
Talent index	Global creativity index
Innovation	National economic output per person
R&D investment	Economic competitiveness
Technology index	Entrepreneurship
Metropolitan share of total national economic output	Human development
Metropolitan GDP per person	Income inequality
Urban productivity ratio	Urban population
Global city index	Urbanization
Urbanization and economic development	Population of global cities
Metropolitan GDP	Research travel

Although it is quite possible to quibble with the presence or specification of a number of these variables, it is more difficult to imagine how the required data could be collected and collated in a different way. It is also notable that the methodology betrays a certain ideology which is, presumably, supported by the data already collected. This is little evidence, for example, that a rural idyll would appeal to the contemporary creative person or that such an individual might be quite content to live with biases that are, these days, generally condemned. In other words, it is evident that there are arguments for governments to pursue alternative

policies which might fit their posture better. In particular, governments which are reluctant to accommodate political plurality or freedom of speech would certainly attempt to redefine some aspects of this data collection process.

2. The Vietnamese Context

Young Vietnamese have performed well in recent years in international competitions that explore various aspects of academic collective. For example, Vietnam's performance in recent iterations of the Programme for Individual Student Assessment (PISA), in which the country recently began participating, show much better than anticipated results in a number of cases (Dang *et al.*, 2020), although performance is much weaker in areas such as exposure to diversity, global competence and performance in the context of socio-economic status (OECD, 2022).

2.1. Skills and Digital Literacy

Tables 3 to 6 provide some details on digital skills demonstrated by school children of different ages in selected countries. Although it would be desirable to have more data on which to comment, it is possible to make some observations on these results. Firstly, Vietnam's performance is below that of regional leaders such as Japan and ROK but above the lesser developed neighbours in Southeast Asia. In order to continue with the existing model of economic development, a reasonable target for emulation would be Thailand, which has for some decades successfully been able to attract inwards foreign direct investment (FDI) by firms that has engaged some local companies with their value and supply chains. Table 6 shows that Vietnam performs well when it comes to provision of basic literary ability, which is a result of strong governmental support throughout the country. However, both countries demonstrate the same failing with respect to inequality, in that children in urban areas outperform those in rural areas and those in the richest quintile do better than those in the poorest quintile. These factors are, of course, interconnected. In this context, it is problematic for economic growth because it does not provide opportunities for all members of the country to be able to achieve their full potential. Nobel laureates in economics such as Paul Krugman and Joseph Stiglitz have described the way in which the post-WWII settlement that brought rising living standards for society as a whole was replaced by neoliberalism and the supposed 'trickle down' theory of growth which has seen the incomes of the few at the top increase rapidly while everyone else has seen their purchasing power stay the same or diminish in recent years. Stiglitz (2019) concludes that "... far from being either necessary or good for economic growth, excessive inequality tends to lead to weaker economic performance."

Table 3: School Age Digital Connectivity (c.2016-19), selected countries

Source: adapted from UNICEF (2022), available at:
data.unicef.org/topic/education/remote-learning-and-digital-connectivity/.

(%)	Total	Rural	Urban	Poorest Quintile	Richest Quintile
China	57	50	91	-	90
Indonesia	19	10	26	6	45
Japan	78	83	77	62	87
Lao PDR	2	1	4	0	5
Thailand	71	67	78	47	96
Viet Nam	62	-	62	-	-

Table 4 shows a similar pattern with respect to location and economic circumstances, while also indicating better performance in terms of digital literacy compared to Lao PDR, as would be expected given the relative economic development of the two countries. The table also shows that there is considerable scope for improving the level of skills, particularly those higher level skills that might be expected to contribute to creativity. This will require considerable expenditure if all pupils are to be given opportunities to acquire those skills. Most families which have the means to do so, it may be assumed, have already provided the necessary equipment for their children, since the technology adoption rate in Vietnam is high.

Table 4: Basic Digital Skills, selected countries

Source: adapted from UNICEF (2022)

Country (%)	Gender	Region	1	2	3	4	5	6	7	8	9	10
Lao PDR	Female	Rural	0.021	0.02	0.008	0.019	0.013	0.001	0.0.011	0.015	0.012	0.031
	Female	Urban	0.161	0.154	0.08	0.136	0.037	0.014	0.021	0.115	0.018	0.219
Viet Nam	Female	Rural	0.194	0.191	0.18	0.165	0.099	0.128	0.101	0.074	0.018	0.268
		Urban	0.476	0.449	0.475	0.418	0.218	0.383	0.26	0.281	0.06	0.578
	Male	Rural	0.222	0.189	0.159	0.16	0.071	0.216	0.067	0.139	0.044	0.295
		Urban	0.48	0.445	0.493	0.36	0.321	0.47	0.189	0.367	0.061	0.576

Notes: (1) copied or moved a file or folder; (2) used copy and paste tool to duplicate or move information within a document; (3) sent e-mail with attached file; (4) used a basic arithmetic formula in a spreadsheet; (5) connected and installed a new device; (6) found, downloaded, installed and configured software; (7) created an electronic presentation with

multimedia elements; (8) transferred a file between a computer and another device; (9) wrote a computer programme; (10) performed at least one out of nine activities.

Table 5, which deals with youth literacy rates in Southeast Asia, indicates that investment in education in recent decades has ensured that illiteracy has been almost eradicated in the region. In Vietnam, 98% of all young people are now literate to the established level and, in common with poverty, deprivation now tends to take place in remote locations where it can be difficult for government services to reach.

Table 5: Youth Literacy Rate (2018) (15-24) (selected countries)

Source: Adapted from UNICEF (2022), available at: data.unicef.org/topic/education/learning-and-skills.

%	Total	Female	Male
Brunei	100	100	100
China	100	100	100
Indonesia	100	100	100
Malaysia	97	97	97
Singapore	100	100	100
Thailand	98	99	98
Timor-Leste	84	85	82
Viet Nam	98	98	98

Table 6: Foundational Learning Skills (SDG4.1.1.a) – percentage of children achieving minimum proficiency in (i) reading and (ii) numeracy (2017-19)

Country	Age	Skill	Girls	Boys	Rural	Urban	Poorest Quintile	Richest Quintile	Total
Thailand	Grade 2/3	Reading	59	56	56	59	42	64	57
		Numeracy	53	49	48	56	42	58	51
	7-14	Reading	76	70	70	76	62	78	73
		Numeracy	71	67	65	73	59	78	69
Viet Nam	Grade 2/3	Reading	73	73	70	80	54	57	73
		Numeracy	50	54	48	62	36	70	52
	7-14	Reading	83	84	81	89	71	89	83
		Numeracy	72	75	70	81	55	85	73

2.2. Creativity and Its Components

Tables 7 to 9 are related to the practical aspect of creativity and two of its components, which are freedom of speech and the rule of law. Table 7 shows selected countries from the Global Creativity Index, using the latest available figures (2015). Three constructs are included, technology, talent and tolerance, together with a figure for the overall total. In the selected list, the leaders are Singapore, Hong Kong and Japan, while Vietnam has an overall position of 80, which is above Thailand (82) and Indonesia (115) but below Lao PDR (31) and the Philippines (52). It would appear that the subjective nature of at least some counter intuitive results but there is an epistemological issue which it would be difficult to resolve. In particular, it is evident that small and densely populated areas are favoured over larger states that may have extensive rural, agricultural areas. The method also seems to struggle with the Vietnamese strategy of concentration of resources in specific areas where the benefits of proximity are evident. Alfred Marshall (1920) write in the C19th that there are benefits that might now be referred to as ‘network effects,’ which take the form of constant discourse about what is possible which “... are in the air.”

In the case of Vietnam, this has involved centring most activities around the two principal metropolitan areas, Hanoi and Ho Chi Minh City, where firms would like to invest in any case, together with certain areas where special economic zones (SEZs) of different types are encouraged and where they can claim privileges and benefits for doing so. Infrastructure is used to connect these different islands of more advanced economic activities which tend to ignore the rest of the country. This involves something of a double sector approach but this is necessary to shortcircuit what in this case is the disadvantage of not being a small state.

It is notable that, for the selection of countries included in Table 7, in nearly every case the overall position is better than the score for tolerance. It is generally thought – and implicit in the original thinking of Florida (2017) – that higher levels of tolerance will lead to higher levels of creativity, since people are freer to express their thought and ideas and discuss them openly with others. However, this is a definition of creativity as the domain of the poetic, individual genius which is somewhat out of kilter with more contemporary conceptions of creativity as a useful part of a business setting. This new thinking (which is not now very new) focuses on the idea that there are very few ideas which are genuinely innovative and revolutionary in their impact and, even when one is found, it is far from clear that it can be used profitably by its originator. Attempting to bring the innovation to the market might require significant cost and involve risk. Hoping for such a level of innovation is not really conducive to prudent management, especially in recent years when the external environment has been so turbulent. Amabile (1998) wrote that “... creativity is the production of novel and useful ideas by an individual or small group of individuals working together ... [and] ... Organizational innovation is the successful implementation of creative ideas within an organization.”

Table 7: Global Creativity Index (GCI), 2015

Source: Marin Property Institute

Country	Position	Technology	Talent	Tolerance	GCI
Singapore	9	7	5	23	0.896
Hong Kong	21	32	32	30	0.715
Japan	24	2	58	39	0.708
South Korea	31	1	50	70	0.660
Lao PDR	42	-	97	23	0.555
Philippines	52	54	65	53	0.487
China	62	14	87	96	0.462
Malaysia	63	24	69	101	0.455
Macao	77	80	56	-	0.381
Vietnam	80	45	104	73	0.377
Thailand	82	38	84	105	0.365
Cambodia	113	87	118	78	0.213
Indonesia	115	67	108	115	0.202

It is possible, therefore, for management to foster innovation through specific organizational and environmental changes and, also, to nominate specific issues and situations which might benefit from the production of innovations. Further, once creativity has been expressed, it is necessary to bring it to bear in the desired manner that will achieve the specific, defined goals required. This approach chimes well with many firms in East and Southeast Asia since it enables creativity to be harnessed within particular limitations which can be controlled and limited. It is also popular at the governmental level because it can be used to argue that holding at arm's length western notions of liberal democracy is not necessarily inimical to creativity and, hence, is not acting as a drag on economic growth. Tables 8 and 9 reinforce the ideas that countries of this region tolerate lower levels of freedom of speech and the rule of law. The former uses the world press freedom index as a proxy and the latter uses the corruption perception index similarly. Vietnam does not perform well according to these metrics, which is quite well-known. There is evidence currently that redoubled efforts are being made to reinforce the rule of law by eliminating corruption (AFP, 2023) and it remains to be seen how successful this will be.

Table 8: Transparency International Corruption Perception Index 2021

Source: Transparency International (2022), available at: www.transparency.org/en/publications/corruption-perception-index-2021

Country	Score
Singapore	85
Hong Kong	76
Japan	73
Taiwan	68
South Korea	62
Malaysia	48
Timor-Leste	41
Vietnam	39
Indonesia	38
Thailand	35
Philippines	33
Laos	30
Myanmar	28
Cambodia	23
North Korea	16

Table 9: World Press Freedom Index, 2021

Source: Reporters without Borders (2022), available at: rsf.org/en/ranking

Country	Position	Score
Taiwan	47	23.82
South Korea	50	24.48
Japan	53	25.17
Hong Kong	58	26.16
East Timor	90	28.72
Brunei	122	35.45
Thailand	135	38.60
Indonesia	139	41.05
Cambodia	143	41.81
Malaysia	145	42.73

Philippines	147	43.11
Singapore	149	43.43
Myanmar	151	44.71
Laos	168	67.99
Vietnam	172	71.78
China	173	73.07
North Korea	178	83.90

2.3. The Changing Nature of the Expression of Creativity

Table 10 shows exports of creative services from selected companies for 2010, 2015 and 2020. It is clear that there is scope for rapid increases in such sectors. For example, China's exports have nearly tripled over the course of a single decade, which is the same for ROK, Taiwan and Philippines. One reason for these dramatic changes is the continued increase in internet connectivity in every part of the world, particularly with respect to the rollout of 5G services. Vietnams Viettel has been responsible in part for providing these services to various less developed economies (). Increased connectivity means that not only can new forms of intellectual property be delivered but all forms may be delivered with a greater speed that makes possible streaming video services, for example or real time multi-person online meetings.

Table 10: International Trade in Creative Services, estimates for individual countries (experimental) (US\$m at current prices)

Source: UNCTADstat (2022), available at: unctadstat.unctad.org/wds/TableView/tableView.aspx.

Country	2010	2015	2020
Brunei	2	0	2
China	18,165	26,728	58,826
Hong Kong	1,667	1,749	1,830
Macao	19	23	19
Taiwan	1,546	3,289	7,616
Japan	25,547	35,594	47,008
Korea, Rep.	3,595	8,314	12,423
Myanmar	0	11	23
Philippines	562	2,166	2,650

Table 11, meanwhile, shows the nature of creative goods exports in terms of category as they have changed from 2005 to 2020. The last year of results includes the coronavirus pandemic period and so it is not surprising that there is some curtailment of growth in exports as a result of lockdowns and concomitant postponement of consumption, disruption of supply chains and general declines in economic activities. It is notable that some sectors first increase in value and then decline towards the end of the period. Publishing, for example, rises from US\$49.7 billion in 2005 to a peak of US\$40.4 billion in 2010 before declining to US\$28.4 billion in 2020. This reflects an increase in the amount of published material witnessed at the start of this period before its loss of profitability as people adopted different models of consumption. Music publishing, for example, has moved from the purchase of items by a specific artist to the use of streaming services such as Spotify, which provide consumers with almost infinite choice but the artists themselves receive much less than before. Visual arts also seems to be following this trajectory, with services such as the heavily-indebted Netflix replacing traditional publishers, with attendant rearrangement of the revenues available. This life cycle is not necessarily the same for each medium and nor is it inevitable. However, the tendency does demonstrate the changes in the nature of demand for creative services and the need for providers, therefore, to be alert to such changes and be agile enough to adjust production accordingly.

It might also be noted that a great deal of the creative exports noted in these tables relies on innovation that most people might not recognize as such. For example, a successful use of intellectual property is customarily accompanied by its application to merchandising of various types. In recent years, the world of film has seen reduction of costs and risks on behalf of studios by greater reliance on sequels and prequels, as well as cross-fertilisation of property in superhero films featuring guest appearances by already successful characters. Book publishing too has seen a similar phenomenon with already profitable authors routinely signed to multi-book deals rather than taking a chance on new and unknown authors. These risk reduction strategies nevertheless contain elements of creativity and innovation in that new products are still being produced, albeit that it is often the newness of the product that is desired by the consumer but that which makes it familiar.

Table 11: Values and Shares of Creative Goods Exports, Annual (US\$ at current prices)

Source: adapted from UNCTADstat (2022), available at: unctadstat.unctad.org/wds/TableView/tableView.aspx.

	2005	2010	2015	2020
All Creative Goods	291,134	418,606	532,623	529,459
Art Crafts	26,338	31,547	39,479	41,834
Audiovisuals	15,262	33,497	23,428	16,504

Design	171,379	241,969	345,326	329,812
New Media	12,402	39,876	43,151	70,087
Performing Arts	3,861	4,670	4,971	5,357
Publishing	39,655	40,448	34,665	28,436
Visual Arts	22,237	26,598	41,603	32,369

3. Creativity and Economic Growth

As previously mentioned, the traditional form of creativity suggests that it manifests itself in some kind of a grand gesture. In reality, especially in the field of business and economic activity, innovation is manifested primarily in the form of small, pragmatic changes which may not actually improve a product at all. For example, in the confectionery market, many well-known products have become smaller and smaller in size over the years as a means of reducing costs and so enhancing profits. Nevertheless, each of these changes is an example of innovation and, indeed, an expression however limited of creativity. This does not mean that there is no room at all for the expression of genuine creativity, as it has become known, just that it has become comparatively rare and is accompanied with lower levels of expectation. When it comes to economic growth, then, there has become less of a need to search for breakthrough intellectual property and more reliance on team management to establish a program of incremental change and the processes needed to ensure that it is followed. Removing the requirement for novelty means many more small and medium-sized enterprises that are competently managed but without any outstanding resources or competences can become important parts of value chains. This is because value can be added in the same pragmatic manner as innovation can be added. For Vietnam, its reliance on integrating its economic actors into international value chains might continue to be viable into the future. There is still a need to upgrade its SMEs so as to be able to meet the requirements placed on them but this can be managed. At the same time, those individuals or groups wishing to trade on their own intellectual property can be given the support from which they would continue to benefit.

To be a valuable component of economic growth, then, the ability within an organization to demonstrate creativity should not just be subject to the normal processes of management but, also, subject to rational timeframes and carefully designed deliverable outcomes. It can, in other words, be planned for and designed just like any other business process. Of course, mistakes can still be made at any stage but these may be seen as missteps which offer a learning opportunity rather than an inability to deal with a phenomenon that is not properly understood.

4. Creativity and the Time and Space of Economic Development

Economic development as it has been conducted in the last 70 years in East and

Southeast Asia has consisted of two principal stages. The first of these is based on import substitution. A poor country produces very little and so imports what it needs. As a result, much of the limited capital it does have is sent overseas where it is accumulated by foreign corporations who use it, in part, to create new products which consumers might wish to own in the future. Clearly it is better for the production of such goods to take place in the home country, preferably by firms owned by local actors but, if that is not possible, by foreign-owned firms in the home country. The ways in which the local government is able to bring about this situation and manoeuvre its own firms into lead positions in production processes is the heart of industrial policy. The way this is managed has changed in time as a result of changes in the international environment, membership of transnational organizations that regulate trade and investment and the nature of manufacturing and assembly processes themselves. In the case of Vietnam, its period of rapid industrialization has taken place at a very late stage, compared to other countries in the region, starting with Japan, then the so-called four tigers of ROK, Taiwan, Hong Kong and Singapore, then the new wave of countries such as Thailand and Malaysia and then China. One of the implications of this is that many of the foreign firms wishing to take the lead role in Vietnam are regional firms with their characteristic managerial styles and corporate cultures. There is a difference in the workplace and in terms of negotiations in dealing with a Chinese or a Japanese firm and an American or western European one. Second, the nature of production has also changed. Owing to increases in global supply of producers, diffusion of mature technologies like most manufacturing activities and the dynamics of globalization and the connectivity that enables it, most production activities can be located almost anywhere in the world. Firms will choose where to produce based on a combination of low labour costs and the availability of infrastructure that will bring finished goods to market or on to the next stage of production. Figure 1 below explains how changes have taken place in this context in recent years.

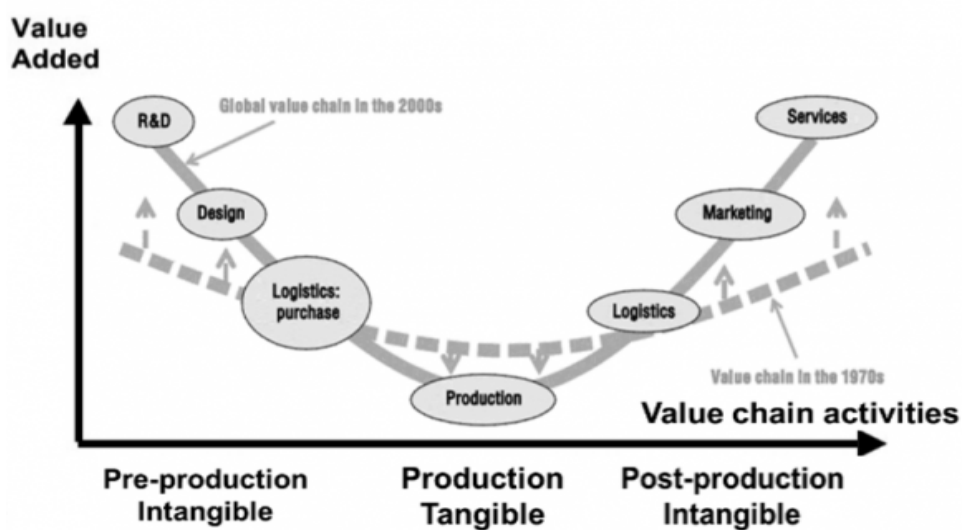


Figure 1: The Smile Curve of Value in International Business; source: de Borja Reis & de Souza (2018).

As mentioned above, the diffusion of manufacturing technology means that manufacturing or assembly of semi-finished goods can take place nearly anywhere. It offers less value-added than other activities because of this ubiquity. Consequently, it is logical to locate these activities to relatively low labour cost countries such as Vietnam. The Vietnamese government has increased the likelihood of firms making this choice (in the context of competition from a number of other countries) by improving desired characteristics of the labour force (e.g. relevant education and creativity when this is required, as well as infrastructure and ensuring the rule of law when it comes to business activities and the repatriation of capital). In the chart, the manufacturing and assembly activities are in the middle of the curve, where value-added is lowest. Over the past decades, the amount of value-added in this part of the curve has declined further. By contrast, the earlier and later phases have seen their degree of value-added increased. These stages are mostly intangible in nature, compared to the tangible nature of the middle section. The pre-production activities include initial research and development, design and engineering; the post-production stage includes logistics, marketing and post-purchase services. Firms will customarily seek to organize their value chains such that the profitable beginning and end stages are conducted within the firm and probably in the home country, although other arrangements are, of course, possible. While this description suggests advanced and sophisticated products, this need not necessarily be the case. Knowles (2014), for example, traces the life cycle of the humble flip-flop sandal from its oil source in Kuwait, plastic manufacture in ROK, assembly in China and sale in east Africa.

As supply and demand factors change, that is, firms should aim to be agile enough to take advantage of opportunities to join and if necessary, exit value chains as the situation evolves. Currently, there are various pressure in the international environment that may lead to some forms of deglobalization or, at least, slowbalization. These include, principally, the climate emergency which requires urgent decarbonization of all activities on earth and, as many people believe, a reversal of the capitalist model of continued growth and expansion. Second, there are political pressures surrounding the relationship between the USA and the China-Russia alliance. A very large amount of investment in China has resulted from the same sort of local production that takes place in Vietnam and it is mobile in nature, at least to some extent. If western countries wish their firms to relocate from China because of the Russian invasion of Ukraine and various complaints about China's human rights record and intentions towards Taiwan. Vietnam might benefit from this tendency if it is willing to accept firms moving away from China for political reasons. This would be a very sensitive issue.

In terms of creativity, then, there are two main aspects to consider. As previously mentioned, there are two principal stages to economic development. The first is import substitution. The second is innovation. When a country such as Vietnam has achieved import substitution to the extent that is possible, it will need to take the next step towards economic development which is the creation of products which can compete in international markets in

their own right. Conquering import substitution can enable a country to raise its living standards from low to middle income level but it is not able to move the country beyond that. ROK is a leading example of how a country can take the next step to high income through embracing the need for innovation. Korean pop music, television drama, cooking, dance and design are all part of the wave of Korean cultural production that has become popular throughout Asia and beyond and which is known as Hallyu. This innovation did not happen at random but was the result of government planning and action (Walsh, 2014). Failure to take this next step results in the Middle-Income Trap (MIT), in which a country is unable to exit from the factory age of manufacturing and assembly and achieve new societal goals. In some cases, such as Thailand, falling into the MIT has resulted from the failure to permit society to open itself fully to freedoms that would challenge the authority of existing power networks of various elites. Expressions of creativity, which do exist in the country, are strictly controlled when they are permitted and the ability of new firms to create vibrant new markets is limited. For example, the decision to legalize cannabis use offered the opportunity to a number of entrepreneurial people to create attractive products for both Thai people and the newly returning foreign tourists alike. However, post-legalization, second thoughts seem to have struck various authorities and restrictions have been issued, retracted and re-issued, thereby creating an atmosphere of uncertainty that frustrates effective business innovation (Sasipornkarn, 2022). It is possible to view this situation as one that centres on public health and morality but it is just as possible to view it as attempts by vested interests to prevent the creation of new markets that would threaten existing profit centres. In any case, innovation is not being given free rein and this is not just an isolated example.

Vietnam, therefore, has the challenge of pursuing creativity in two aspects. The first is to continue to prepare the current and future labour force so that its members can demonstrate the needed creativity as part of existing economic activities. The second is to find ways to permit innovative creativity in market spaces in ways which do not destabilise society. This is a difficult path to tread and it is not surprising that, of the extensive commitments the government has made to digitalization and other future forms of economic growth, it is in the quantitative measures of infrastructure construction that most progress has been made.

5. Conclusion

It has been shown that creativity in economic activities is a more complex concept than might initially be thought. In particular, it is possible to divide it into different forms that are suited to the activities that form different stages of economic development. Since economic development varies in requirements and nature depending on the international environment, then it is the case that creativity and what is required from creativity also varies in terms of time and space. It may be used in different ways for different purposes in different contexts. Contemporary economic governance should not just be aware of this complexity but be able to plan for its creation in the present and in the several possible futures that may be foreseen for

the development of the economy.

It will be important to continue comparative research at the regional level to develop further understanding of these issues as they are now and how they may change in the future. The attempt to understand the process of economic development always depends on a balance between learning from what has taken place in the past and understanding how what has taken place would change if it were to take place in the present or the future.

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INCOTERMS® 2020 THROUGH THE VIEW FROM THE FOOTBALL TEAM & SOME NOTES TO BUSINESSES WHEN USING IN COMMERCIAL TRANSACTIONS

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Abstract:

Incoterms (International Commercial Terms) is a set of rules of the International Chamber of Commerce (ICC) to explain trade terms in contracts for the sale of goods in order to prevent disputes between parties in commercial transactions. Currently, Incoterms have been widely recognized and applied worldwide for international and domestic commercial transactions. Incoterms® 2020 is the latest version today, includes 11 rules and can be divided into 4 groups: E, F, C and D. In fact, Incoterms rules are often difficult to understand and remember, and businesses often have some errors when using them, leading to unnecessary disputes and damages in commercial transactions.

Football is a sport that is played under the International Football Federation (FIFA) Football Laws to unify the rules in football matches in order to minimize controversy in the matches. Football is a most attractive and popular team sport around the world with international or domestic matches. The most popular and official football matches stipulate the number of players per team on the field is 11 players and is divided into 4 lines: Goalkeeper, Defenders, Midfielders, and Forwarders.

The paper shows how to arrange 11 Incoterms® 2020 rules corresponding to the positions of 11 players competing in a football match in accordance with the seller's obligations, mode of transport, place of delivery, etc. so that businesses can easily understand, remember and use flexibly to avoid common errors when using Incoterms in their commercial transactions.

Keywords: *Incoterms, football, obligations of the seller, mode of transport, delivery*

Introduction to Incoterms

Incoterms are rules drawn up by the International Chamber of Commerce (ICC) to explain the trade terms reflecting the practice of obligations between buyers and sellers for delivery and taking of delivery in contracts for the sale of goods.

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The Incoterms rules describe:

- Responsibility: Who does what? For example, who arranges loading, transportation, unloading, insurance, shipping documents, customs clearance for export, transit and import;
- Risk: Where and when the seller “delivers” the goods, or in other words, where and when the risk passes from the seller to the buyer;
- Cost: Which party must pay the costs such as loading, transportation, insurance, unloading, customs clearance, goods or security inspection.

Incoterms for nearly a century have facilitated the conduct of commercial transactions. The purpose of Incoterms is to provide a complete system of rules for the interpretation of the most widely used trade terms. Inconsistencies in the interpretation of these terms in different countries can therefore be avoided or at least significantly reduced. The reference to Incoterms in the sales contract clearly defines the obligations of the parties to minimize and conveniently settle disputes arising from the sales contract, especially the contract between the parties in different countries.

Incoterms have many rules suitable for many different modes of transport, different ways of dividing risks and costs between the seller and the buyer. Thus, the parties can choose the rule that best suits their abilities and desires in a particular transaction. If choosing the right Incoterms rules, this is also a tool to compete and increase control over goods and profits of enterprises.

Incoterms were first published with the 1936 version and are regularly revised to suit commercial practice. 04 the most recent versions are 1990, 2000, 2010 and 2020.

Incoterms 1990 and 2000 are divided 13 terms (terms) into 4 groups: E, F, C and D (group name is the first letter of terms in the group) arranged in ascending order of obligations of the seller.

Table 1: Groups of Incoterms 1990 and 2000

Group E- Departure	<ul style="list-style-type: none"> • EXW- Ex Works
Group F- Main carriage unpaid	<ul style="list-style-type: none"> • FCA- Free Carrier • FAS- Free Alongside Ship • FOB- Free on Board
Group C- Main carriage paid	<ul style="list-style-type: none"> • CFR- Cost and Freight • CIF- Cost, Insurance and Freight • CPT- Carriage Paid To • CIP- Carriage and Insurance Paid To
Group D- Arrival	<ul style="list-style-type: none"> • DAF- Delivered At Frontier • DES- Delivered Ex Ship • DEQ- Delivered Ex Quay • DDU- Delivered Duty Unpaid • DDP- Delivered Duty Paid

Source: Incoterms 1990- ICC No. 460, Incoterms 2000- ICC No. 560

Incoterms®² 2010 replaces Incoterms 2000 by replacing 03 terms (DAF, DES, DDU) with DAP rule³ and replacing DEQ with DAT (Delivered At Terminal) rules, so there are 11 rules. Incoterms® 2020 retains the same 11 rules as Incoterms® 2010 with the replacement of the DAT rules with the DPU rules. Like Incoterms® 2010, the 11 Incoterms® 2020 rules are divided into 2 groups:

Table 2: Groups of Incoterms® 2020 Rules

Rules for any mode or modes of transport	Rules for sea and inland waterway transport
<ul style="list-style-type: none"> • EXW- Ex Works • FCA- Free Carrier • CPT- Carriage Paid To • CIP- Carriage and Insurance Paid To • DAP- Delivered at Place • DPU- Delivered at Place Unloaded • DDP- Delivered Duty Paid 	<ul style="list-style-type: none"> • FAS- Free Alongside Ship • FOB- Free on Board • CFR- Cost and Freight • CIF- Cost, Insurance and Freight

Source: Incoterms® 2020- ICC No. 723

Key changes in Incoterms® 2020 compared to Incoterms® 2010

In order to keep up with the development of global trade, Incoterms® 2020 (ICC No. 723) was officially published and took effect from January 1, 2020. Key changes in Incoterms® 2020 include:

- FCA was added to cater for goods shipped by sea and the buyer required a bill of lading with the note “on board”.
- All costs are collected together under one article of Allocation of costs (A9 - B9), allowing the user to quickly see a complete list of costs incurred by the seller and the buyer.
- The CIP rule requires a higher level of coverage, which is equivalent to the Institute Cargo Clause (A).
- DAT is replaced by DPU to meet the demand that the destination can be any place, including the buyer's premises, not just a "terminal".
- Transactions can be made without a third-party carrier. A DAP, DPU, DDP seller or an EXW, FCA buyer may use its own means of conveyance to transport the goods.
- Specify the obligations related to security requirements more clearly and in detail not only in articles A7 and B7 on export/import clearance but also in articles A4 and B4 on transport.

Incoterms® 2020 corresponds to the football team

² Since version 2010, signal ® is added to "Incoterms" (Incoterms®) in order to show “Incoterms®” is a registered trademark of the International Chamber of Commerce

³ Since Incoterms® 2010, ICC replaces “term” with “rule”. E.g. “FOB rule” replaces for “FOB term”

Incoterms is a set of rules for interpreting trade terms and is most widely recognized and applied in international trade while football is also the most popular sport in the world. There are coincidental correspondences between the 11 Incoterms® 2020 rules and the 11 players on a football team shown below.

If the 11 Incoterms® 2020 rules are divided into 4 groups E, F, C and D (arranged like the groups of Incoterms 1990 and 2000), there is a correspondence of 11 players in 4 lines in the football team: Goalkeeper, Defenders, Midfielders and Forwards. (Table 3)

Assuming that a tactical arrangement of the football team according to the following principles:

1) The lower/ higher seller's obligations in the rules correspond to the lower/ higher player's position in the football team.

2) Rules can be used for any mode or modes of transport match players in the central area. Rules can be used only for sea and inland waterway transport mode match players in the wings.

3) Tendency for left wing defense, right wing attack (because most players are right-footed, usually right wing stronger than left). Rules with a higher/ lower obligation of the seller correspond to the players at the right/ left.

There is a look matching 11 Incoterms® 2020 rules and 11 players in the football team as shown in *Table 3* and *Layout 1* below:

Table 3: Incoterms® 2020 Football team

Group	Line	Rule	Position
E	Goalkeeper	EXW	Goalkeeper
F	Defenders	FCA	Central Defender
		FAS	Left Defender
		FOB	Right Defender
C	Midfielders	CFR	Left Midfielder
		CIF	Right Midfielder
		CPT	Defensive Midfielder
		CIP	Attacking Midfielder
D	Forwards	DAP	Left Forward
		DPU	Right Forward
		DDP	Striker

Source: Author

Layout 1: 11 players in Incoterms® 2020 football team



Source: Author

Goalkeeper EXW

EXW is the Incoterms® rule which imposes the least set of obligations on the seller because the seller has just delivers the goods to the buyer at his promise (works, factory, farm, warehouse...) or another named place and not obliged to load the goods on any collecting vehicle, nor to clear the goods for export (if applicable). EXW rule is considered as a goalkeeper which stands at the lowest position in the team.

Small businesses, inexperienced in exporting are suitable for selling under EXW to limit risks. However, the business will not be able to control the goods in the journey, in the same way, as the goalkeeper cannot control the ball as it moves on the pitch.

Wing Defenders FAS and FOB

FAS and FOB rules are to be used only for sea and inland waterway transport, in which FAS seller (Free Alongside Ship) has lower obligations than FOB seller (Free on Board). Therefore, FAS is a left defender with a lower position than FOB is a right defender.

Central Defender FCA

FCA rule in the Incoterms® can be used for any mode or modes of transport and place of delivery can be at the seller's premises or another place. Just like that, FCA will be a center defender, can get back to the goal area to support goalkeeper or go out to sweep (sweeper) or to launch offensive (playmaker) like a fullback.

If the FCA seller delivers the goods at his premises, the seller must load the goods and clear them for export. When delivering goods at a place other than the seller's premises, the

FCA seller must clear the goods for export and deliver the goods on the arriving means of transport ready for unloading.

Wing midfielders CFR and CIF

CFR and CIF rules are to be used for only sea and inland waterway transport and the CFR seller (not obliged to contract insurance for goods) has a lower obligation than CIF seller (obliged to contract insurance for goods). Corresponding to football, player CFR takes on the role of left midfielder who plays in lower position, while player CIF plays the role of right midfielder who plays in higher position.

Central Midfielders CPT and CIP

CPT and CIP rules may be used for any mode or modes of transport, in which the seller in CPT rule (not obliged to contract insurance for goods) has a lower obligation than in CIP (obliged to contract insurance for goods). So in the football team, CPT takes on the role of defensive midfielder who usually plays in lower position- while CIP plays the role of attacking midfielder who usually plays in higher position.

Wing Forward DAP and DPU

The DAP seller's obligations (Delivered At Place not unloaded) are lower than that of the DPU seller (Delivered at Place Unloaded), so DAP is a left wing forward with lower position and DPU is a right wing forward with higher position.

If the seller wants to bear the risk and costs of unloading, DPU rule should be used instead of the DAP rule. Like in football, intending to approach the goal closer, the forward DAP should pass the ball from the left to the right to forward DPU.

Striker DDP

Contrary to the EXW seller who has a minimum obligation, the DDP seller has the maximum obligation in delivering cleared for import goods at the destination to the buyer. Therefore, forward DDP will stand in the center and at the highest position of the team as a striker.

The striker DDP often is closely marked or easy to fall into an offside position when receiving the ball, so the DDP seller is also vulnerable to the risk of not being able to clear the import of goods into the buyer's country.

When the seller cannot clear the import, DAP rule or DPU rule should be used instead of DDP rule. In football, if the striker DDP cannot score (because he is closely marked or in an offside position), the forward DAP or forward DPU should be allowed to score.

Common incorrect usage of the Incoterms

1/ Not used for domestic contracts

“Incoterms” stands for “International commercial terms”, and Incoterms were first published to apply to international trade. However, Incoterms can also be applied to domestic trade by reference in the contract. In practice, international sales contracts that require goods to be transported from one country to another mostly use Incoterms while domestic sales contracts very rarely use Incoterms.

Right from Incoterms 2000, the ICC has instructions in the Introduction:

“Incoterms have always been primarily intended for use where goods are sold for delivery across national boundaries: hence, international commercial terms. However, Incoterms are in practice at times also incorporated into contracts for the sale of goods within purely domestic markets. Where Incoterms are so used, the A2 and B2 clauses and any other stipulation of other articles dealing with export and import do, of course, become redundant.” (ICC, 1999)⁴

The next two versions are Incoterms® 2010 and 2020, on the front cover page, there is clearly the "ICC rules for the use of domestic and international trade terms" to confirm that the Incoterms® rules can be used for both domestic and international trade terms.

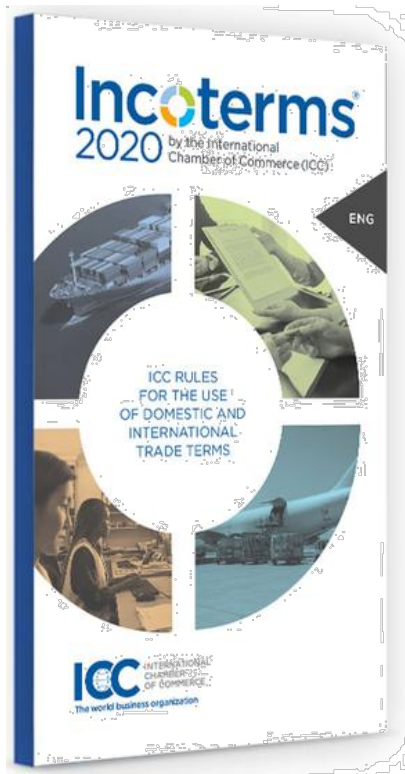
Figure 1: ICC annotation on the front cover of Incoterms® 2010



Source: Incoterms® 2010- ICC No. 715

⁴ A2 - B2 Licenses, authorizations and formalities

Figure 2: Incoterms® 2020 front cover



Source: Incoterms® 2020- ICC No. 723

In the Introduction to Incoterms® 2020, one purpose of the text of this Introduction is clearly stated:

“to set out the important fundamentals of the Incoterms® rules: the basic roles and responsibilities of seller and buyer, delivery, risk, and the relationship between the Incoterms® rules and the contracts surrounding a typical contract of sale for export/import and also, where appropriate, for domestic sales;” (ICC, 2019, pp. 1)

Not using Incoterms for domestic sales contracts makes it impossible for businesses to take advantage of Incoterms' benefits such as saving time and effort in negotiating and drafting contracts, preventing and resolving disputes in the process of contract performance.

2/ Use of abbreviations not found in Incoterms

Many people have abused various abbreviations of the term “Cost and Freight” such as: C and F, CNF, C+F, CF. When such abbreviations are used in a contract of sale, the parties may understand that it stands for "Cost and Freight", but may not agree on the obligations of the parties as in the Incoterms CFR rules.

Even some contracts use abbreviations that have never appeared in any version of Incoterms such as FOB+I, C&I or CNI. Accordingly, the seller is only obliged to buy insurance for the goods, not to contract for the carriage of the goods and not to pay the freight. But is the

seller's insurance obligation the same as the CIF and CIP insurance obligations? Therefore, disputes may arise about the seller's insurance obligation such as insurance level, insurance amount, etc.

There are also some sales contracts for US buyers where, instead of using DDP, the seller is required to deliver the goods under LDP (Landed Duty Paid) terms, whereby the seller bears the cost of shipping, insurance, unloading and import tax. Since this term is not interpreted under Incoterms, if there is a dispute, the Incoterms will not be valid for interpretation. This is bound to cause trouble for the parties as there is no formal interpretation of the LDP terms.

3/ Use variations of Incoterms but lack provisions for interpretation

In practice, many people prefer to use the terms of transport, forwarding and insurance together with Incoterms to supplement the provisions of Incoterms and consider them to be variations of Incoterms.

For example, “*EXW loaded*” to add to the seller's obligation to load the goods on the collecting vehicle nominated by the buyer; “*FOB stowed/ trimmed*” to supplement the seller's obligation to stow or trim the goods in the hold; ...

If such variations are used without provisions for interpretation, it is not possible to create a uniform understanding of the seller's obligations that extend not only to costs or to the risk of loss or damage to the goods. Incoterms does not offer a solution for these problems. As a result, if the contract does not clearly state the parties' intentions, the parties may incur additional unnecessary troubles and costs.

4/ Using Incoterms rules that are not suitable for the mode of transport

In many cases, the parties use an Incoterms rule for sea or inland waterway transport for modes of transport other than sea or inland waterway transport, such as air, railway, road or multimodal transport. For container goods transported by sea, many businesses still use FAS, FOB, CFR or CIF commercial terms in their sales contracts.

A survey of 100 decision makers in supply chain showed that 17% of respondents used FOB rule for ocean containers transport, 10% for air transport and 22% for domestic ground transport. (Jonathan Davis, 2021) Another preliminary exploratory study of 1,000 freight forwarders to determine whether Incoterms were indeed misused or misinterpreted. Results of this exploratory study showed that 49% of respondents used FOB, 37% used CIF and 60% used CFR for containerized/multimodal transport. (Stapleton et al., 2014).

Dr. Roberto Bergami- School of International Business, Victoria University, Australia- assessed: “*It seems strange that the term FOB, coined at least two hundred years before the era of containerization (from the 1960s), has been so readily adopted and inappropriately applied to modern day container handling practices,*” (Bergami, 2012, pp. 37).

The president of the Canadian Import and Export Association estimates that about 90% of Canadian import and export companies use the shipping code FOB, although most of Canada's international trade is done by trucks (Gallant, 2014).

According to the KTSPI and the Korea Trade Statistics, the most commonly used term is FOB rule, accounting for 56.8% based on the number of cases, and 28.9% based on the amount. The terms of sea-transport (FOB, CFR, CIF) account for 72.7% based on the number of cases and 66.4% based on the amount. On the other hand, terms for any mode (FCA, CPT, and CIP) are only 14.7% based on the number of cases and 13.8% based on the amount. (KTSPI and K-stat, 2018).

Since Incoterms® 2010, the ICC has endeavored to avoid this incorrect choice by presenting the rules in two groups, one for any or all modes of transport and the other for sea and inland waterway transport only. This presentation is continued in Incoterms® 2020 to emphasize the use of the rule in accordance with the mode of transport. (See Table 2)

The Guide Notes of Incoterms® 2010 and the Explanatory Notes for the Users of Incoterms® 2020 stated that when the goods are shipped by container, it is typical that the seller to hand the goods over to the carrier at a terminal (Container Yard- CY or Container Freight Station- CFS) before the goods are alongside or on board the vessel at the port of shipment. In such cases, FAS or FOB, CFR and CIF are not appropriate and FCA, CPT and CIP should be used instead.

5/ Do not use the latest version of Incoterms

Up to now, the International Chamber of Commerce has published 9 versions of Incoterms, however, many businesses still have the habit of using trade terms explained in the old versions, not in the latest version. A survey of 1,000 forwarders found that no less than 14% of those surveyed are still using C&F (in Incoterms 1980 and replaced by CFR from Incoterms 1990) and 23% are using DDU (replaced by DAP from Incoterms 2010) (Stapleton et al., 2014). Another survey showed that over half the respondents reported using outdated versions of Incoterms® rules rather than the current Incoterms® 2020 version (Jonathan Davis, 2021).

The main reason for this reality is that businesses often use model contracts, which already contain trade terms and refer to the previous version of Incoterms. Besides, many businesses still do not fully understand the changes and advantages of the new version of Incoterms compared to the old version of Incoterms, so they are still afraid to use it.

Although later version does not invalidate the previous version, that is, the parties can use any version of Incoterms by referring to it in the contract of sale. However, since later versions are revised and supplemented to be more suitable with commercial practice and are also stricter and clearer than previous versions, it is more appropriate to use the latest version and avoid unnecessary troubles.

6/ Using only 1 or 2 rules for every transaction

Businesses tend to focus on only 1 or 2 Incoterms rules in import and export transactions. For example, most export transactions default to FOB terms, import transactions default to CIF terms. If businesses only focus on 1 or 2 rules for every transaction, it is no different from the ball only passing to 1 or 2 players on the football team. The lack of flexibility to change the Incoterms rules according to the market situation, needs and capacity of customers has made businesses lose benefits and face many risks in import and export transactions.

There are some common reasons for this reality. A survey on the choosing Incoterms, the results as 32.4% answered as Buyer wanted, 21.3% answered as Seller wanted, and 23.7% answered as customarily use. (Jung-Ho Yang, 2021). Beside that in some countries, the administrative authorities (such as customs) may require the exporter or importer to refer to an 'established' Incoterm like FOB or CIF. In such situations, parties can still apply the appropriate term in their contract of sale, whereas 'for administrative/customs purposes only' they can state the term preferred by the administration on the invoice. (Jonas Malfliet, 2011)

Some notes for businesses

1/ Use Incoterms for both domestic and international sales contracts

Incoterms can be used for both international and domestic contracts just as the FIFA rules of football apply regardless of whether it is an international or domestic football match.

The use of Incoterms for domestic contracts for the sale of goods has the same effect as for international contracts (although to a lesser extent) that helps businesses save time, costs and effort in negotiating, drafting contracts and preventing disputes from occurring. Besides, businesses will be familiar with and effectively use Incoterms, which will make export or import transactions more efficient in the future. Furthermore, it also creates a consensus on the obligations of the parties between domestic contracts and international contracts for the same shipment.

When using Incoterms for domestic contracts, the provisions on import and export clearance become redundant. Therefore, the FCA rule (delivered at the seller's premises) differs only from the EXW rule in the obligation to load the goods on the means of transport and the parties do not need to care about the ability to clear the goods for export. Meanwhile, the DPU rule will become the rule with the highest seller's obligation, and the DDP is exactly the same as the DAP. Thus, in the football team, the position of the forward DPU will be swapped with striker DDP and become a striker instead of DDP. In commercial transactions, the DDP seller also does not need to care about the ability to clear the goods for import and the DPU rule thus becomes the rule with the maximum seller's obligation.

Layout 2: 11 players in the Incoterms® 2020 football team for domestic sales



Source: Author

2/ Correct use of abbreviations in Incoterms

Each player on a football team is registered with a specific name and number. Likewise, each rule in Incoterms is officially symbolised by three capital letters. When specifying trade terms in a contract, it is important to use the correct abbreviation of the respective Incoterms rule to ensure that the Incoterms rule will be used to explain the trade terms in the sale contract. For example, use CFR (Incoterms® 2020) but not C&F, CNF, etc., use DAP (Incoterms® 2020) but not DAF, DES or DDU, use DPU (Incoterms® 2020) but not DAT.

3/ Specific provisions in the contract to supplement the obligations of the parties

A player in the team can take on certain additional tasks, for example, defender participates in attack, forward participates in defense. Those tasks will be given very specific and clear instructions by the coach.

When using an Incoterms rule, the parties may also agree to add certain obligations to a party. At that time, it is not recommended to use Incoterms variants such as “*EXW loaded*” or “*FOB stowed/trimmed*” but need to be clearly explained in the contract.

For example, if the parties wish to supplement obligation of the EXW seller to load on collecting vehicle by stating “*FOB stowed/trimmed*”, it should be clarified that the addition of the word “*stowed/trimmed*” means “*stowed/trimmed at seller's risk*” or “*stowed/trimmed at buyer's risk*”.

There is a strong note in Incoterms versions that parties would need to make the intended effect of such alterations extremely clear in their contract. The use of variations only adds to

the uncertainty of the trade terms and is likely to lead to disputes for the parties.

4/ Use Incoterms rules which are appropriate to the applicable mode of transport

In the football team, FAS and FOB rules are 2 wing defenders while FCA is a central defender, CFR and CIF rules are 2 wing midfielders while CPT, CIP are 2 central midfielders. Similarly, FAS, FOB and CFR, CIF rules are only suitable for sea and inland waterway transport when delivering goods at the port of loading, while FCA, CPT and CIP are suitable for any mode of transport, including multimodal transport.

When shipping containers or not by sea and inland waterways (such as road, railway, air, multimodal transport), FCA will appropriately replace FAS and FOB, CFR and CIF need to be replaced with CPT and CIP respectively. Similarly, in football, when it is necessary to move from defense or attack on the flanks to the center, responsibility shifts from the wing defenders FAS or FOB to the central defender FCA, from the wing winger CFR or CIF to the central midfielder CPT or CIP central midfielder.

This replacement does not change the basic obligations of the seller and the buyer, but also helps the provisions of Incoterms become more relevant to the mode of transport.

5/ Use the latest Incoterms version

The football rules are often changed to better suit and respond to reality, such as applying VAR technology to football. Incoterms are also often updated with new versions to suit commercial practice. Therefore, businesses should also use the latest version (currently Incoterms® 2020) to meet the requirements of current commercial practice.

For example, if the parties use Incoterms® 2010 FCA, the seller will find it difficult to provide a bill of lading an on-board notation while the seller has fulfilled his obligation to deliver the goods to the carrier nominated by the buyer at the named place before the goods are loaded on board the vessel. The Incoterms® 2020 version has changed the provisions of the FCA rules to relieve the seller of liability by the provision in A6 and B6 (ICC, 2019):

“Where the buyer has instructed the carrier to issue to the seller a transport document under B6, the seller must provide any such document to the buyer.”

“If the parties have so agreed, the buyer must instruct the carrier to issue to the seller, at the buyer’s cost and risk, a transport document stating that the goods have been loaded (such as a bill of lading with an onboard notation).”

6/ Flexible use of Incoterms rules

Depending on the intention, ability and specific situation, businesses can choose any of the Incoterms rules as a delivery terms of in the contract of sale of goods. Just like in football, depending on the intention, ability and specific situation, the ball can be passed to any player to participate in attack or defense in a football match.

The Incoterms® 2020 team is arranged with a 1-3-4-3 tactic with an attacking style of football (3 strikers), mastering the midfield (4 midfielders) and total football (4 midfielders can move forward to attack or back to defend). The team coach needs to use all 11 players to participate in attack and defense depending on the strengths and weaknesses of his team as well as that of the opponent, and the situation in the match. Likewise, businesses should also be flexible in using all the rules depending on their intentions, strengths and customers, as well as other factors such as the situation of the goods market, the transportation market and insurance market as well as risks in the journey, regulations on customs clearance, etc.⁵

The selection of an Incoterm rule is concerned not only with the division of responsibility, costs and risks for the goods between the seller and the buyer, but also with the competitiveness of the business and the opportunity to increase profits. If a business only uses one rule, it will lose opportunities to increase competitiveness and increase profits.

Conclusion

In summary, by looking at the 11 Incoterms® 2020 rules from the perspective of the football team, it helps Incoterms users who love football to be suggested to use Incoterms in order to achieve more effective in both domestic and international trade transactions.

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PERCEPTION OF HRM IN ECONOMIC TRANSITION: INFLUENCE OF MEANINGFUL WORK AND CULTURAL DIMENSIONS IN MONGOLIA

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Abstract

This study explores the relationship between the perception of human resource management (HRM) practices and their results under the transition from planned economy to market-oriented economy. Several research papers related to HRM in transition countries have been published after 1993, but only a few focuses on employees' perceptions of HRM practices. Perception is the determining factor toward personal attitude and relates to personal value. People in transition countries are required to simultaneously transform their mindsets and behaviors to adapt to the new HRM system. This paper focuses on Mongolia, a country that remains path-dependent from the traditional Soviet HRM system, and examines the perception of HRM practices and how personal factors such as cultural dimensions of values affect the relationship between the perception of HRM practices and personal attitudes. Based on data from 105 professionals studying MBA courses in Mongolia, we find the following: i) Training is fairly common, but Involvement and Participation in Work are less common, ii) Key performance indicators (KPIs) are widely used to evaluate employees, while management by objectives is less common, iii) Caring has a positive effect on individual attitudes such as job satisfaction and retention, iv) KPIs have a negative influence on job satisfaction and retention, v) factors influencing job satisfaction and retention differ depending on the cultural dimensions of value, and vi) meaningful work positively influences job satisfaction and retention.

Keywords: *perception of human resource management, economic transition, Mongolia, meaningful work, cultural dimensions of value*

1. INTRODUCTION

Human resource management (HRM) research in countries transitioning from planned to market economies focus on the institutional and cultural legacies of socialism. Substantial research has focused on changes in HRM measures and their effectiveness, and several studies use turnover and corporate performance as outcome variables to verify the effectiveness of Western-style HRM measures. While these macro-level studies are essential as a perspective to integrate economic transition and HRM, micro-level studies are necessary because the perceptions and attitudes of employees, who are forced to undergo a paradigm shift in mindset

with economic transition, strongly influence turnover intention.

The actual situation does not keep pace with changes in economic and legal systems because employees' mindsets do not easily change and do not lead to organizational behavior. In other words, it is the mindset of the employee that remains the legacy of the old social system, and there are significant differences in the conception of meaningful work, especially in planned and market economies. Furthermore, some have argued that cultural differences should be considered in international HRM. While studies on HRM in transitional economies are active in Eastern Europe, studies in Asia, excluding China, are still limited.

This study examines how meaningful work and cultural aspects are related to the impact of HRM measures and outcomes, as perceived by employees in Mongolia, a transition economy in East Asia.

2. LITERATURE REVIEW

2.1 HRM research about transition countries

2.1.1 Framework of HRM research in transitional economies

Investigating HRM in transitional economies is one of the most interesting focal points for many scholars because there may be crucial differences between HRM in a socialist economy and that in a market-oriented economy from an economic and social fundamental point of view.

Horie and Kumo (2014) extracted 83 papers published from 1989 to 2013 that described the following keywords about “HRM or PM (Personal Management),” “Transition or Transitional economies, or Post-socialist, or Post-communist,” and “middle-east Europe,” and analyzed the features of those discussions. These findings show that the research on HRM in transition was first published in 1993, a few years after the declaration of sovereignty and independence of the constituent republics of the Soviet Union was announced in quick succession, and papers have been published constantly ever since.

Brewster (2012) argued that because the definition of strategic HRM (SHRM) is “the pattern of planned human resource deployments and activities intended to enable a firm to achieve its goals” (Wright and McMahan, 1992), HRM is universal. However, the reality of HRM practices varies across the world, and two different (ideal-type) paradigms in conceptual and research terms might be classified as the “universalist paradigms” and the “contextual paradigms” (Brewster, 1999). In discussing HRM in transitional economies, it is best to consider that a universal paradigm does not exist in socialist countries because no standalone management strategies exist for companies.

Horie and Kumo (2014) categorized paradigms into universalist and contextual paradigms for convergence to capitalist HRM and found the following differences: Researchers advocate the universalist paradigm work in the U.S.A., U.K., and European transitional economies, and their arguments are based on the premise of convergence with global standards (U.S. values) with

U.S.-style HRM measures as the best policy. Therefore, it does not focus on the legacy of socialist HRM (Horie & Kumo, 2014). In contrast, the contextual paradigm is a view that affirms European cultural diversity, except for the U.K., wherein many argue that the contextual paradigm is based on Europe and recognizes that the socialist legacy of HRM systems determines the difference between traditional Europe and European transitional economies (Horie & Kumo, 2014). This study examines the extent to which Western-style HRM measures are effective in managing employees in transitional economies while remaining grounded in the contextual paradigm.

The contextual paradigm (Brewster, 1999) is idiographic, searching for an overall understanding of what is contextually unique and why; thus, most of the research mechanisms used are inductive. However, deductive and quantitative hypothesis testing is also necessary to understand the extent to which Western-style HRM is working in transitional economies.

2.1.2 HRM in Russia and post-socialist countries and socialist legacies

The characteristics of socialism are 1) collective ownership of the means of production, 2) limitation of the market to a marginal role, 3) reproduction through central planning and redistribution, and 4) the dominance of real rationality (Tanaka, 2011); HRM is fit to this philosophy in socialist countries. In the internal environment of socialist enterprises, HRM measures that would be taken for granted in Western developed countries did not exist (Horie & Kumo, 2014)

The basic role of socialist personnel and labor management was to manage documents related to personnel affairs, such as employee registration, pensions, military service management, working hour management, and national statistics, and a political and social role as an administration rather than HRM (Horie, 2011).

Furthermore, since personnel planning and compensation systems were implemented by the central government, there was no free labor market, and the function of employee evaluation and motivation considerations was not an important factor (Horie & Kumo, 2014).

Due to the lack of capital, the centralization of authority based on state ownership, and the irregularity and uncertainty of the distribution of materials and other resources created by the planned economy, the most important tasks of organizations were to operate equipment and machinery and achieve planned goals, making “skill” and “proficiency” essential in the role of employees in socialism (Tanaka, 2011) Thus, in socialism, HRM had a low status in corporate management.

The first survey on socialist HRM in former socialist countries in Eastern Europe was published in 1993, a few years after the collapse of the Berlin Wall. Pieper (1992) described the reality of HRM in these countries in detail.

Work planning took place at the enterprise level to meet both “labor productivity and labor

force” and “labor and life conditions,” and the dictates of the general state plan were based on production goals (Pieper, 1992). This system created a behavior in which people viewed the goals given by higher-ups as absolute.

There was a lack of liquidity in the external labor market. The state could decree limitations on hiring or set goals for the reduction of employees, and job advertisements required approval and were allowed only in exceptional cases (Pieper, 1992).

East European motivation theories differ from Western theories: work content and social relationships within the work collective are more emphasized and work has lost the aspect of exploitation. Working for social development could, at least theoretically, become both a need and a motivation factor (Pieper, 1992). When people lose the “socialist” motivation theories, they transform to the Western personal motivation theory.

Compensation is one of the most critical motivating factors in the Western context. However, in post-socialist countries, all aspects of wages and salary policy were dealt with not at the enterprise level, but at the state level. Thus, the room to shape policies for HRM did not exist; state wage policy was merely administratively realized in the enterprise. One of the basic principles of wage policy was the performance of the group principle, according to which the distribution of social production takes place according to productivity. Thus, the size of the bonus was not directly predictable according to individual work performance (Pieper, 1992). It can be said that former socialist countries had no experience of how individuals should be evaluated and how evaluation should be motivated.

Personnel development (PD) is a political strategy in socialist HRM. It was expressly emphasized that training and continuing education were significant components of the “qualitatively expanded reproduction of labor power,” which together with technology, were most important to growth. However, the necessary coordination with individual interests, which is emphasized in the Western HRM literature, remains largely excluded. The content of continuing education concentrated on pure knowledge in various areas of specialization and the transmission of the desired political attitudes, as a part of the education of the socialist personality. The dominant didactic method was lectures, and active learning methods were rare. Career planning was not based on personal performance in the firm but was clearly of a political nature. Leadership was an authoritarian style, rather intrinsic to socialist countries, which were generally authoritarian societies (Pieper, 1992). Although training and development were taking place, their purpose was not linked to enhancing individual initiative and achievement within the organization or to evaluation and career paths. For employees, training and development were not an opportunity but an obligation.

Horie and Kumo (2014) discussed that the concern was to shift the HRM of enterprises in a planned economy to an HRM adapted to a market economy. They were particularly interested in these socialist legacies. Horie and Kumo (2014) classified 83 previous studies into three

groups: “HRM policy issues,” “cultural legacy issues,” and “other issues” from the viewpoint of whether socialist legacies have been and will continue to be an essential factor that characterizes transitional economies in Europe. The “HRM policy problem group” includes the transition from socialist labor management to western HRM or from planned economy management methods to western management methods (including HRM policies and institutional transplantation of management methods). It also includes the transition of management policies, methods, and systems such as labor-management relations, employee participation, and employee and manager education and learning. This research targets the legacy of socialist HRM, such as labor-management relations, employee participation, and employee/management education and learning. The “cultural legacies” category focuses on the national and corporate cultures that originated from socialism and the values and attitudes of employees and managers rooted in these cultures. The “other issues” deal with changes in ownership structure, immature labor markets, management styles, and so on, which cannot be categorized into the above.

2.1.3 The influences of HRM practices on performance in transition countries

Several studies based on the “HRM policy problem group” discuss the effectiveness of Western HRM in transition countries.

Fey, Bjorkman & Pavlovskata (2000) investigated the effect of HRM on firm performance in 101 Russian foreign firms. HR outcomes (motivation, retention, and development) functioned as mediating variables between HRM practices and firm performance in some factors. In the relationship between HRM practices and outcomes, non-tech training and salary level positively influenced HR outcomes for managers, whereas job security was the strongest factor influencing the outcome for other employees.

Fey, Morgulis-Yakushev, Park, and Bjorkman (2009) investigated the impact of Western HRM measures on corporate performance in Russia by examining several factors, such as employee motivation, training, and job security, and analyzing the adaptability of Western HRM. By comparing Russia, the U.S., and Finland, the results revealed that different HRM practices assume importance in different countries because of cultural and institutional differences. Communication is especially important for facilitating employee motivation in Finland, a country characterized by low power distance, but not as important in Russia, a country with high power distance and used to authoritarian leadership, where employees have little opportunity for input.

Training is most important in Russia, a country where many people have been trained in areas other than those, they are now working in because of the transition from communism to a market economy and the need for a different distribution of jobs due to the economic transition. In theory, the important point is that cultural and institutional differences between countries result in different HRM practices being more effective in different countries.

However, such quantitative regression analyses represent “current conditions” and not “desired future conditions.” In addition, if company performance is included in the model, employee perceptions will not be measured correctly.

Even if the socialist legacy of socialist HRM has influenced employee behavior, as human beings, the factors that lead to motivation and job satisfaction of employees would theoretically be universal. Alas and Rees (2006) studied countries that have experienced socialism and traditional capitalism through a comparative analysis of attitudes and values toward work by asking respondents to evaluate their general satisfaction with their present working life and 15 facets of job satisfaction on a 5-point scale. The results showed that there were no significant differences between the attitudes and values of employees in capitalist and post-socialist countries in terms of (1) context-level attitudes and values (such as standard of living, social equality, social order); (2) job-related attitudes and values (such as working conditions, workload, pay, training, trust between managers and workers); and (3) the importance respondents attach to ethical values (Alas & Rees, 2006). In other words, the cognitive attitudes of employees would be the same even if Western-style HRM had not yet been perfectly implemented. However, this is not to say that the respondents are making a comparison based on their experience with Western-style HRM in the first place.

Thus, the transfer of management theories and practices between traditional capitalist and post-socialist settings has led to many discussions on how to consider the previous socialist legacy. Job design, performance appraisal, and reward systems must be sensitive to attitudes and values in post-socialist contexts.

2.2 Meaningful work

As previously discussed, East European motivation theories differ from Western theories. The purpose of work to contribute to social development and social relations within the work collective has been emphasized in the past, but when the economy is transformed, what motivation factors might be necessary for those employees? What will be the purpose of work in the post-socialist stage? The research in this area is meaningful work, which is not simply whatever work means to people (meaning), but is work that is both significant and positive in valence (meaningfulness). Furthermore, the positive valence of meaningful work is growth- and purpose-oriented rather than pleasure-oriented (Steger, Dic, & Duffy, 2012).

People who say their work is meaningful and/or serves some greater social or communal good report better psychological adjustment and simultaneously possess qualities that are desirable to organizations. Steger et al. (2012) conceptualize meaningful work as consisting of three primary facets that need to be represented as follows: 1) positive meaning in work: the sense that people judge their work to matter and be meaningful; 2) meaning-making through work: the idea of the work as an important source of meaning in life as a whole; and 3) greater good motivations: the desire to make a positive impact on the greater good. The third facet reflects

commonly held ideas that work is the most meaningful if it has a broader impact on others.

Steger et al. (2012) developed the Work and Meaning Inventory (WAMI), a measure that assesses these three facets of meaningful work. Providing evidence of the unique contribution of WAMI scores, hierarchical regression analyses revealed the ability of meaningful work to significantly influence the prediction of 1) job satisfaction, 2) days reported absent, and 3) life satisfaction. Given the finding that meaningful work influences positive work attitudes, it is important to understand how HRM practices in transitional economies affect employees' meaningful work.

2.3 Cultural dimensions of values

Several scholars discussing HRM practices in international settings have focused on national cultural dimensions. Fey et al. (2009) acknowledge that national culture is important because of its effect on the types of HRM practices that are effective in a given country (Hofstede, 1993). Based on this cultural dimension, power distance is clearly the highest in Russia, followed by the U.S.A and Finland (Fey et al., 2009). Similarly, not only "culture," but also "institutions" are likely to have an important effect on which HRM practices are most effective in a particular country. Institutions have shared collective understandings or accepted rules of conduct reflected in laws, rules, governance mechanisms, and capital markets (North, 1990). The institutional theory argues that traditional values and practices are embedded in a country's social and economic institutions.

Hofstede (1993) proposed four value dimensions (power distance, uncertainty avoidance, masculinity/femininity, and individualism/collectivism) for comparing cultures. Substantial research has been built on Hofstede's findings; however, this scale is not intended to link individuals' value orientations to their opinions or behavior. Individualism-collectivism is the dimension that has been used most often as an explanatory variable in subsequent research; however, these dimensions discriminate among national cultures but not among individuals (Schwartz, 2003).

Schwartz (2003) attempted to develop a scale to measure personal values based on the following features of the conception of basic values: 1) values are beliefs, 2) values refer to desirable goals, 3) values transcend specific actions and situations, 4) values serve as standards or criteria, 5) values are ordered by importance relative to one another, and 6) the relative importance of the set of relevant values guides action. Schwartz's (1994) measure focuses on the aspect of culture by deriving a new set of dimensions of personal values appropriate for comparing cultures.

Schwartz (1994) set four hypotheses based on the following context: (1) there is a broad dimension interpretable as a more sharply defined version of individualism-collectivism; (2) there is a culture-level value dimension that reflects the way societies procure and/or enforce the necessary consideration for the welfare of others and coordination with them in the course

of coping with interdependencies; (3) there is a culture-level value type that emphasizes actively mastering the environment and changing the world (expressed in such values as success, ambition, daring), and (4) there is a culture-level value type that expresses concern for the welfare of others and emphasizes harmony with nature (e.g., social justice, equality, protecting the environment). Finally, there are 7 culture-level values identified as follows; 1) conservatism, 2) intellectual autonomy, 3) affective autonomy, 4) hierarchy, 5) mastery, 6) egalitarian commitment, and 7) harmony. According to the comparison survey of national scores, mainland China samples, which used to be socialist traditional, are especially high on the importance attributed to hierarchy and mastery values and low on the importance of harmony and egalitarian commitment values. Hungary, one of the transition countries, shows high harmony and low mastery. Even though China and Hungary, with the same socialist political background, have different cultural values, mastery, and harmony that seem to make a clear distinction.

3. DATA AND METHODOLOGY

3.1 Analytical model and hypotheses

As discussed previously, considerable research discusses the effectiveness of Western HRM in transition countries; however, this paper focuses on the micro-level of HRM practices and the perspectives of employees, which is still under-researched. Employees in transition must transform their attitudes and behaviors to adapt to the new HRM system, and perception is the determining factor of personal attitudes in post-socialist contexts.

Therefore, our hypotheses are as follows.

H1: Perception of HRM practice will positively affect job satisfaction.

H2: Perception of HRM practice will positively affect retention intention.

We discuss the differences in motivation theory between socialists and Western people at work. This is the question of what will be a new motivation factor for a post-socialist employee who used to work for social development and was given goals by higher-ups without any objection or wondering. In this question, meaningful work is the critical factor of motivation because people who recognize their work as meaningful report better psychological adjustment and simultaneously possess desirable qualities for organizations.

H3 : Perception of HRM practice positively influences job meaning.

Many scholars agree with the previous socialist legacy when discussing the transfer of management theories and practices from capitalist to post-socialist settings. Each HRM practice, such as performance appraisal, reward systems, and training, is sensitive to attitudes

and values in post-socialist contexts. The institutional theory (North, 1990) argues that traditional values and practices are embedded in a country's social and economic institutions.

The global comparative survey of the cultural value framework by Schwartz (1994) shows that Chinese samples are incredibly high in terms of the importance attributed to hierarchy and mastery values and low on the significance of harmony. In contrast, Hungary samples show high harmony and low mastery, although both of them have the same socialist background.

Therefore, our hypotheses are as follows.

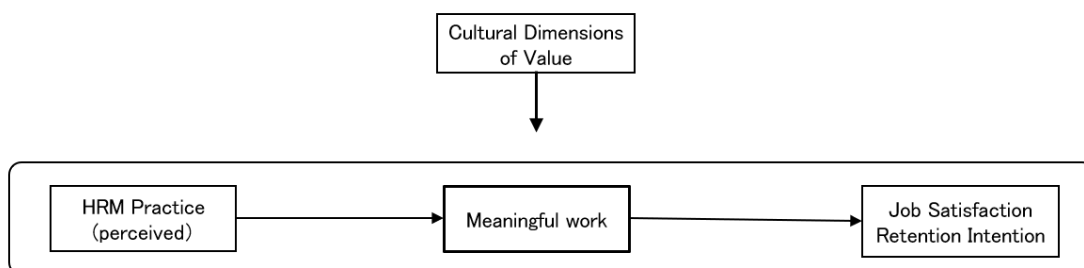
H4: Depending on cultural values, there are differences in the process by which perceptions of HRM practices influence job satisfaction and retention intention.

H4-1: For the mastery-high group (with a lingering legacy of socialism and a tendency to take what upper management says as absolute), HRM practices are less likely to have a positive impact on job satisfaction and retention intention.

H4-2: For the mastery-low group (with a fading legacy of socialism and a lower tendency to take what upper management says as absolute), HRM practices are more likely to have a positive impact on job satisfaction and retention intention.

Thus, the following analytical model was established (Figure 1):

Figure 1 Analytical Model



3.2 Overview of the survey

3.2.1 Surveyed country

This study was conducted in Mongolia (Mongolian State). Mongolia is a landlocked country bordering Russia and the People's Republic of China and was once a Soviet-style socialist country. Since its democratization in 1990, Mongolia has achieved economic development, particularly in the mining industry. The country's population continues to flow into the capital city, and companies struggle with high rates of job turnover.

3.2.2 Survey participants

Participants were working university students studying business administration to gain an understanding of HRM measures. They accessed a given URL and completed an online questionnaire. The language of the survey was Mongolian. In conducting the survey, necessary

ethical considerations were made, such as explaining the purpose of the survey to students and explaining that cooperation in the survey was voluntary and not related to grades.

The attributes of the survey targets are shown in Table 1.

Table 1 Attributes of the survey targets

Demographics		Number of participants	%
Total		105	100.0%
Age	20–24 years	27	25.7%
	25–29 years	26	24.8%
	30–34 years	36	34.3%
	35–39 years	12	11.4%
	40–44 years	4	3.8%
Gender	Male	23	21.9%
	Female	82	78.1%
Position	Have subordinates	68	64.8%
	No subordinates	37	35.2%
Salary (in Tugrik)	0.5–1 million	19	18.1%
	1–1.5 million	25	23.8%
	1.5–2 million	28	26.7%
	2–2.5 million	14	13.3%
	2.5–3 million	7	6.7%
	>3 million	12	11.4%

3.3 Scale

The survey had questions on “HRM practice (Perceived),” “appraisal standard,” “meaningful work,” “job satisfaction,” and “retention of the company where the employee works,” and cultural dimensions of value in Mongolia.

For HRM practice, based on Chuang and Liao (2010), questions were asked on a 5-point scale from strongly agree to strongly disagree regarding “training,” “involvement and participation,” “performance evaluation,” “compensation and rewards,” “consideration,” and “evaluation criteria” (key performance indicators (KPIs), management by objectives (MBO), etc.).

Meaningful work was based on a 5-point scale from strongly agree to strongly disagree, based on Michael, Bryan, and Ryan (2012), regarding positive meaning, etc.

Job satisfaction and retention intention were measured on a 3-point or 4-point scale based on Quinn and Staines (1979). For cultural dimensions of value, participants were asked to select items related to mastery (the values of self-determination, success, and recognition by others) and harmony (the value of being in harmony with one's surroundings) and rate them on a 5-point scale.

4. RESULTS

4.1 Overview of survey results

Survey respondents' perceptions of HRM practices in their workplace were as follows.

- **Training:** A total of 61.9% of respondents said they had newcomer orientation programs, 60% said they were continuously provided with training programs, 43.8% said they spent time and money, and 46.8% said they had a wide range of programs, not just skills programs.
- **Involvement and participation:** While more than 50% of respondents "participated in decision-making related to work" (54.3%), less than 40% "listened to prior opinions" (39.9%) or "shared information" (39.0%).
- **Performance appraisal:** Performance was emphasized in personnel evaluations, which were conducted objectively and quantitatively (46.7%). It was based on multiple documents (39.0%), and feedback was provided (36.2%) in the 30% range.
- **Compensation/rewards:** Performance was important in determining compensation, with 50.5% stating that compensation was determined by performance and 43.8% saying that superior performance was rewarded. Meanwhile, higher salaries than competitors (34.3%) and better benefits (31.3%) were both within the 30% range.
- **Caring:** The reported items were family circumstances (36.2%), stress reduction measures (24.8%), and having a grievance office (48.6%).

Regarding appraisal standards, KPIs were used by 53.3% of the respondents, while MBO was used by 27.6%.

Since comparisons with other countries were not made, caution must be exercised in interpreting the results. However, overall, the results showed that "KPIs were emphasized and performance-based," "employees were not involved in goal setting," "training was provided to some extent, but opinions and information from employees were not sufficiently shared," and "employee evaluation was not conducted." The survey results showed that "employees were not valued."

After checking for correlations and internal consistency among the items "training," "involvement and participation," "rewards and incentives," and "caring," they were analyzed as independent variables.

The α coefficient for the four training items was 0.847. Since one of the four involvement and participation items, the reversal item, did not correlate with the other items, the three other items were used.

The α coefficient for the four compensation/rewards items was 0.812, and the α coefficient for the three caring items was 0.747. Among the performance indicators, MBO was used as a

composite variable with the first item of performance appraisal (performance appraisals provide employee feedback for personal development) because it is a concept that is difficult for employees in transitional economies to understand.

Descriptive statistics for the questions used in the analysis are shown in Table 2.

Table 2 Descriptive statistics

		N	average	S.D.	α
HRM	Training	105	3.59	0.860	—
	Compensation	105	3.12	0.907	—
	Caring	105	3.00	0.998	—
Appraisal standard	KPI	105	3.37	1.280	—
	MBO	105	3.01	0.888	—
Meaningful work	Positive meaning (4 items)	79	3.41	0.765	0.887
Job satisfaction (5 items)		79	3.11	1.010	0.768
Retention intention (2 items)		105	3.56	0.979	0.797
Cultural dimensions of values	Mastery (2 items)	105	3.59	0.723	0.702

4.2 HRM practice (perceived) and job satisfaction

The impact of HRM measures on job satisfaction is shown in Table 3.

In Model 1, with HRM measures as the independent variable and job satisfaction as the dependent variable, KPIs negatively affected job satisfaction ($p < 0.01$).

In addition, positive meaning was introduced as an independent variable. Positive meaning was included because when socialistic motivational theory is lost and replaced by Western personal motivational theory, the significance of work to one's life becomes important, and positive meaning is a representation of this. The results showed that while KPIs continued to have a negative effect ($p < 0.01$), positive meaning had an even larger positive effect ($p < 0.01$).

Table 3 Multiple regression model of the impact of HRM measures on job satisfaction

	Model 1				Model 2			
	B	Standard error	Standardization coefficient β	Significance probability	B	Standard error	Standardization coefficient β	Significance probability
Training	0.137	0.174	0.113	0.433	0.193	0.133	0.159	0.150
Compensation	0.402	0.199	0.350	0.047	0.237	0.154	0.207	0.127
Caring	0.204	0.173	0.202	0.243	-0.046	0.137	-0.045	0.739
KPI	-0.256	0.093	-0.321	0.008	-0.203	0.072	-0.255	0.006
MBO	0.192	0.139	0.172	0.173	0.119	0.107	0.107	0.267
Age	0.033	0.098	0.038	0.740	-0.049	0.075	-0.056	0.518
Female	-0.223	0.240	-0.091	0.357	-0.040	0.185	-0.016	0.828

dummy								
Position	0.141	0.204	0.069	0.492	0.083	0.156	0.041	0.597
Salary	0.082	0.073	0.124	0.261	0.078	0.055	0.117	0.164
Positive meaning					0.814	0.114	0.617	0.000
(Invariable)	0.713	0.448		0.116	-0.761	0.399		0.061
N	79				79			
Adjusted R ²	0.384				0.642			
F value	6.399				14.983			

4.3 HRM practice (perceived) and retention intention

Next, we examined the effect of HRM measures on retention intention, as shown in Table 4.

Model 1, with HRM measures as the independent variable and retention intention as the dependent variable, showed that training had a positive effect ($p < 0.01$), and KPIs had a negative effect ($p < 0.05$). Furthermore, when positive meaning was introduced as the independent variable (although positive meaning was not statistically significant), training continued to have a positive effect ($p < 0.01$), and the effect of KPIs became statistically insignificant ($p > 0.1$).

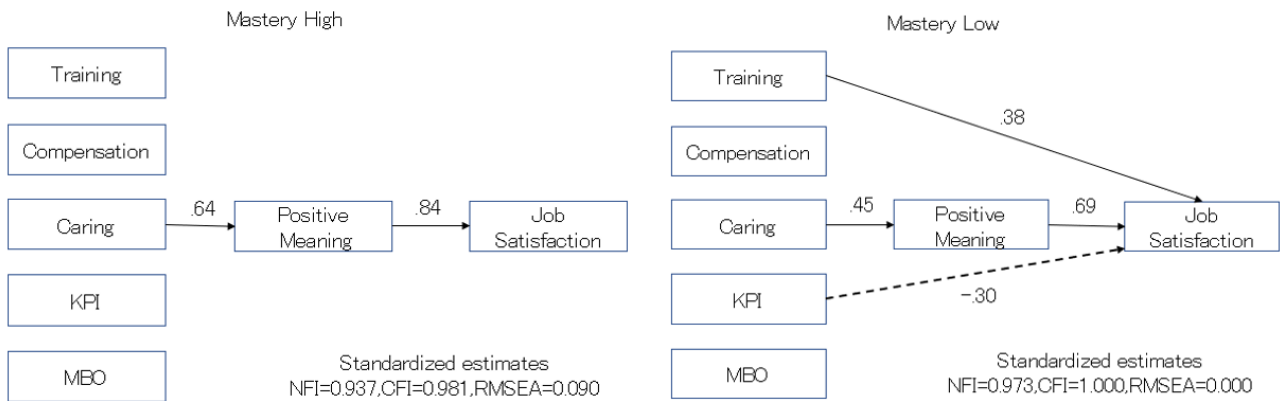
Table 4 Multiple regression model of the impact of HRM measures on retention intention

	Model 1				Model 2			
	B	Standard error	Standardization coefficient β	Significance probability	B	Standard error	Standardization coefficient β	Significance probability
Training	0.432	0.127	0.380	0.001	0.527	0.175	0.422	0.004
Compensation	0.255	0.138	0.237	0.068	0.266	0.202	0.225	0.194
Caring	0.195	0.127	0.199	0.127	0.148	0.180	0.143	0.414
KPI	-0.175	0.071	-0.229	0.016	-0.141	0.094	-0.173	0.138
MBO	0.009	0.109	0.008	0.932	-0.107	0.140	-0.093	0.448
Age	0.099	0.081	0.112	0.226	0.064	0.099	0.072	0.518
Female dummy	-0.208	0.195	-0.088	0.290	-0.166	0.243	-0.066	0.497
Position	0.151	0.169	0.074	0.374	0.184	0.205	0.088	0.373
Salary	0.013	0.060	0.021	0.822	0.059	0.073	0.087	0.421
Positive meaning					0.157	0.150	0.116	0.301
(Invariable)	0.897	0.367		0.016	0.215	0.525		0.683
N	105				105			
Adjusted R ²	0.400				0.411			
F value	8.689				6.444			

4.4 Cultural values, job satisfaction, and retention intention

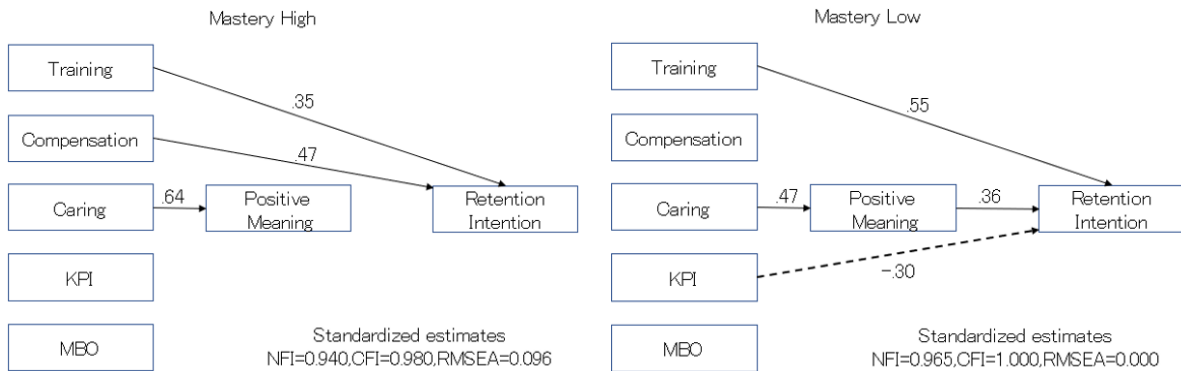
Cultural values may also influence the process by which perceptions of HRM measures and positive meaning influence job satisfaction and retention intention. According to the mastery score, the process was divided into two groups: high group (good at doing as the powerful say) and low group (not good at the dominant way). The results are shown in Figures 2 and 3.

Figure 2 HRM practices and job satisfaction in high- and low-mastery groups



Note: Only statistically significant variables are shown. Covariances were set for all independent variables.

Figure 3 HRM practices and retention intention in high- and low-mastery groups



Note: Only statistically significant variables are shown. Covariances were set for all independent variables.

Regarding job satisfaction, in the mastery-high group, employees were more satisfied if they were valued and their work was more meaningful. In the mastery-low group, when employees were cared for, their work became more meaningful and satisfying, and training increased job satisfaction. However, job satisfaction was reduced by KPI.

Regarding retention intention, the mastery-high group was highly influenced by rewards. In addition, retention intention was also increased by training. Employees found meaning in their work if they were cared for, but this did not have a positive impact on retention intention.

In the mastery-low group, retention intention was increased by receiving training. When

employees were cared for, their work became more meaningful, which increased their retention intention. Meanwhile, the use of KPIs decreased retention intention.

4.5 Patterns of HRM measures, job satisfaction, and retention intention

Next, the relationship between the patterns of HRM measures, job satisfaction, and retention intention was examined.

Three clusters were created, based on training, compensation, caring, KPI, and MBO (Figure 4). Job satisfaction and retention were examined for each cluster of the three clusters created according to the pattern of implementation of HRM measures: “all HRM low,” “only KPIs high,” and “all HRM high.” The all HRM high group, which had a high degree of all HRM practices, had significantly higher retention intention than the other groups ($p < 0.01$).

Figure 4 Patterns of HRM practice

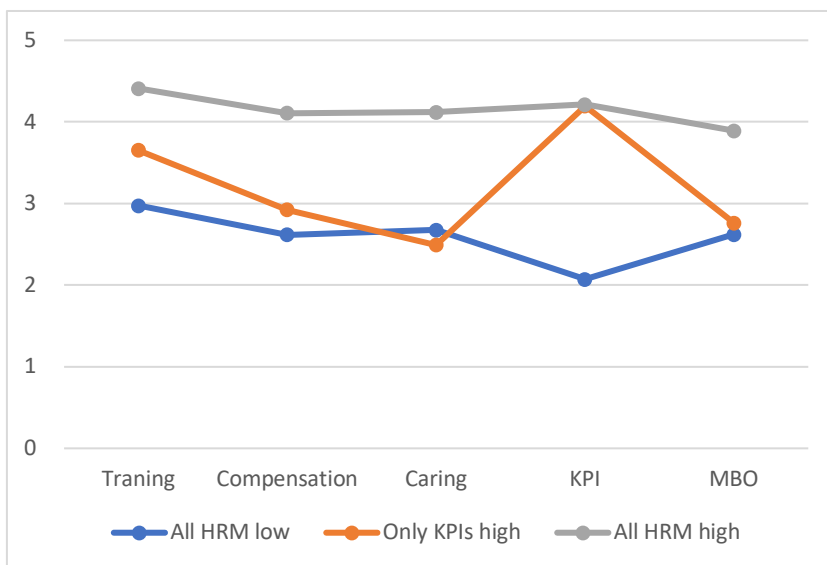


Table 5 Patterns of HRM measures and job satisfaction, retention intention

		All HRM Low	Only KPIs High	All HRM High	Total	NB
Job satisfaction	N	26	29	24	79	No statistically significant difference
	Score average	3.0000	2.9034	3.4667	3.1063	
Retention	N	41	36	28	105	All HRM high > All HRM low, Only KPIs high ($p < 0.01$)
	Score average	3.3902	3.2500	4.1964	3.557	

5. DISCUSSION

5.1 H1: Perception of HRM practice will positively affect job satisfaction.

As seen in Table 2, none of the expected effects of HR measures had a significant positive impact, and KPIs had a negative impact.

In other words, employee perceptions of various HR measures, such as training, compensation, and employee consideration, did not further increase job satisfaction; rather, KPIs decreased it. This can be interpreted as indicating the difficulty of implementing HR measures in transitional economies.

5.2 H2: Perception of HRM practice will positively affect retention intention.

As seen in Table 3, among the HR measures, training had a significant positive impact on retention intention. KPIs had a negative impact. In today's increasingly mobile labor force, training can increase an individual's value in the labor market. Good compensation had a positive and significant trend in retention intention, but the impact of training exceeded it.

5.3 H3: Perception of HRM practice positively influences meaningful work.

As seen in Figures 2 and 3, caring had a significant positive impact on meaningful work among HRM practices. Employees found meaning in their work for themselves if they were given the necessary care. Meaningful work also had a positive impact on job satisfaction.

5.4 H4: Depending on cultural values, there are differences in the process by which perceptions of HRM practices influence job satisfaction and retention intention.

Regarding cultural values, KPIs had no negative impact on job satisfaction in the mastery-high group, while it had a negative impact in the mastery-low group. In both the groups, care for employees had a positive impact on job satisfaction through meaning of work. In the mastery-low group, training had a positive impact on job satisfaction. In other words, there is a difference in the impact of HRM practices on job satisfaction between groups where the legacy of socialism remains and where it has faded.

In relation to cultural values, while KPIs had no negative impact on retention intention in the mastery-high group, KPIs had a negative impact in the mastery-low group.

Rewards had a significant positive impact on retention intention in the mastery-high group. Training had a positive impact on retention intention in both the mastery groups, but the impact was greater in the mastery-low group. The significance of work had a positive impact on retention intention for the mastery-low group but not for the mastery-high group. In other words, there is a difference in the process by which HRM practices influence retention intention between groups in which the legacy of socialism remains and those in which it has faded.

In groups where the socialist legacy remained, rewards had the greatest impact on retention intention. If the compensation cannot be increased, retention will not occur. However, simply

evaluating employees is not effective. Even if employees are valued and their work becomes more meaningful, it will not lead to retention intention unless they are able to think for themselves and not just follow the instructions of the upper management.

Contrastingly, in groups where the legacy of socialism had faded, training and the meaning of work, rather than compensation, were key to both job satisfaction and retention intention. In addition, KPIs had a negative effect. In other words, KPIs should be implemented in conjunction with other HRM measures.

As democratization progresses further, the percentage of the mastery-high group is expected to increase, and it may become even more difficult than it is now to increase job satisfaction and strengthen retention intention by simply showing KPIs and making employees do their jobs or taking care of them.

5.5 Patterns of HRM measures, job satisfaction, and retention intention

Hypotheses 1-4 showed that KPIs often negatively impacted job satisfaction and retention intention. However, Figure 4 shows that KPIs themselves do not reduce job satisfaction and retention intention but need to be implemented in conjunction with other HRM measures. Due to the legacy of the socialist era, KPIs are linked to the absence of a philosophy of how individuals should be evaluated. MBO, meanwhile, does not seem to be sufficiently widespread, and HRM practices need to be kept in mind not only in conjunction with KPIs but also in the state in which they function.

6. CONCLUSION

Through this study, we describe the difficulty of making HRM measures functional under conditions where the legacy of the socialist era remains. We also suggest that the meaning of work may become an important factor when socialist-era theories of motivation are lost and replaced by Western theories of personal motivation.

KPIs were often used as performance indicators, but the use of KPIs that were familiar to the legacy systems of the socialist era may have made it difficult for Western-style HRM measures to function. This has major implications for HRM in transitional economies. To begin with, even though KPIs do not make a personnel evaluation system, they have been introduced in transitional economies under the mistaken impression that they are personnel systems. It is necessary to realize that MBO design based on motivation theory (goal-setting theory) has not been sufficiently introduced and that an HRM system that relies on KPIs is problematic.

This study has some limitations. First, it focused only on Mongolia. Although it measures cultural values, it is necessary to check the data from other countries to determine whether these values are due to the legacy of socialism. Additionally, cultural values vary from country to country, even within countries with the same socialist political background. Second, the survey was limited to working graduate students. Although Mongolia has a high level of education,

working graduate students remain a special group. It is necessary to verify whether the results of this survey can be applied to Mongolian workers in general. Third, this study analyzed only "mastery" as a cultural value. Verification from the perspective of other values is necessary. Fourth, it is necessary to examine how HRM measures function in the context of socialist legacies. In the future, we plan to examine these issues across multiple transitional economies.

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**EXAMINING MULTICULTURALS' AND MULTILINGUALS'
PARADOXICAL
BRIDGING PROCESSES IN OVERCOMING CULTURAL AND LANGUAGE
BARRIERS IN ORGANIZATIONS
INTRODUCTION**

Prof Dr Markus Pudelko

“We obsess over our weaknesses even as we forget our formidable strengths. It is the source of our pessimism. But it is also, paradoxically, our deepest strength: In refusing to look away from our flaws, we not only acknowledge them but also begin fixing them. We rethink. We adapt. In bending, we find new ways to grow.” (New York Times, May 10, 2022)

How employees turn weaknesses into strengths is an important but overlooked phenomenon in organizations (Fineman, 2006; Dahl & Werr, 2021). Particularly in today's increasingly global business world, in which employees frequently operate in work environments with a significant degree of cultural and language diversity, cultural and language weaknesses regularly translate into barriers when working on project teams across the world; between headquarters and subsidiaries; as expatriates, inpatriates or third country nationals; or, with foreign suppliers and clients (Salk & Brannen, 2000; Tung & Stahl, 2018). Although the field still lacks a coherent definition of cultural and language barriers, we conceptualize them as obstacles to effective cross-cultural and cross-language communication and cooperation and doing international business (Jonsen, Maznevski, & Schneider, 2011). A key challenge for both researchers and managers is how to overcome such barriers to avoid negative outcomes.

In this context, bridge individuals, defined as employees in a multinational context who connect different individuals or groups that are separated by a cultural or linguistic barrier (Sekiguchi, 2016), play a crucial role. An emergent stream of research has identified multiculturals and multilinguals as bridge individuals who can reduce hurdles in multicultural and multilingual work contexts (Backmann, Kanitz, Tian, Hoffmann, & Hoegl, 2020; BarnerRasmussen, Ehrnrooth, Koveshnikov, & Mäkelä, 2014; Brannen, Garcia, & Thomas, 2009;

Harzing, Köster, & Magner, 2011; Hong, 2010; Hundschell, Backmann, Tian, & Hoegl, 2022;

Kane & Levina, 2017; Marschan-Piekkari, Welch, & Welch, 1999a; Vaara, Tienari, Piekkari, & Sääntti, 2005). Multiculturals have knowledge of, internalize, and identify with more than one societal culture (Vora et al., 2019); and, multilinguals speak more than one language fluently and regularly (Bialystok, 2001; Dewaele, 2012; Grosjean, 2014). We use the inclusive term multicultural and multilingual to refer to those with two or more cultures and/or languages, thus including also biculturals and bilinguals (Vora et al., 2019). Partly due to increasing

migration flows and their generation-spanning impacts, multiculturals and multilinguals are far from being an exceptional group, at least in the West. From 2000 to 2020 alone, international migration has globally increased by just under 110 million, reaching 281 million persons who live outside of their country of origin with most migrating for work (United Nations, 2020). As a result, more and more individuals experience more than one culture and speak more than one language in their daily lives.

Although the literature distinguishes between cultural and language barriers, scholars have explicitly or implicitly assumed that multiculturals are also multilingual, even when acknowledging that not every multicultural has to be multilingual (Backmann et al., 2020; Brannen & Thomas, 2010). This has led to blurred findings in which multiculturals seemingly naturally bridge language barriers as well (e.g., Backmann et al., 2020). Concurrently, although scholars have named multilinguals as ideal bridges for language barriers (e.g., Harzing et al., 2011), they assume high fluency in the respective languages and few have specifically investigated their role. This is surprising given the more recent but steadily increasing body of research on how to reduce language barriers (Aichhorn & Puck, 2017a; Tenzer & Pudelko, 2015; Tenzer, Pudelko, & Harzing, 2014; Tenzer, Pudelko, & Zellmer-Bruhn, 2021).

These approaches have led to confusion about cultural and language bridging and perhaps erroneous assumptions about these individuals' culture-related and language-related capabilities. Consequently, the following question motivated our research: How and why do multiculturals and multilinguals engage in bridging cultural and/or language barriers when considering that their levels of multiculturalism and multilingualism vary from rudimentary to full expert? We investigate capabilities of multiculturals and multilinguals, how they develop them, what motivates them to bridge, and the different ways they enact bridging. This is important to move theorizing about multiculturals and multilinguals forward and help practitioners use their capabilities more effectively. Another objective is to conceptually tease out differences between the bridging processes for cultural and language barriers. We use an inductive approach based on the systematic analysis of 154 semi-structured interviews with those who consider themselves multicultural, multilingual or both. We contribute to the literature in several ways.

First, as part of our inductive approach, we discover and include a distinction between what we label strength-based and weakness-based bridging activities. In doing so, we provide a theoretical explanation for the paradoxical phenomenon of when multiculturals (multilinguals) bridge a language (cultural) barrier even when the respective cultural (language) skills are low or non-existent. Second, we develop a conceptual model of the bridging activities of multiculturals and multilinguals, in which we distinguish between antecedents, capabilities, motivation, and bridging enactment. This is theoretically important because we show that multiculturals' and multilinguals' bridging underlies complex processes that cannot be limited to capabilities and bridging enactment as theory so far suggests. In contrast, we show that

relevant antecedents and motivational aspects need to be considered as well. Based on our model building, we establish four distinct roles that multiculturals and multilinguals can adopt in their bridging activities, which we label: cultural teacher, language teacher, cultural facilitator and language facilitator. These categories move the field forward theoretically in introducing more specific roles that bridge individuals can enact depending on the specifics of the process. Finally, we introduce the study of multilingualism at the individual level of analysis to management research to move theory forward in offering more novel and nuanced insights to multilingual employees and unleash their full potential.

THEORETICAL BACKGROUND

We draw on literature on multiculturals, multilinguals, as well as bridging and related concepts of boundary spanning and brokerage. These topics provided the orienting points for the iterative process between literature, data collection and data analysis (Dutton, Worline, Frost, &

Lilius, 2006), which ultimately culminated in our mid-range theory building (Pratt, 2017).

Multiculturals

Emerging studies of multiculturals have advanced our understanding of their characteristics and abilities. Despite this, we argue that two conceptual shortcomings have limited theorizing about their role. First, most research has found that multiculturals are valuable human resources in multinational work contexts due to their unique characteristics related to knowledge of, identification with, and internalization of multiple cultures (Hong & Minbaeva, 2022; Vora et al., 2019). Focusing on intrapersonal outcomes and drawing on cognitive and social psychology, cognitive characteristics, such as the switching of cultural frames (i.e., cultural frame switching, CFS) based on external situational cues (Hong, Morris, Chiu, & Benet-Martínez, 2000) and cognitive complexity (Benet-Martínez, Lee, & Leu, 2006; Lakshman, 2013;

Tadmor, Galinsky, & Maddux, 2012), make multiculturals more creative (Mok & Morris, 2010; Tadmor & Tetlock, 2016) and compromise-oriented in decision making (Briley, Morris, & Simonson, 2005). Identity-related processes, such as conflicting or harmonious integration of multiple cultural identities known as bicultural identity integration (BII) (Benet-Martínez, Leu, Lee, & Morris, 2002), have been related to personal well-being (Fitzsimmons et al., 2017). Others have focused on uncovering unique capabilities multiculturals possess and found that they are more adaptable in intercultural situations (Hanek, Lee, & Brannen, 2014), more flexible and empathetic (Brannen & Thomas, 2010), and have greater communication competence (Lu, Swaab, & Galinsky, 2021). Hong and Minbaeva (2022) identify CFS, cultural adaptability, culture-based creativity, cross-cultural communication skills, and cross-cultural attributional complexity as relevant capabilities of multiculturals. Although a significant

amount of research points to multiculturals' ability to bridge cultural differences on the basis of their particular characteristics (Brannen and Thomas, 2010), it is problematic that we know little about how and why these characteristics result in cultural bridging (Backmann et al., 2020). We therefore tease out relevant factors that lead to cultural bridging in international work contexts.

A second conceptual shortcoming, limiting extant theorizing about multiculturals' role in multinational work contexts, is a binary conceptualization of those as either multicultural or not. Although studies have acknowledged that multiculturals are diverse (Fitzsimmons et al., 2017; Lücke et al. 2014), most research has adopted this binary conceptualization. This approach is problematic, as it could oversimplify effects that multiculturalism has on behavioral outcomes in cross-cultural management. For example, deep multicultural experiences can impact cognitive and psychological abilities which, in turn, change how multiculturals respond to the world (Maddux, Lu, Affinito, & Galinsky, 2021). If multiculturals internalize only a small degree of cultural meaning systems from a culture other than their main culture, they could transfer knowledge to their home context (e.g., headquarters), but may be limited in bridging cultural barriers (Lücke et al., 2014). This binary thinking is reinforced by a sometimes-implicit assumption that multiculturals are automatically multilinguals (e.g., Backmann et al., 2020; Chen et al. 2008; Fitzsimmons et al., 2017; Maddux et al., 2021) leading to a conclusion that multiculturals can translate for their colleagues to bridge language and also cultural barriers (Backmann et al., 2020; Fitzsimmons et al., 2017). Yet, when adopting a continuum approach, multiculturals could possess minimal or even no knowledge in certain languages even if they identify strongly with the related cultures and have fully internalized their cultural schemas (Vora et al., 2019). Thus, they will not be able to perform language bridging based on translation. Consequently, we also clearly distinguish between multiculturals and cultural bridging on one side, and multilinguals and language bridging on the other, to understand differences in the bridging process and the capabilities and other factors needed to bridge cultural and language barriers.

Multilinguals

To date, no research has investigated differences in the types of capabilities multilinguals possess (or lack) and their impact on bridging behavior. However, Tenzer et al. (2021) found that a lack of more instrumental skills in grammar and vocabulary and more culture-relevant capabilities in communication style impact knowledge processing in teams (Tenzer et al., 2021). This finding suggests that exploring the types of capabilities in the context of bridging could uncover interesting impacts as well. Similar to examining multiculturals, research has adopted a binary conceptualization of the study of multilinguals when ascribing them the roles of bridge individuals (Harzing et al., 2011), language nodes (Marschan-Piekkari et al., 1999a), intermediaries (Marschan-Piekkari, Welch, & Welch, 1999b), or translation machines (Vaara et al., 2005) in the face of language barriers. Other studies categorize

individuals into native and non-native speakers to investigate the impact that resulting language barriers have on interpersonal processes in multinational teams, such as trust (Tenzer et al., 2014), or on status gain for native speakers (Neeley & Dumas, 2016). Thus, we also uncover the specific language-related capabilities and other process components that are necessary to bridge language barriers.

To address these opportunities in conceptualizations of bridging cultural and language barriers, importantly, we conceive of multiculturalism and multilingualism as distinct concepts on continua from low to high. For theory, we need an in-depth understanding of the variety of capabilities, their antecedents and how and why they are used, to get a comprehensive picture of these two important groups. For practice, managers require a good sense for how both groups can support them in making a multinational workforce collaborate effectively and what, in turn, managers should provide them to fulfill this task. Although scarce, research shows benefits of such approaches. For example, Ringberg, Luna, Reihlen, and Peracchio (2010) show that monocultural-multilinguals translate more precisely than multicultural-multilinguals because the latter switch their cultural frames automatically resulting in a drift of intended meaning. Peltokorpi and Zhang (2022) found that the language proficiency of integrated bicultural expatriates varies, whereas conflicting bicultural expatriates demonstrate high language proficiency, which affects their behavior in the workplace. Based on this, we ask: *RQ1: How do multiculturals and multilinguals develop their various and distinctive capabilities to overcome cultural and language barriers, and why do they use them to engage in bridging?*

Bridging Cultural and Language Barriers

The literature uses boundary spanning, brokerage, and bridging as related concepts for overcoming cultural and language barriers. All center around the aim to reduce a barrier arising from cultural or language diversity between two actors but differ in the level of analysis and the purpose of connecting the actors. Boundary spanning typically focuses on boundaries created by organizational structures and refers to the act of mediating the flow of knowledge between units in MNCs (e.g., between headquarters and subsidiaries or between organizational departments; Birkinshaw et al., 2017; Schotter & Beamish, 2011). Brokerage takes a network perspective and focuses on connecting actors that have no access to one another due to structural or cultural holes (Burt, 2005; Levy, Lee, Jonsen, & Peiperl, 2018). Bridging, in turn, emphasizes the individual level and focuses on reducing barriers more generally between those who can be situated in the same or different groups, teams, units, or organizations (Sekiguchi, 2016). Bridging can thus have a number of purposes, including but not limited to delivering knowledge and information, integrating team members, and supporting through empathy (Backmann et al., 2020; Barner-Rasmussen et al., 2014). Because the concepts of bridging and bridge individuals are prevalent in the context of cultural and language barriers (Backmann et al., 2020; Harzing et al., 2011; Hundschell et al., 2022; Sekiguchi, 2016), and we are interested in the micro-processes in bridge individuals regardless of the specific purpose or where people they bridge

for are located in or outside the organization, we frame our study in the stream of bridging and borrow from the related areas of boundary spanning and brokerage.

Although we know that bridging activities can play an important role in overcoming barriers from cultural and language diversity, and that multiculturals and multilinguals are particularly well suited to excel as bridge individuals (Backmann et al., 2020; Harzing et al., 2011; Hundschell et al., 2022; Sekiguchi, 2016), we still need a holistic picture of the bridging process that moves beyond actual bridging enactment. For example, Kane and Levina (2017) show that multicultural immigrant managers act as global boundary spanners by embracing the relevant cultural identity, but they hinder collaboration when distancing themselves from their relevant cultural identity; and, to bridge cultural barriers, individuals must not only have capabilities but also willingness to do so. Similarly, Yagi and Kleinberg (2011) show how multiculturals negotiate their anchoring and peripheral cultural identities to span boundaries. Jang (2017) found that multiculturals who share a culture with some or all of their team members broker by integrating information from different cultures into a new whole. Multiculturals who do not share a cultural background with any team member broker by requesting relevant information to make it accessible to other members. Importantly, both contribute to higher creative performance of their teams. However, we remain in the dark as to what capabilities or motivations support their behaviors.

Backmann et al. (2020) established five cultural gap bridging behaviors of multiculturals, including: giving advice, communicating in different languages, addressing conflicts, integrating team members, and providing empathetic support. However, they do not specify what capabilities are necessary for each behavior. Similarly, Barner-Rasmussen et al. (2014) found that cultural and language skills are independent antecedents for boundary spanning as an outcome; and, that language skills are necessary for the more demanding boundary spanning functions facilitating (i.e., delivering and interpreting information for outgroup members, Harzing, 2001) and linking (i.e., the act of building bridges between previously disconnected groups and members, Obstfeld, 2005). Yet, they do not specify what types of cultural or language skills facilitate boundary spanning. These studies provide us with important but disconnected insights into bridging activities of multiculturals and multilinguals but also illustrate that we still require a systematic understanding of the micro-processes in which cultural or language capabilities are transformed into bridging activities. An understanding of these is crucial for both theory and practice to resolve the disconnect between capabilities of these individuals on one hand and putting them into action on the other. We therefore ask:

RQ2: How do the bridging processes of multiculturals and multilinguals unfold, and what aspects are involved?

METHODS

Research Design

Given that the differentiation between multicultural and multilingual bridging has not yet been systematically investigated and we target an in-depth understanding of the micro-processes under study, we consider an explorative, inductive approach to be particularly well suited to address our research questions (Morgan & Smircich, 1980). Inspired by the tradition of grounded theory (Glaser & Strauss, 1967), we started with the broad objective of examining bridging activities of both multiculturals and multilinguals. It was only by using our inductive approach and after several iterations between data collection and data analysis, that we were able to uncover the unexpected differentiation between strength-based versus weakness-based bridging and its significance for overcoming cultural and language barriers. It was also only through our approach, coupled with specific analytical steps we outline below (Pratt, Sonenshein, & Feldman, 2020), that we could retrace the steps of the processes of these two bridging types in depth, from antecedents to the capabilities and motivation to the ultimate bridging enactments. As these foci emerged from our data, we returned to the literature. This iteration between our data and previous research resulted in the specification of our research questions and became the starting point for our theory development (Edmondson & McManus, 2007).

We chose a qualitative, interview-based research design, as it is most suited to investigate the ‘how’ and ‘why’ questions we intended to explore (Pratt, 2017). This also allowed us to investigate relations “close to the informants’ experience” (Gioia et al. 2013: 19). More specifically, we conducted semi-structured interviews that ensured consistency and comparability between our interviewees, but we remained open to the emergence of new issues (Myers, 2008). For example, we realized that our respondents had difficulty sorting themselves neatly into one of the three categories (i.e., multicultural-multilingual, multiculturalmonolingual, and monocultural-multilingual). Hence, we asked deeper questions about their identification, internalization, and knowledge of their cultures and their fluency and frequency of using their languages. As such, semi-structured interviews gave us the flexibility to tap into the informants’ lived experiences (Gephart, 2004) and provide us with rich, thick descriptions of the meanings behind those experiences (Doz, 2011) and the effects of their bridging activities on cross-cultural and cross-lingual collaborations. Despite this flexibility, semi-structured interviews still allowed us to address the same core topics with similar questions to facilitate meaningful comparisons across interviewees (Myers, 2008).

Sample and Data Collection

We were interested in studying individuals who identified as being multicultural, multilingual, or both, and who worked in a multicultural and multilingual organizational setting. Consequently, and following Corbin and Strauss (2008), we pursued a theoretical sampling approach in that we recruited interviewees based on two criteria. First, we sought individuals

who had internalized, were identifying with, and had knowledge of two or more cultures (Vora et al., 2019), and/or were fluent in two or more languages and used them regularly (Bialystok, 2001; Dewaele, 2012; Grosjean, 2014). Second, multiculturals and/or multilinguals had to work in a multicultural and/or multilingual organizational context. These contexts could have referred to a broad variety of collaborations including: within and across multinational project teams, departments, and business units; between cross-national headquarters and subsidiaries; and, with an international client or supplier base.

The first criterion particularly stimulated individuals with varying degrees of multicultural or multilingual skills to participate in our study and share their personal story. For example, some were highly proficient in two or more languages, hence multilingual, but identified as only slightly multicultural. For example, P46 spoke German, Spanish and Business English and had an excellent knowledge of, highly identified with, and had fully internalized the German culture but only knew and had internalized to a small degree the Spanish culture associated with his Spanish language skills. Thus, he identified only marginally with it, and did not have any knowledge of, internalization, or identification with any English-speaking culture. Others had knowledge of more than one culture, internalized (some or much of) multiple cultures and identified with them, while speaking the language corresponding to one of their cultures only at a low level and/or only in the private domain. Consequently, they were unsure if they would consider themselves multilingual. For example, P27 was Canadian-Mexican who had a high level of knowledge of Mexican culture and identified with, and had internalized, it. However, although she spoke Spanish fluently and regularly in private, she was unable to use it in a business context.

We probed for these differentiations and degrees regarding culture and language with questions, such as *“how do you identify with regards to your cultures?”* (i.e., identification), *“what do you know about your cultures?”* (i.e., knowledge); *“how well can you put your mindset into the respective cultural context?”* (i.e., internalization); *“how well do you speak each of your languages?”* (i.e., fluency); and, *“how often do you speak each of your languages?”* (i.e., regularity). Overall, we clearly had the impression that prior to our interview most respondents had thought deeply and intensively about their identity as multiculturals and multilinguals, given that these characteristics addressed the very core of their personalities. This played out very much to our advantage, as we obtained highly thought-out responses. Many respondents said at the end of the interview that it was a reflective exercise (e.g. “This interview helped to put my reflections from over the years into words.”, P40). Although we originally sought to categorize our respondents into the three relevant categories of a 2x2 matrix of multicultural-multilingual, multicultural-monolingual, and monocultural-multilingual (BarnerRasmussen et al., 2014; Soffietti, 1955), it became clear to us early on that reality was too complex to simply categorize each of our respondents into one of these boxes. Having realized that our respondents defied the simplistic categorization we initially pursued, we

sought more indepth descriptions about how and why they defined themselves as they did. Thus, we continued to reach out to potential interviewees based on the same two criteria, but focused more on ‘less than perfect’ multiculturals and multilinguals at later stages of our data collection (Corbin & Strauss, 2008). As a result, we collected very rich data using 154 semi-structured interviews with multicultural and/or multilingual individuals, all of whom work in multicultural or multilingual organizations.

The first author and ten of her Master’s students, either in the context of their Master’s thesis or a research class, conducted interviews between 2015 and 2017. The first author conducted 49 interviews, while the 10 Master’s students conducted between eight and 12 interviews each. We recruited participants through personal networks of the interviewers, including social media (e.g., Facebook, LinkedIn), and HR departments of a number of internationally-operating companies. The first author developed the interview guideline and discussed it intensively with the Master’s students in group and individual sessions. Students previously had reviewed existing literature for a theoretical understanding of the topic under study, listened to interviews that the first author had conducted, and attended qualitative methods sessions held by the first author to ensure an appropriate level of competency in conducting the interviews.

Due to the first author’s and students’ background and physical location, most interviews took place with individuals who considered German as one of their cultures (90) or languages (107), again to varying degrees. However, extensive data collection trips abroad also allowed us to conduct interviews in Canada, China, Japan, Korea, and Sweden. Additionally, we conducted 12 interviews over the phone or via Skype with respondents located in Australia, Ethiopia, Mexico, the Netherlands, Singapore, Switzerland, the UK, the US, and Vietnam. We conducted interviews in German, English, Spanish, French and Vietnamese. In most cases, the interviews took place in the language the interviewee preferred, which usually allows for obtaining the most intuitive answers (Harzing & Maznevski, 2002). In a few cases, we conducted interviews in

English, rather than the participants’ dominant language. However, even in these instances, our respondents felt comfortable and talked openly about all aspects that were addressed, as they have been using English at work day-to-day. We transcribed interviews in the same language as they had been conducted, except for the interviews in Vietnamese, a language the authors cannot read or understand. In this case, the interviewer translated and transcribed all interviews to English. Interviews lasted between 32 minutes and one hour 58 minutes, with the average interview being 59 minutes. The transcription of the 154 interviews resulted in a document of about 1,950 double-spaced pages that formed the basis of our data analysis.

Participants represented a variety of cultural and linguistic backgrounds and worked in diverse industries and services, including, for example, automotive, aerospace, food, oil, pharmaceutical, consulting, banking, media, auditing, retail and IT. Functional areas of the respondents also covered a broad range, including marketing, sales, purchasing, HR, finance, accounting, controlling, research and development, and strategy. Positions of the interviewees ranged from trainees, regular employees, lower, middle and upper managers, to vice-presidents and CEOs. However, because participants not only reported about their current employment, but also about experiences in past appointments, the final data set included a much larger variety of organizational contexts across all continents, industries and services, functional areas, and positions. Overall, we found very little variation in the statements of our interviewees across different industries, organizations, functional areas or hierarchical positions, suggesting that these contextual factors are of little relevance for the micro-processes of the bridging activities of individual multicultural and multilingual employees. Eighty-eight of our respondents were male, and 66 were female. The youngest interviewee was 19 years old and the oldest 65, with an average age of 32. To provide an overview of the most important characteristics of the sample,

Table 1 summarizes the cultures and languages with the respective frequency represented.

Insert Table 1 about here

The interviews consisted of two main parts. In the first part, we asked participants to describe their individual background. This included demographic facts and general information, such as job responsibilities, firm and position tenure, and cultural and linguistic characteristics of the people with whom they worked. The second and main part of the interview consisted of questions directly related to the participants' experience with their multiculturalism and/or multilingualism on different aspects of their organizational life. We specifically asked for the interviewees' perceptions of how their background and particular skills and abilities helped them to engage in bridging activities resulting in a reduction of cultural and language barriers at work. We encouraged them to illustrate their comments with detailed real-life examples and reflect upon their actions and others' reactions in these examples. Although we explored the entire process of bridging activities in all of its phases, we were not interested in their outcome in terms of effectiveness, as this was beyond the scope of our investigation.

Data Analysis

Using the software Atlas.ti for data analysis, we started the analysis of our interviews while the interviewing process was still ongoing (Patton, 2002) as is recommended practice for inductive studies (Gioia et al., 2013). This way, when having encountered contradictory or unexpected information in data analysis, we were able to collect additional, more specific information to explain those instances. The first author coded the data and, in collaboration with the second author, developed the resulting coding structure. These discussions formed the basis of our analysis and were instrumental to stay “faithful to the insights provided by the informants” (Pratt et al., 2020).

We analyzed our data in three main stages, drawing on a set of tools in qualitative research that are particularly well suited (DeCelles, Howard-Grenville, & Tihanyi, 2021; Jarzabkowski,

Langley, & Nigam, 2021; Pratt, Kaplan, & Whittington, 2021). Figure 1 summarizes the process.

----- Insert Figure 1 about here

First, inspired by Corbin and Strauss’ (2008) grounded theory coding approach, we started with detailed line-by-line data analysis to generate initial first-order codes (i.e., open coding).

For example, the quote *“Of course my bosses [in France] would often turn to me to report in English, to proofread reports, to make presentations, to talk in details to Anglo-Saxon clients”* (P 67; Eng, Fre; L: Eng, Fre) generated the code ‘requested to help with language differences.’ When quotes reflected theoretical concepts, we assigned codes that were informed by the literature. For example, the quote *“I think we shouldn’t judge prematurely. If someone is late to a meeting, I try to understand them through my Hungarian lens. If it is very important to someone to be exactly on time, I use my German lens. This has really helped me in my work in the international organization.”* (P 25 Ger, Hung; L: Ger, Bus-E, Hung) generated the code ‘cultural frame switching.’ It was at an early stage of our data collection and analysis that we noted that respondents not only bridged cultural and language barriers when they were confident about their multicultural or multilingual skills and abilities, but also when they explicitly doubted their multiculturalism or multilingualism. We grouped the respective codes under what we called strength- vs. weakness-based bridging enactments. Initial codings became the starting point for refining our research questions, more probing questions about strength-based vs. weakness-based bridging in subsequent interviews, and additional reading of past research. They exemplify the iterative process of data collection and analysis and additional literature study.

In the second stage of our data analysis, we applied the constant comparative method (Glaser & Strauss, 1967) to analyze our data in different ways. This process assisted us, for example, to further bring light to our unexpected finding of multiculturals and multilinguals bridging barriers, despite their claim not to have the necessary capabilities for it. First, we compared different parts of each interview to ensure consistency. We then juxtaposed interview sections relating specifically to multiculturalism and interview sections relating specifically to multilingualism before comparing both among each other. This way, we could compare, for example, codes within interviews of respondents who considered themselves multicultural but doubted being multilingual. Similarly, we compared passages indicating cultural bridging and then passages indicating linguistic bridging before also comparing those among one another. This process helped us, for example, to better understand that bridging activities for both cultural and language barriers did not only come from multicultural and multilingual strengths. Instead, they arose from respective perceived weaknesses as well. More specifically, we learned that in the absence of multicultural and multilingual strengths, individuals had the capability of being particularly sensitive to cultural or language barriers and showed an empathetic motivation to engage in bridging behavior. To find the respective motivation for strength-based bridging, we did the same comparison of codes within interviews of respondents who considered themselves as highly multicultural or multilingual, and then among interview sections related to strength-based cultural bridging approaches and strength-based language bridging approaches.

As we felt that we could go even deeper in our understanding of the bridging process, we decided, as a third stage, to explore why and how our respondents had developed these different types of capabilities and motivations (Suddaby, 2006). We used temporal bracketing to structure our data and examine how specific actions or events in the past led to changes in the context that affected their actions later (Langley, 1999). We specifically looked at events in the past that respondents referred to as explanations for their culture- and language-related strengths or weaknesses and grouped them under the first temporal bracket, which we conceptualized as antecedents. We then analyzed how our interviewees related these antecedents to their capabilities and motivations to bridge and grouped these aspects under the second temporal bracket. As a third temporal bracket, we identified the actual bridging enactment that resulted from the capabilities and motivations of the second temporal bracket.

Through these comparisons and subsequent aggregations, we arrived at four categories – antecedents, capabilities, motivation and enactment – which we used in our modeling efforts to distinguish two theoretical building blocks – strength-based bridging and weakness-based bridging of cultural and language barriers. We iterated between data, codes, categories and theoretical building blocks until we reached saturation (Suddaby, 2006). Tables 2 and 3 in the supplementary material show the overall bridging process illustratively for the weakness-based bridging.

FINDINGS

Our results revealed an important finding: bridging does not only stem from strengths multiculturals and multilinguals possess, which is perhaps not surprising, but equally emerges out of one's own perceived weaknesses, which is much less intuitive. We structure our findings section using two types of bridging approaches, cross-cultural and cross-lingual: (1) strength-based bridging and (2) weakness-based bridging. Within each of these two subsections, we discuss for both cross-cultural and cross-lingual bridging the (1) antecedents of bridging that result in (2) capabilities and motivation of bridging (i.e., to answer our first research question 'how do multiculturals and multilinguals develop their various and distinctive capabilities to overcome cultural and language barriers, and why do they use them to engage in bridging?') and (3) ultimate bridging enactment (i.e., to answer our second research question 'how do the bridging processes of multiculturals and/or multilinguals unfold, and what aspects are involved?'). In the supplementary material, we present additional quotes and coding structures from our data for each section in Tables 4 to 9.

We found much overlap between bridging processes of cultural and of language barriers, but also substantive differences. To avoid redundancy, we present similarities of multicultural and multilingual strengths and weaknesses jointly, and we show differences between them separately. Further, as our findings related to strength-based bridging confirm much of the previous research on multicultural and multilingual individuals in organizations, we abbreviate its presentation. However, we still provide an overview, as strength-based bridging is relevant to show the full picture of bridging activities. In addition, it is only possible to demonstrate substantial differences between strength- and weakness-based bridging by highlighting the former.

Strength-Based Bridging

As one would perhaps suspect, many respondents performed specific bridging activities based on certain strengths, which they had developed through their multiculturalism or multilingualism and which uniquely positioned them. Accordingly, we labeled these bridging activities as strength-based bridging. Regarding such strength-based bridging, we found that our respondents typically highlighted their multicultural and multilingual identity as antecedents. This identity has been shaped by their long-lasting and intensive embeddedness in their multiple cultures and/or languages. This particular identity provides the foundation of their unique capabilities and motivations, which allow them to ultimately engage in the bridging of cross-cultural and cross-lingual barriers. In their actual bridging enactment, they very much follow a top-down approach (i.e., they explain cultural behaviour to the uninformed, which we term cultural teacher); and, they translate or code-switch for those without relevant language skills (which we term language teacher). We next elaborate on these findings in more detail.

Antecedents to strength-based cross-cultural and cross-lingual bridging. Our data reveal that with regard to strength-based bridging, in most cases our interviewees have lived with their multiculturalism and/or multilingualism with significant intensity and/or for a long time, often their entire lives. This strong embeddedness in their respective multiple cultures and/or languages leads to a strong identification as multiculturals or multilinguals. Multicultural participants frequently shared that for them the existence of cultural differences is entirely ‘normal.’

For us it was very normal to grow up and think, ok, there are just different types of people. These seem to behave like this and those like that, and these talk like this and those like that. And, I think that is kind of how me and my siblings grew up, not always saying that there is just one way but knowing different ways. [P 7, Mex, US; L: Spa, Eng, Fre]

Similarly, multilinguals also stressed the fact that hearing and speaking multiple languages has become completely natural and a normal part of their lives.

It feels pretty natural, actually. I don't really think about it. Like I am saying, it is part of my life, I am living in a bilingual environment, like lots of day to day tasks, if I do them in English, it just feels natural that my thoughts are just anglophone in my head. [P 49, Cad; L: Fre, Eng]

We conclude that multiculturalism and multilingualism are very much engrained in their being. This is not a major finding in and of itself, as research has already shown the importance of multiple cultures and languages for individuals' identities (Pavlenko, 2006; Vora et al., 2019). What we could establish as new is that their multicultural or multilingual identification forms the decisive antecedent for both their capabilities and motivation to bridge cross-cultural and crosslingual barriers.

Capabilities and motivations for strength-based cross-cultural and cross-lingual bridging. We established that multiculturals and multilinguals, characterized by strong multicultural and/or multilingual identification, also possess specific capabilities allowing them to perform certain bridging activities. We summarize these as cognitive capabilities. For multiculturals, we distinguish between the comprehension of cultural differences and the ability to switch cultural frames. For multilinguals, these cognitive capabilities can be broken down into the ability to effortlessly communicate in multiple languages and the ability to code-switch.

Regarding the comprehension of cultural differences, a Belgian-Guinean participant, identifying with both cultures, shared how she deals with her specific knowledge about different cultural habits when scheduling meetings.

It is easy for me to project myself in other people's cultures or minds. I can understand why, I mean I can accept that African people, or most African people, are always late. And I can accept that German people are always on time (laughs). So, it is the fact of really

understanding and accepting other people's culture, I would say. Because I have seen big differences between the Belgian and Guinean one. [P 86, Bel, Gui; L: Fre, Dut, Bus-E]

Most multiculturals indicated that this advanced understanding and acceptance not only relates to the cultures with which they identify (culture-specific expertise), but also to cultures with which they are not familiar (culture-general expertise), like a German-Croatian respondent:

I think it is a huge advantage in my international projects, because as I know some cultures, I can accept cultural differences in general better. [P 63, Ger, Croa, L: Ger, Eng, Croa]

This finding confirms previous theoretical assumptions about multiculturals possessing both culture-specific but also culture-general skills (Brannen & Thomas, 2010; van Dyne et al., 2012). We found that the ability to fully understand and accept both culture-specific as well as culture-general differences to be an essential capability for bridging cultural barriers.

The second relevant capability for bridging cultural barriers is the ability to switch cultural frames. Multiculturals, due to identifying with various cultures, are able to automatically move between different cultural meaning systems and change their responses and actions accordingly (Hong et al., 2000). As the following Argentinian-German interviewee described, she makes conscious use at work of her skill to switch between the perspectives of different cultures.

In my daily work I see the advantage [of being multicultural] in that I can often put myself into my clients' shoes. I can understand a situation better and have a different type of empathy. I can recognize parallels in processes or things or behavior and can react to this. (P58: C: Arg, Ger; L: Spa, Ger, BUS-E)

Throughout the interviews, individuals confirmed how they perceive the ability to switch their cultural frames as a key strength that helps them navigate cross-cultural situations.

As for cognitive capabilities of our respondents with a multilingual identification, when asked about the advantages of being multilingual, they frequently mentioned their ability to effortlessly communicate in multiple languages (i.e., how they use multiple languages in an almost automatic manner without any effort). The following participant speaks English,

Japanese, Korean, Mandarin, Spanish, and Portuguese fluently:

For each language I went to school in that country. When I speak the other languages, I don't really have to think in my mother tongue first. I can just directly speak Mandarin or Spanish. I can do that. (P16: C: US, Jap, Kor; L: Eng, Jap, Kor, Mand, Spa, Port)

Automaticity has also been identified in the literature as the ultimate stage in language learning, describing the stage when language and thought merge and language becomes automatic in most contexts (Gardner, 2007). Less proficient second language speakers often

have to take an extra step and translate from their native language to convey a message (Hinds, Neeley, & Cramton, 2014). In multilingual work settings, this has been found to lead to language barriers (Marschan-Piekkari et al., 1999a; Neeley, 2013; Neeley & Dumas, 2016; Tenzer et al., 2014) with which, by contrast, multilinguals are not confronted.

Another capability that our multilingual respondents perceived as important when working with people of various linguistic backgrounds is code-switching, an ability that is tightly connected to the intuitive use of multiple languages. It gave them the opportunity to effortlessly follow and engage in a single conversation of multiple languages, as the following FrenchEnglish speaking Canadian explains:

It is just a habit I guess, but I have a lot of bilingual friends and we all often switch languages in the middle of the sentence. Because sometimes one language is better suited to communicate an idea than another. (P 34: C: Can; L: Eng, Fre)

Research has thus far treated code-switching mostly as a weakness of employees, who fall back from the shared language to their mother tongue, impeding efficient communication (Aichhorn & Puck, 2017a). This negative view resulted mostly from observed discussions that started out in the shared language and then broke down into subgroups speaking in their mother tongues, thus excluding non-native speakers of those subgroups. This phenomenon has mostly been discussed at the team or organizational levels. We find that for the individual level, however, people who have the ability to do so perceive code-switching as positive because they can quickly adapt to a different environment.

From our data, we understood that capabilities are not sufficient to engage in bridging activities, as multiculturals and multilinguals must also be motivated to do so. In this context, we observed that it was again the antecedent of having a multicultural or multilingual identification providing motivation to assist in bridging cultural and linguistic divides. More specifically, for multiculturals and multilinguals, we uncovered two kinds of motivation for bridging, which we label external requests and willingness to share expertise. Regarding external requests, it is not surprising that others in their work environment knew about our respondents' multiculturalism or multilingualism and often asked them to assist with cultural and language differences ('I help because they want me to'). As such, people of various hierarchy levels approached

multiculturals, asking them to explain a certain behaviour. The following participant has lived in multiple countries in his life and identified mostly with the German and Argentinian culture, acknowledging that he had been influenced by other cultures.

My Indian co-worker approaches me regularly to ask: "So what is going on in this and that situation?" or: "My team leader said this and that, do I have to be concerned?" Then I provide my point of view. [95, Ger, Arg, intl upbringing; L: Eng, Ger, Spa, Dutch]

Multilinguals were also often asked to join a meeting or conference call in the role of an interpreter, translating an email or calling someone to talk in their language, as the following perfectly bilingual respondent shares:

Sometimes customers do not know English very well and ask for people who can speak Spanish. Also, if they get concerns in other departments, then they call me and ask me whether I can translate or directly talk to the person. [P 61, US-EISal, L: Eng, Spa]

Next to interventions based on external requests, respondents also showed a high willingness to proactively share expertise. We argue this motivation stems from the fact that individuals identify so much with their multiculturalism or multilingualism that they enjoy putting their skills into practice by assisting their co-workers. As such, they do so voluntarily without being asked to ('I help because I want to'). As the following German-Chilean participant explains for helping with cultural barriers:

I really enjoy being the center point when connecting other people and to be the contact person to answer questions or resolve confusions. It is a role that others are grateful for me taking it, that's why I feel very comfortable. [P 1, Ger-Chil; L: Ger, Spa, Bus-E]

Similarly, an English-German native speaker jumped in when he noticed others would not understand what non-native English speakers have said:

It happens all the time that my German colleagues use an odd word or sentence in English and of course I notice it and so I'll help. One colleague translates literally from German to English which doesn't work. Most Germans won't notice, but then there are the poor Indian and British guy who have no clue. So of course I'll help to reduce the miscommunication. [P 97, US, Ger; L: Eng, Ger, Croa]

Overall, the capabilities and motivations to take on the role of a bridge individual underscore the uniqueness of multiculturals and multilinguals compared to their monocultural and monolingual colleagues. Their multicultural or multilingual identification enhances their cultural and language cognitive abilities and triggers a desire to use them to assist others in situations of cultural and language barriers. We discuss the resulting bridging enactment next.

Enactment of strength-based cross-cultural and cross-lingual bridging. We found that multiculturals and multilinguals engaging in strength-based bridging create a rather unilateral, top-down relationship with the people for which they bridge. They mostly speak to them, as opposed to speaking with them, and the affected individuals are expected to learn from them, with little feedback or interaction between the parties. More specifically, multiculturals enact this kind of bridging by explaining culture-specific and culture-general differences. It is due to these activities that we label such a multicultural individual as a cultural teacher.

For example, one Brazilian-German respondent recalled how she used her culture-specific understanding to help a German colleague in a Germany-based organization by explaining different behaviors in South America:

When I started that job, we were two in my position. The other one was solely German. She had lots of questions: Why do the Brazilians do this? Why are the Argentinians doing that? So, for her it was sometimes a bit confusing. So, I told her, you know, in Brazil this is a bit different, and in Argentina as well... and she accepted that and considered it. (P105 C: Bra, Ger; L: Por, Ger, BUS-E)

Similarly, an Indian-German used her culture-general understanding to explain that different perspectives exist.

I am a big fan of understanding different points of view and to respect and value these.

In my team, there are quite a few who say: 'But hey, we are in Germany, and we always do this and that...' and so on. Well, I just try to explain what I think I know and yeah, to open them for new perspectives. (P15: C: Ger, Ind; L: Ger, Eng)

Our empirical findings correspond to what scholars already have pointed out in conceptual papers (Dau, 2016; Sekiguchi, 2016): multiculturals bridge cultural barriers through their cultural knowledge and by explaining resulting behavioral differences.

We found strength-based bridging behavior of multilinguals equally occurring through a top-down approach, which we label language teacher. We found that multilinguals often translated, interpreted or called someone in their language for those with insufficient language skills. Previous studies have already described this translation function of multilinguals (Harzing et al., 2011; Marschan-Piekkari et al., 1999b; Vaara et al., 2005). We noticed that translation could occur either literally (i.e., word by word or sentence by sentence) or in a summarized way, when the multilingual transmitted the overall meaning of a conversation in a condensed way.

I've had the opportunity to use my Turkish skills in meetings with Turkish suppliers when we didn't get any further with English. Then, I translated into Turkish and back to

English or German. [P 55, Ger-Tur; L: Ger, Tur, Bus-E]

To sum up the strength-based bridging process, we presented evidence that multiculturals' and multilinguals' deep embeddedness in their cultures and languages leads to a profound identification as multiculturals or multilinguals, which functions as an antecedent to the capabilities and motivation needed to bridge cultural and language barriers. As multiculturals' capabilities, we described the comprehension of cultural differences; by contrast, as multilinguals' capabilities, we found the ability to effortlessly communicate in multiple languages and to code-switch. Further, multiculturals and multilinguals are both motivated to engage in bridging activities either due to external requests or a willingness to

share expertise. Finally, they both resume a top-down approach to bridging. Multiculturals implement their capabilities by explaining culture-specific and culture-general differences, thus taking on the role of a cultural teacher. Similarly, multilinguals implement their capabilities through translating, assimilating the role as a language teacher. The next section dives into less intuitive findings, bridging not based on multicultural and multilingual strengths but weaknesses.

Weakness-Based Bridging

The findings above are relatively intuitive in that multiculturals and multilinguals possess certain strengths, primarily in the form of specific capabilities and motivations, which enable them to bridge cultural and language barriers. Given their expertise, they do so in a top-down fashion, which was also not unexpected. However, paradoxically, we additionally discovered that our respondents bridged cultural and language barriers, even when lacking those strengths. In this case, we found that they use another, very different set of capabilities and motivations. To signal this antagonism to the above-described strengths, we label those as weaknesses. In our interviews, we became aware that prior to interviews, our respondents had thought very deeply about their role as multiculturals/multilinguals. These thought processes included their own perceived weaknesses in these roles to a substantial degree. This became especially evident for respondents who perceived themselves as not fully multicultural or multilingual. They shared certain trigger moments from the past that made them acutely aware of their weaknesses. Through self-reflection as well as learning and coping, they developed a certain capability that is very different from the strength-based capabilities, namely a sensitivity to interpret situations of cultural and language barriers. Combined with an empathetic motivation, as opposed to an externally requested or a willingness to share expertise, they ultimately are also able to bridge cultural and language barriers, but do so with a more same-level approach as opposed to topdown. To indicate this more egalitarian role, we label them as cultural facilitator and respectively language facilitator. We elaborate on these steps next.

Antecedents to weakness-based cross-cultural and cross-lingual bridging. We found the antecedents to weakness-based bridging significantly more complex than the antecedents to strength-based bridging, which all revolved around multicultural or multilingual identification. Specifically, based on our findings, we established three inter-related antecedents including: (1) awareness of one's own weaknesses, (2) reflections about one's own weaknesses, and (3) learning and coping. Although we present them as three consecutive steps, not all interviewees described all three steps in detail. Tables 2 and 3 offer, among other, additional illustrations of the antecedents.

For the awareness of one's own weaknesses, although our interviewees often felt that others looked at them as 'perfect multiculturals' or 'perfect multilinguals', they themselves were significantly more doubtful, noticing their own weaknesses. This awareness often

emerged during what we call trigger moments, which occurred when our respondents did not meet others' expectations about their multiculturalism or multilingualism, or when they themselves experienced cultural or language barriers.

For example, the following quote shows how a Spanish-German, who was raised in Spain but who was perfectly bilingual due to his upbringing with German parents and in a German school and now works in Germany, noticed a reaction from his German supervisor that his behavior was still very much Spanish and that he was apparently not entirely multicultural.

After I had been in the team for about a month, my [German] supervisor offered me the

“Du” [the informal way to say ‘you’]. So, the next time I came into a meeting room, I said hello to him and gave him a pat on his back. I get along well with him, but he seemed taken aback by this informality. In Spain, relationships are more informal, you also talk to your professors on a first name basis and you are on friendly terms with people much sooner. So, I noticed that I had a different upbringing. And you see the cultural difference, even though I speak German like a native speaker. [P65: C: Spa, Ger; L: Spa, Ger, BUS-E]

Although his multilingualism qualified him to bridge linguistic barriers, he perceived himself to have weaknesses regarding his multiculturalism. These trigger moments of not meeting others' cultural expectations made multiculturals aware of their weaknesses. This awareness was not limited to culture-specific skills but also extended to culture-general ones. For example, a colleague asked a multicultural why someone from an entirely different culture was never on time, and the multicultural realized that she did not have the specific knowledge to explain this phenomenon other than saying that all cultures are different (i.e., a different perception of time, Hampden-Turner and Trompenaars 1997).

Awareness of one's own multicultural weaknesses could also result from experiences with one's own cultural barriers. Many shared that they had a hard time fully understanding individuals from one of their own cultures. In most cases, these were second generation multiculturals. They had learned from their parents about the cultural traditions from the country their parents immigrated from, but these cultural traditions related mostly to family contexts.

Regarding other social contexts, they often lacked exposure to this culture.

Sometimes it's hard for me to fully comprehend my Korean colleagues because I didn't grow up entirely like them. I grew up in a German school system, with German friends, and the way they work is different, so sometimes it's difficult to understand where they're coming from in work situations. [P 104, Ger-Kor; L: Ger, Kor, Bus-E]

Although cultural frame switching suggests that multiculturals can fully switch from one cultural frame to another (Benet-Martínez et al., 2002), our findings suggest that reality is

much more nuanced and that multiculturals often do not perceive themselves as entirely culturally fluent in moving between cultures with which they are meant to be fully familiar.

What we described above about not meeting other's expectations or experiencing barriers regarding multiculturalism also occurred regarding multilingualism. Multiculturals with limited multilingual skills shared how others expect them to be fully multilingual, as soon as they learned our respondents' multicultural background. One German-Sri-Lankan multicultural predominantly spoke German and had learned English only at school. She ranked her English skills as not being superior to other German high school graduates, but her supervisor and colleagues still expected her to speak English on a native level, expectations she could not fulfill.

Sometimes, people over-interpret a bicultural background. I often hear something like

'Oh, then you speak English perfectly', or 'you must speak Sinhala fluently', and that is simply not the case. [...] Yesterday, a colleague of mine had the task to translate something into English. Another colleague told her 'Just ask [OWN NAME], she is fluent', but she did not even know how my English is. I guess she just assumed that. [P26: C: Ger, Sri; L: Ger, BUS-E]

Other multilinguals, who had a high degree of lexical proficiency (i.e., knowing the words), syntactical proficiency (i.e., knowing the grammar) and phonetic proficiency (i.e., knowing the pronunciation) in one (or more) of their languages, still often lacked pragmatic language skills, a problem that third parties did not grasp. Speech pragmatics is a concept of linguistics referring to how speech is used to create specific meaning in particular contexts (e.g., how to agree, to disagree, to criticize, to request something, etc.) (Pütz & Neff-van Aertselaer,

2008). As such, speech pragmatics is about culture-specific ways of speaking and can even differ between countries sharing the same language. A Spanish-German participant explained this with regard to his Mexican and Spanish colleagues.

I have way more misunderstandings with my Mexican project team colleagues than with my Spanish colleagues. The Mexicans use different words and expressions, and they address each other with *usted* instead of *tú* [the formal respectively informal way to say 'you']. I have the impression that I often don't measure up to their expectations as to how I speak to them. [P9, Ger, Spa L: Ger, Spa, Bus-E]

Language barriers arose frequently for multilinguals, especially when conversing with native speakers of one of their own languages, as the following Irish-German explains:

I arrived there [England] and I had the feeling I can't speak English anymore. My own English sounded so German in my ears. I had issues structuring sentences. [...] I felt so stupid. It took quite some time to overcome my anxiety. [P53 Ger-Irish; L: Ger, Eng]

Although research has pointed out that language barriers can lead to anxiety for individuals having to speak a foreign language (Aichhorn & Puck, 2017b; Tenzer et al., 2014), our findings show that even multiculturals can experience anxiety, if they do not fully master the language that goes along with a culture with which they are familiar.

Awareness of one's own multicultural and multilingual weaknesses has led most of our respondents to ample reflections about these weaknesses that accompanied them throughout much of their lives. As such, during our interviews, they were able to specify their feelings about their weaknesses in great detail, such as frustration or anxiety; they could explain what those feelings meant for their identification with multiculturalism and multilingualism; and, they could recount how they already had analyzed what it meant to them to be different, as this GermanIndian respondent living in Germany shares:

You are permanently trying to justify or understand yourself. Why can't I relate to this or that, what do they want now? You want to know more, hence, self-reflection is as a matter of course necessary for a bicultural person to find your way in life and to build your identity. It is a strong identity-building momentum. [P15: C: Ger, Ind; L: Ger, Eng]

Often this reflection included self-criticism to a substantial degree, especially with regard to weaknesses of language proficiency. Our participants often felt shameful or thought the reason for a barrier was entirely on their side. The following interviewee was Indian, spoke English,

Hindu and Telugu, and worked in Germany:

I tend to speak [English] the Indian way and my colleagues have difficulties understanding me, because they ask me over and over again "Excuse me?", "Could you repeat, please?" When people don't understand me, I tend to think that there is something wrong with me. [P59 Ind; L: Eng, Hind, Tel]

Although multicultural and multilingual capabilities such as cultural frame switching, code-switching or an effortless communication in multiple languages are characterized by high levels of automaticity (Benet-Martínez et al., 2002; Gardner, 2007), our respondents, who struggled with their weaknesses, questioned their automatic reactions to cultural and linguistic cues. However, such reflections are a necessary action to learn from experiences, develop additional frames of reference and improve future actions (Argyris & Schoen, 1978; Boud, Keogh, & Walker, 1985; Fiol & Lyles, 1985; Hibbert, 2012). This brings us to the next step, learning and coping based on reflection.

Our findings suggest that most respondents could transform their reflections about their own weaknesses into valuable learning and coping experiences. This is in line with previous research, which suggests that individuals perceiving a disconfirmation of expectations create an opportunity to learn and further develop cross-cultural capabilities (Rosenblatt, Worthley, &

Macnab, 2013). Our interviewees shared many instances in which they learned and coped from reflections about their own multicultural and multilingual weaknesses. This form of learning was very different in character than the gradual, unwitting and natural socialization processes through which multiculturals acquire their strength-based capabilities. Here the learning process is much more critical-incident based, reflective and self-critical. Based on the narrations of our interviewees, we were able to specify two mechanisms of learning and coping that were related to multicultural weaknesses: (a) extending their own cultural understanding through awareness and reflection and (b) speaking on purpose with a foreign accent to avoid the emergence of unrealistic expectations. The first mechanism is more closely related to learning, and the other two have a stronger coping quality.

Regarding the first, our respondents actively observed people and situations in the cultures with which they were less familiar, to better understand the cultural contexts and to set themselves up for successful interactions, as the following respondent who came to Germany from Russia at a young age explains:

I always had to observe more. What do the others do. And, I take these observations with me. They are a part of me. How do others behave. Perhaps because of that I have had more opportunities to observe others how they behave. You learn a lot from that. When you observe something from the outside, you can reflect. And then you understand more. [P60: C: Ger, Rus; L: Ger, Rus, BUS-E]

Although many participants used this extended understanding to adapt their behavior if required, some developed more elaborate strategies. In particular, those who had a high language proficiency but were weary to run into situations in which they would not meet others' expectations of culturally appropriate behavior, spoke with a foreign accent to lower such expectations. The following quote comes from a participant whose parents are Chinese and moved from China to Germany when he was one year old, thus he grew up in Germany.

You know, maybe it's funny, but one problem is that I do not have any accent in Chinese, but the way I say things is sometimes not appropriate or seems rude. For example, when I was in China, my boss told me to call our supplier to ask something. So, I called, and instead of speaking my accent-free Chinese, I spoke in very simple sentences, with a bit of a foreign accent, to avoid that the supplier puts me into a Chinese category and then thinks that I'm not polite. [P41: C: Ger, Chin; L: Ger, Mand, BUS-E]

Regarding multilingual weaknesses, we found two ways that our respondents engaged in learning and coping: (a) asking for help and (b) being upfront about language weaknesses.

When asking for help in expressive language (i.e., something they produce, such as writing an email or giving an oral presentation), our respondents were sensitive enough to realize their weaknesses and typically reached out to a trusted colleague to double-check their

language, as this Dutch participant who works in Germany and speaks German fairly well but finds it hard to write error-free explains:

If I write something important, or if I can't leave any room for interpretation, I typically ask one of my colleagues if they can review what I've written. [P 50, NL, L: Dutch, Ger, Bus-E, Swe]

Similarly, when needing help in receptive language (i.e., something they try to understand, such as reading an email or listening in a meeting), our interviewees asked others to summarize or translate. The following French worked in a French-German project and spoke and understood German well because she had studied in Germany but still commented:

When I receive a text in French then I am looking for help from my French colleagues who have better German language skills than me. Then we translate it together. [P45 Fre; L: Fre, Ger, Bus-E]

Respondents proactively avoided linguistic expectations that were too high by being explicit about their multilingual weaknesses. In this way, they encouraged others to anticipate misunderstandings so that they could watch out for them. The following Benin-Canadian respondent worked in a highly multinational team in an international project in Ethiopia:

I always make sure that people get that English is not my first language. And, depending on the team, I would really force my accent to make clear that English is not my first language. I say, sometimes that might cause a problem but if it does, just bring it to my attention, so that it's not such a big problem in the team. I just make sure that point is clear from the beginning. [P37, Ben, Cad, L: Fre, Eng, Mina]

Regarding multicultural weaknesses, we did not find any evidence that respondents either asked others for help with their weaknesses or were particularly explicit about them. This could be because acting culturally appropriately is more complex than using language correctly, and so it would be harder to have someone double-check your behavior or expect misunderstandings to occur on this basis alone. Another possibility is that cultural weaknesses can be more hidden than language weaknesses, leading to more concealed coping strategies.

Overall, our respondents were able to turn their multicultural and multilingual weaknesses into valuable learning and coping experiences. They were in the position to develop unique capabilities and motivations to help others in similar situations. We elaborate on these in the next section.

Capabilities and motivations for weakness-based cross-cultural and cross-lingual bridging. The previous section on antecedents has shown that our respondents are aware of their own multicultural or multilingual weaknesses, upon which they reflected and transformed their reflections into learning experiences and coping mechanisms. We understood from our interviewees that these processes formed the basis from which they developed certain

capabilities and motivations to ultimately engage in activities of bridging cultural or language barriers. These weakness-based bridging capabilities and motivations were substantively different from the strength-based capabilities and motivations described above. However, we found strong similarities between capabilities and motivations related to multicultural weaknesses on one side and multilingual weaknesses on the other. As a key capability, we established that our respondents developed a high sensitivity for cultural or language barriers.

We consider this an affective capability compared to the cognitive strength-based capabilities.

The sensitivity for cultural or language barriers enabled them to take the perspective of those people around them who were confronted with a cultural or language barrier. The following Senegalese participant who has worked in the US and now works in Canada explains how she relates to others in situations of cultural barriers based on her own experiences.

When you're so used to being in a new environment and having to pick up what's going on, you develop this capability of kind of standing back and just kind of seeing what's going on. [...] So, when you are in a setting where, yes, now you're part of the majority and then there comes a new team member who not only is new but he's also from another country, maybe then I'm more sensitive to, you know, what they might be going through. I think it maybe has to do with just having lived the discomfort or the unsettling experience of not being part of the majority. [P17: C: Sen; L: Wol, Fre, Eng]

Similarly, an Australian-German respondent with low German language skills working in Germany describes how she could empathize with someone having a language barrier, as she had previously encountered similar incidents.

I think, having my experience, learning another language, not always understanding what people say and being on the receiving end of that communication, sometimes gives you the feeling like you're lost in a conversation or you kind of are a bit frustrated because you don't know what's happening. And, I can really put myself in the other person's situation and think, okay, how would this be making me feel right now if I, you know, could not be speaking my native language. [P2: C: Aus, Ger; L: Eng, Ger]

Although strength-based bridging is based on the cognitive abilities of understanding, frame switching, code switching and effortless communication, sensitivity expressed by respondents with weaknesses revolves more around empathy for persons being confronted with cultural or linguistic barriers, and sharing their actual feelings of anxiety, frustration and confusion. Respondents could relate these emotions to how they themselves had felt in similar situations, which helped them to interpret the situation correctly.

Regarding multiculturals' and multilinguals' motivation to engage in bridging activities, we found that their main drive is their empathy for difficult situations of others whom they wish

to assist. Because they had gone through similar experiences when confronting cultural or language barriers or not meeting others' expectations, they felt empathetic with others' feelings of anxiety, frustration and confusion, and felt the urge to help. As such, this empathy-based motivation is quite different from the willingness to share expertise, which we established for strength-based bridging. One respondent shared her motivation that came from her own experiences with cultural barriers when she moved to Germany from Russia:

I have an understanding for that person. When I meet someone who is new to our culture and struggling, I have the desire to take their hand and walk with them. I can relate to them, because I know how difficult it is, because I was that person once. [P85, Rus, Ger; L: Rus, Ger, Bus-E]

Similarly, a French-Canadian respondent explained how he was reminded of situations, when he was still learning Spanish.

My feeling is that everybody who has learned another language knows the feeling, how shy someone can be. So, you can understand that. When I was in Chile, I had a hard time understanding them, when I first arrived. I liked when someone spoke a bit slower to me (laughs) to explain what it means, so that's what I'm doing now as well. [P32 Can; L: Fre, Eng, Spa]

Although the empathetic interest to help others could be interpreted as a sign of motivational cultural intelligence, we would be reluctant to equate our results with it. According to the definition of motivational cultural intelligence, actors should demonstrate confidence to behave effectively in multicultural situations (Ang et al., 2007; Chen, Kirkman, Kim, Farh, & Tangirala, 2010), an attribute these respondents clearly did not display. In our study, motivation could be attributed to an opposite phenomenon: the experience of not being able to behave effectively in multicultural or multilingual situations. By contrast, our respondents displayed the ability to empathize with others and the willingness to help them in what limited way was at their disposal. This leads us to the last step, the actual enactment of bridging.

Enactment of weakness-based cross-cultural and cross-lingual bridging. Compared to the top-down approach of strength-based bridging, bridging activities grounded in weaknesses are characterized much more by egalitarian processes between the bridging agents and those whom they assist. This is mainly due to the fact that respondents do not necessarily have the cultural or linguistic knowledge- and understanding-based capabilities needed to teach others in a top-down fashion, in the way cultural teachers or language teachers are able to do. Because we found the ultimate bridging approach to differ for cross-cultural and cross-lingual bridging, we present them separately in the following.

We first present the weakness-based bridging enactment of cultural barriers by what we label the cultural facilitator. Our data show that our respondents used their awareness about their own multicultural weaknesses and their resulting capabilities and motivations to bridge

cultural barriers through two mechanisms: (a) encouraging cultural learning and (b) posing reflection questions. When encouraging others to learn about cultures, gain knowledge and a deeper understanding to overcome cultural barriers, our interviewees often related their encouragement to their own learning experiences from the past. Because they had found ways to learn and cope when encountering cultural barriers, they encouraged others to do the same. The following participant encouraged others to learn about culture-specific norms, following her interest in learning about her own Greek culture.

Some monoculturals I worked with did not understand why our South Korean colleague would make a savory meal for breakfast. So, I told them, just be open or ask her, what are common practices in Korea, and so on. I think I have a higher awareness and interest, because I still get surprised by my own [Greek] culture. (P77: C: Ger, Gre; L: Ger, BUS-E, Gre)

Our respondents also used a more inquisitive method and thoughtfully-posed reflection questions. Given that they contemplated a lot about their own multicultural weaknesses, they also wanted others to reflect on their problems as a starting point to learn and develop coping mechanisms. By asking reflection questions, they effectively encouraged others to learn about themselves (not so much about other cultures they were facing barriers with). One GermanJapanese respondent, who had previously shared many weaknesses of her own with regard to her Japanese culture and language in the interview, told us how she helped a German colleague overcome her problems in working with a Japanese colleague.

I asked her why she had a problem with our colleague and where her reluctance came from. And I dugged deeper, asked more questions. Apparently, there was once a problem with a Japanese client, and sometimes people then lump everyone together. Luckily, we could clarify everything. [P 103, Ger, Jap; L: Ger, Bus-E, Jap]

These types of bridging activities are clearly less authoritative and knowledge-based than the strength-based bridging mechanisms presented earlier. Others are not taught about culturespecific behaviors and culture-general differences; instead, parallels to their own previous problems are drawn and shared with those experiencing cultural barriers. Bridging happens more based on discussion rather than presenting matter-of-fact solutions. Those with multicultural weaknesses draw on their own past experiences and develop sensitivities that allow them to bridge, even though they may not have the authoritative multicultural strengths, such as a profound cultural understanding. Instead of engaging in top-down teaching modes, their bridging approach is more about interaction with the person they are helping, asking more tentative questions and receiving and discussing answers, which all happens more on the same level. To illustrate the difference with the strength-based, more authoritative top-down approach of the cultural teacher, we refer in the context of weakness-based cultural bridging to the role of a cultural facilitator.

Regarding the weakness-based bridging enactment of language barriers by what we label the language teacher, we distinguish between: investigating meaning, encouraging language choice, and demonstrating tolerance.

First, when they sensed a language barrier between speakers and listeners, for example in a team meeting, our respondents used a technique of investigating meaning to help speakers rephrase and express their thoughts and ensure listeners understand what is said. Typically, our respondents mentioned how this created a collaborative and pleasant atmosphere, like this

Canadian-Mexican who struggled with her Spanish skills in the professional context.

I think because I also had issues in the past of being understood, I try and see where they are going with what they are saying. When she is explaining something and I do not understand, I kind of know what questions to ask or what I think she says and I try to understand it in a different way. But she does not get frustrated with me because I do not get frustrated with her. [P27, Cad, Mex; L: Eng, Spa]

Second, when our respondents were in the minority of not speaking a certain language, they accepted and even encouraged their own disadvantage by encouraging language choice. When respondents with multilingual weaknesses noticed language difficulties of others due to their high sensitivity to interpret situations of language barriers, they encouraged them to speak in the language they felt most comfortable, even if our respondent could not understand everything (or anything) they were saying. This could happen in a meeting in which most (or all) colleagues other than our respondent spoke one language, but they typically communicated in the shared working language. When participants struggled to express themselves, respondents would take the burden on their side and encourage people to speak the language with which they feel most comfortable. Thus, our respondents helped eliminate language barriers for them, although it meant an extra step for them to find out the exact meaning of what had been discussed.

If I see there are problems [in meetings] I just ask them to communicate in German, put like a burden on my side, try to understand what they say. Because most of the time I do understand what they say. Or if it's with e-mail contacts then I really don't mind because then I have time to look up words for example, that's fine. [P11, Ira, Brit, L: Far, Eng, Dut, Ger]

Third, multilinguals demonstrated tolerance towards language mistakes of others. They related this to their own weaknesses of making mistakes in their languages, which made them aware of the problems that not fully proficient speakers of a language encounter. This type of enactment draws from their experience to face language barriers themselves, which turned into a high sensitivity to notice language barriers and the empathetic motivation to bridge. By demonstrating tolerance, multilinguals relieved pressure for the person facing a language barrier.

The following German-Bosnian respondent shared how she faced painful situations when speaking Serbo-Croatian on her visits to Bosnia and Herzegovina. This made her tolerant toward people who have difficulties speaking languages she is fluent in:

I'm gentle on people who don't speak German or English very well, because I know how uncomfortable or painful it can be when someone is making fun of you, because your pronunciation is not how it's supposed to be or so. [P 109 Ger, Bos; Bus-E L: Ger, S-Croa, Bus-E]

Similar to the case of weakness-based bridging of cultural barriers, these mechanisms show that language-specific skills are not necessarily required for the bridging of language barriers. Rather, bridging mechanisms can also be built on weakness-based language capabilities. Being sensitive to interpret situations of language barriers combined with an empathy-based motivation to help others can also be successful to bridge language barriers.

DISCUSSION

We developed a model, depicted in Figure 2, that illustrates why multiculturals and multilinguals develop certain capabilities not only based on their strengths but also their weaknesses, what motivates them to use them, and how they enact them to bridge cultural and language barriers at work.

----- Insert Figure 2 about here

Theoretical Implications

Our study provides three theoretical contributions to the management literature. First, with our explorative, inductive approach, we uncovered a paradoxical and important finding:

multiculturals and multilinguals not only use strength-based but also weakness-based bridging. We consider this of major significance, as this finding alone opens up research in an entirely new direction, possibly going far beyond our context of bridging, in that positive outcomes (in our case, overcoming cultural and language barriers) can arise not only from strengths, but also from weaknesses. As such, we support research suggesting that failures or imperfections can be a source of learning and development (Argyris, 1993).

This adds a new perspective to the prevalent strength-based view of multiculturals and (implicitly) multilinguals as perfectly culturally and linguistically fluent, by valuing and operationalizing imperfect knowledge, internalization, and/or identification of multiple cultures and languages. Our model recognizes and appreciates the natural occurrence of negative events in life that 'imperfect' multiculturals and multilinguals go through and, instead of neglecting these, focuses on positive outcomes that can result from ensuing learning processes (Fineman, 2006). At the same time, the way organizational culture evaluates and supports multiculturals

and multilinguals will reinforce or hinder their learning and coping (Dahl & Werr, 2021). If an organizational culture operates using a growth mindset that values errors as learning opportunities, it will support learning and coping processes. However, if an organizational culture uses a fixed mindset that sees talent and abilities as stable and not easy to develop, it will hinder motivation to engage in bridging activities (Dahl & Werr, 2021). Thus, our theory also adds to the broader stream of research criticizing an approach to management that focuses exclusively on strengths and calls instead for a balanced view allowing negative experiences and emotions as opportunities for learning and development (Argyris, 1993; Fineman, 2006).

We also detected important parallels between multiculturals' and multilinguals' characteristics regarding empathy, which we found to be key to weakness-based motivation. Scholars have already suggested conceptually that multiculturals are particularly empathetic when it comes to confronting cultural obstacles (Brannen et al., 2009); and, that multiculturals comfort team members in providing empathetic support (Backmann et al., 2020). Our findings not only support this view but also provide clear evidence that the source of empathy is in the perception of weaknesses, and that multilinguals also demonstrate such empathy. Empathetic motivation in weakness-based bridging is a new concept for the literature and distinct from the more pragmatic motivation to bridge based on strengths.

In the context of weakness-based bridging, we have also highlighted the importance of reflection in overcoming cultural and language barriers. Not only do individuals develop empathy through reflection, they also use the contemplation about their own experience with cultural or language weaknesses to bridge culture and language barriers for others. As a key component for cognitive development, including an increased ability to use and combine knowledge and experiences for future behavior (Lindh & Thorgren, 2015), we demonstrated that reflection on perceived weaknesses to learn from them and cope plays a crucial role for individuals dealing with multicultural and multilingual contexts.

Further, our findings help to conceptually distinguish between multiculturalism and multilingualism. Possessing multilingual fluency had previously been defined as one key aspect of multicultural competency (Chen et al., 2008, 2016). Thus, individuals having high multicultural strengths could raise expectations for others to be multilingual in respective languages, expectations which, however, they often cannot meet. The same argument applies in reverse in that perfect language abilities do not necessarily imply a high level of cultural competency, and any such expectations could be erroneous. The idea that multicultural competence and multilingual fluency always coexist, without considering that individuals could be multicultural (multilingual) without being multilingual (multicultural), is an unwarranted simplification that does not consider that individuals can have considerable weaknesses in either.

Our second contribution lies in showing how and why multiculturals' and multilinguals' bridging activities unfold. Although certain cross-cultural competencies can lead to effective bridging activities, our inductive theory making goes beyond describing certain relevant competencies (Hong & Minbaeva, 2022) or enactment of bridging (Backmann et al., 2020) and extends these by developing a model. More specifically, we provide evidence for relevant initial factors (i.e., antecedents), how on the basis of these antecedents multiculturals and multilinguals develop specific competencies (i.e., capabilities), why they use them to bridge cultural and language barriers (i.e., motivation), and how they finally implement their capabilities to arrive at positive outcomes (i.e., enactment). Even if we consider only strength-based bridging, which has been discussed in the literature (Jang, 2017; Kane & Levina, 2017), this sheds a new and much more comprehensive and multi-faceted light on multiculturals and multilinguals as employees. The differentiation of multilingualism and multiculturalism also allows us to ultimately refine bridging activities into those relevant to the problem at hand (i.e., if language or cultural barriers are present), instead of treating language and cultural barriers as similar (Backmann et al., 2020).

Considering only strength-based bridging activities, we have shown that bridging of cultural barriers is a far more nuanced and complex undertaking than studies have shown, bridging of language barriers has to be considered in its own right, and there are ultimately certain parallels but also differences in the bridging of cultural and language barriers. Although the overall process is the same for both multiculturalism and multilingualism (i.e., steps going from antecedents to capabilities and motivations and from those to bridging enactment), the relevant specifics for each step differ. This shows the importance of distinguishing between multiculturalism and multilingualism but also integrating both concepts at an operational level.

There has also been a steady increase in research on multiculturals in general, and their role as bridge individuals in particular, over the last decade. However, these studies focused on what we call capabilities from multicultural strengths, such as intercultural skills (Fitzsimmons et al., 2017), the ability to switch cultural frames to respond culturally appropriately to external cues (Hanek et al., 2014; Hong et al., 2000), knowledge of multiple cultures (Pekerti & Thomas, 2016), and culture-based creativity (Hong & Minbaeva, 2022). We established that the capabilities both multiculturals and multilinguals use when bridging based on strengths are cognitive (i.e., comprehension of cultural differences, cultural frame switching, effortlessly communicating in multiple languages, and code-switching), and the capabilities they develop based on their weaknesses are affective (i.e., sensitivity for cultural and language barriers.) We add to this by introducing the importance of motivational aspects for multiculturals engaging in bridging behavior, and the influence of multicultural identification on motivation.

Ultimately, by combining our conceptualization of distinguishing multiculturals and multilinguals with our differentiation of strength- and weakness-based bridging to develop the bridging model, we arrived at four different types of bridge individuals. As such, we contribute

to the literature on bridge individuals, which has so far not distinguished between different roles (Sekiguchi, 2016). We are able to not only describe top-down, authoritative and knowledgebased cultural teacher and language teacher but also the cultural facilitator and language facilitator, who engage with colleagues they attempt to assist on the same level, posing reflection questions and encouraging cultural learning. We do not consider these roles as firmly attached to single individuals. To the contrary, in different situations and contexts, multiculturals and multilinguals can take on different roles.

Our third contribution lies in introducing multilingualism on an individual level in management research, differentiating it from both the study of multiculturalism at the individual level and an investigation of native and non-native speakers (Neeley, 2013; Neeley & Dumas, 2016). In some ways, our findings reflect research disciplines other than management. For example, research in linguistics and psychology assesses individuals' multilingualism not only based on fluency, but also based on frequency of use (Bialystok, 2001; Grosjean, 2014). Grosjean (2014) views multilinguals not as several monolinguals in one person, but as having an integrated mind and constantly drawing on the entire linguistic repertoire. This adds a new perspective for research on multilinguals, allowing for the paradoxical co-existence of both multilingual strengths and weaknesses.

Thus, we challenge the view that individuals must possess specific language skills to bridge language barriers (Barner-Rasmussen et al., 2014). Individuals can also engage in bridging behavior when language skills are too low to translate precisely, if they have developed high sensitivity toward language barriers. As such, we disagree with the assumption that multilinguals speak multiple languages perfectly, an assumption that has led to labeling multilinguals as natural bridge individuals, language nodes, or translation machines (Harzing et al., 2011; Marschan-Piekkari et al., 1999a; Vaara et al., 2005).

The more creative, and less direct, weakness-based bridging enactment of investigating meaning, encouraging language choice, and demonstrating tolerance add new ways to overcome language barriers. We are, to our knowledge, the first not to take strengths in multilingualism for granted. We also show that in most instances multilinguals themselves reject the notion of being either entirely fluent or not. Even with objectively high proficiency levels, they still face boundaries that they perceive as multilingual weaknesses. This reflects second-language acquisition research, acknowledging that proficiency levels differ from elemental to automaticity (Gardner, 2007), and that development of speech pragmatics in an additional language needs other learning activities and more interaction than for developing grammatical competence

(Bardovi-Harlig, 2013). Following Roth, Cheng, Henisz, and Swaminathan (2009) and Vora et al. (2019), management research on multilinguals can only benefit from drawing on

different disciplines to generate a more informed view of multilingual individuals. We provide a nuanced look at multilingual employees to unleash their full potential and their challenges.

Managerial Implications

Our study has several managerial implications. First, because we suggest that cultural and language barriers can be an opportunity to learn and develop multicultural and multilingual capabilities, managers in multicultural and/or multilingual settings should offer space for reflection, such that employees can develop and use these skills. Managers can encourage such reflections and open discussion around multicultural and multilingual capabilities to overcome cultural and language barriers, or as part of after-action reviews upon finishing a project.

Second, our differentiated view of multiculturalism and multilingualism shows that individuals can be stronger in one area than the other. Some may feature many multicultural competencies but have difficulties in a particular language. Others could be fluent in more than one language, but have limited multicultural fluency. Managers should have direct conversations with multicultural and multilingual subordinates and team members to learn about their skill and comfort level in their cultures and languages, so that multiculturals and multilinguals are not under too much pressure to live up to unrealistic expectations of their strength-based capabilities.

Third, it should be understood that a capacity to bridge cultural and language barriers is not limited to strength-based capabilities. Managers should therefore be open to several types of bridging between individuals and also consider that – paradoxically – weaknesses can be a source of such activities. In this context, managers should also communicate that the repertoire of bridging activities is not just limited to (hard) knowledge- and proficiency-based ones, such as explaining culture-specific and -general behavior or translating but also include more (soft) accompanying activities such as encouraging cultural learning, posing reflection questions, investigating meaning, encouraging language choice, and demonstrating tolerance. The four roles of cultural teacher, language teacher, cultural facilitator and language facilitator that we have developed should indicate the full spectrum of bridging activities that is available. Managers can present these roles to their team members to give them ideas for contributing to bridging.

Fourth, managers should evaluate indicators that employees could be multicultural or multilingual with caution, as this could create expectations that they may not meet. Consequently, surface-level characteristics, such as a foreign name or a different ethnic appearance, do not mean that individuals are multicultural and multilingual. Even if people consider themselves multicultural and/or multilingual, the question remains for each of both domains to what degree. Although perceived weaknesses can also lead to constructive outcomes, they need reflection to learn and cope and reflection necessitates enough space that should not be constrained by too much pressure through unrealistic expectations.

Finally, cultural and language training for employees should include awareness training in detecting and addressing cultural and linguistic barriers. This can be implemented via critical incidents, as these can help individuals to engage in the process of reflection and thus further learning and cognitive development (Lindh & Thorgren, 2016).

Limitations and Suggestions for Future Research

Although we provide important insights into the positive but also the negative lived experiences of multiculturals and multilinguals and their contributions to multicultural and multilingual bridging, as with all research ours is not without limitations. First, although our respondents worked in a wide variety of industries and functions, and represented a range of ages, tenure, and hierarchical levels, our sample consists of a disproportionately high number of individuals who considered German to be one of their cultures and/or languages. This was largely due to the background and physical location of the interviewers. One could argue that this overrepresentation of one country influenced the outcomes of our investigation (Barkema et al., 2015). Although we cannot exclude this possibility completely, our interviewees represented 57 national cultures and 40 languages, and we were unable to detect any culture- or languagespecific particularities in our findings. On this basis, we assume to have described rather universally valid phenomena of cultural and linguistic bridging activities. However, future research, possibly in form of quantitative testing, could focus on differences in cultural and linguistic bridging activities.

Second, as all respondents worked in international settings, most spoke English on a regular basis, regardless of their native language(s). Thus, although our data consisted of many multicultural-multilinguals and a large number of monoculturals-multilinguals, we had a relatively small number of truly multiculturals-monolinguals. These interviewees were mainly native English speakers who had not learned another language to a notable degree of fluency. Although one could argue that English-speaking multiculturals with zero knowledge of another language are the perfect interviewees to control for language when examining multicultural strengths and weaknesses and their impact on bridging, we should emphasize that this case is probably extremely rare, given that multiculturalism often goes along with at least some degree of proficiency in other language(s) (see also Barner-Rasmussen et al., 2014; Fitzsimmons et al., 2017). Our study thus supports conceptualizing multiculturals and multilinguals more by way of varying degrees instead of oversimplified binary classifications.

Third, our semi-structured interview approach provided an opportunity to probe in-depth multicultural and multilingual weaknesses. Although these weaknesses proved to be essential for our theory building, as we found not only strengths but also weaknesses to be a source of cultural and linguistic bridging activities, we argue that the focus on weaknesses should also influence future research in a wider sense. We offered a very nuanced picture, showing that being entirely monocultural/monolingual or fully multicultural/multilingual are

rare extremes on a wide spectrum, which provides much scope for differentiation regarding proficiency levels and weaknesses. Hence, future studies should be divorced from the still prevalent binary conception of mono- vs. multiculturals and -linguals. Our study has equally shown that culture and language, though closely interlinked, are nevertheless distinct concepts. From this follows that future research on multiculturalism should stop assuming multilingual skills to be an outcome or a component of multicultural competence.

As with any study based on interviews, we relied on retrospective interpretations of our respondents. Using only this approach, we established the entire bridging process, going from antecedents to enactment, and there could be many years between these phases. In addition, we also uncovered internal processes, such as motivations, through interviews. Regarding the enactment of bridging, observations could, however, provide valuable additional information. Such observations could cover the effectiveness of certain bridging activities, a topic we considered outside the scope of our analysis. Observations could also address the potential danger of social desirability in interviews, as respondents could have presented their activities in an overly positive light. However, for our interviews, we have less concern in this direction, as our interviewees were often highly critical of themselves regarding their (low degree of) multiculturalism and multilingualism. Without this self-criticism, we would not have been able to establish the concept of weakness-based bridging.

CONCLUSION

Multiculturals and multilinguals can be ideal bridge individuals in culturally and linguistically diverse contexts, paradoxically regardless of their levels of proficiency. We hope that our study has helped open the door toward a more holistic but at the same time also more differentiated and nuanced perspective on multiculturalism and multilingualism with respect to antecedents, competencies, motivations and enactments. If future research treats both as distinct concepts and, on a continuum, allowing for gradation, nuance and both strengths and weaknesses, instead of a binary variable (i.e., multiculturalism/-lingualism yes or no), we foresee many conceptual important and managerially relevant insights on this steadily increasing group of people which surely will become ever more important.

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Table 1 Represented Cultures and Languages

Culture	Frequency	Culture	Frequency	Language	Frequency	Language	Frequency
Afghan	3	Iranian	2	Afrikaans	2	Russian	13
Argentinian	3	Iraqi	1	Arabic	2	Serbo-Croatian	3
Australian	2	Irish	1	Bengali	1	Spanish	17
Austrian	1	Italian	3	Bosnian	4	Swedish	1
Barbadian	1	Japanese	6	Bulgarian	2	Swiss German	3
Beninese	1	Kazakhstani	1	Business English	106	Teluga	1
Belgian	1	Korean	6	Cantonese	3	Turkish	6
Bolivian	1	Mauritian	2	Catalan	3	Ukranian	2
Bosnian	5	Mexican	4	Creole	2	Vietnamese	6
Brazilian	3	Montenegrin	1	Croatian	6	Wolof	1
British	4	Polish	2	Czech	2	Zulu	2
Bulgarian	3	Portuguese	1	Dari-Persian	2		
Canadian	14	Romanian	3	Dutch	5		
Chilean	1	Russian	11	English	49		
Chinese	6	Senegalese	1	Farsi	3		
Colombian	1	Serbian	1	French	28		
Croatian	4	Singaporian	1	German	107		
Czech	2	Slovenian	1	Greek	2		
Dutch	4	South African	3	Hindu	5		
Egyptian	1	Spanish	8	Italian	3		
El Salvadoran	1	Sri Lankan	1	Japanese	5		
Filipino	1	Swiss	5	Korean	7		
French	7	Tunisian	1	Mandarin	8		
German	90	Turkish	5	Marathi	1		
Greek	3	US-American	11	Mina	1		
Guinean	1	Ukranian	2	Polish	3		
Hong Kongese	3	Vietnamese	5	Portuguese	7		
Hungarian	1	Yugoslavian	1	Punjabi	1		
Indian	7			Romanian	4		

Figure 1
Process of Data Analysis

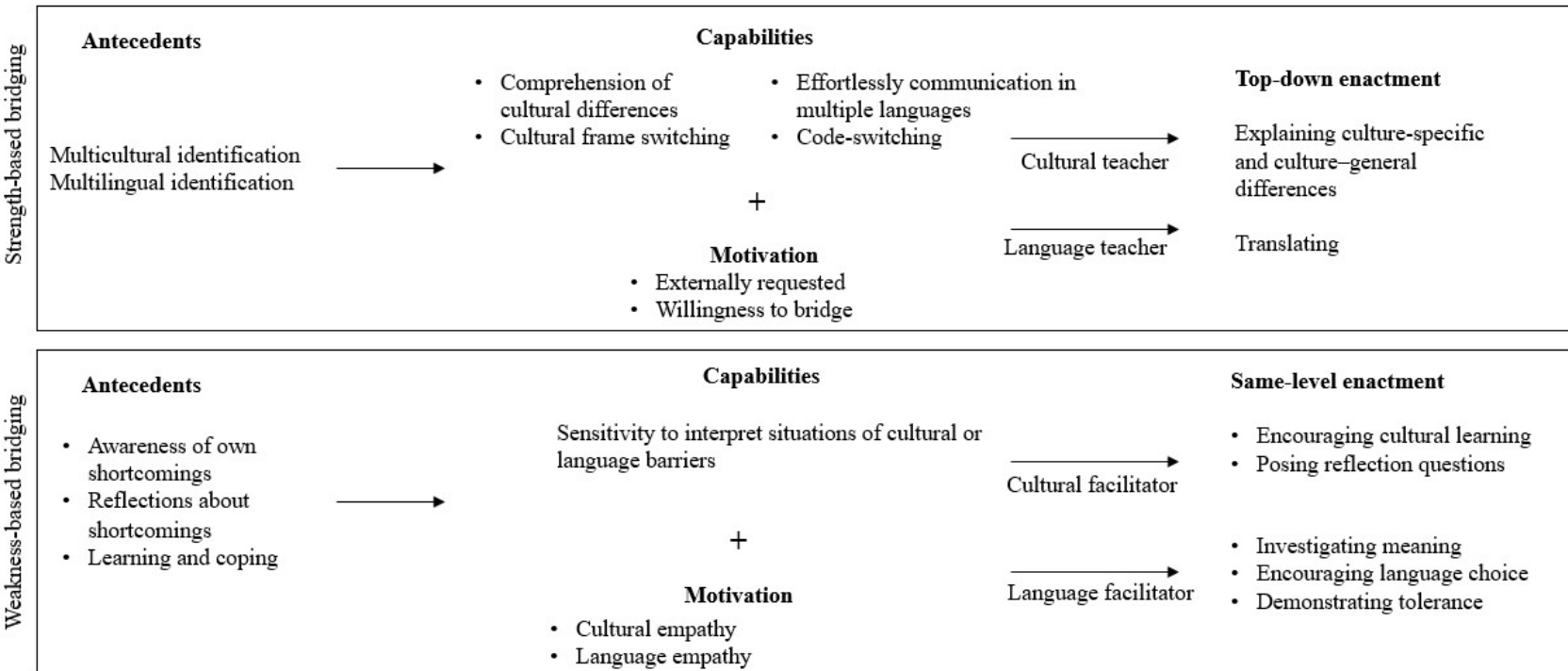
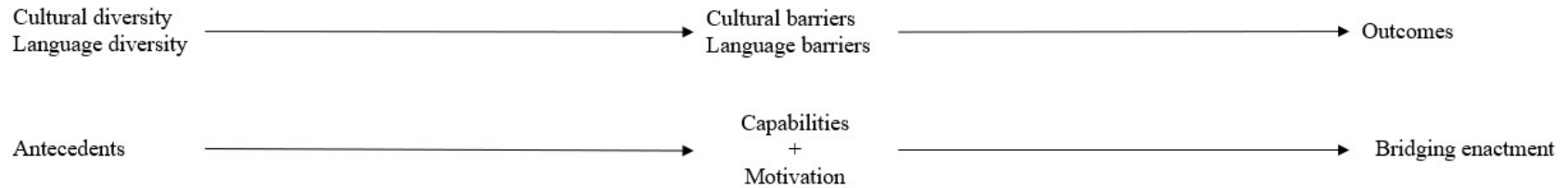
Stage	Move	Codes yielded	What did the data tell us	What was missing
1	First order coding (Corbin & Strauss, 2008)	Bridging approaches (assets): <ul style="list-style-type: none"> • Explaining culture-specific behaviour • Explaining culture-general differences • Translating and summarizing Bridging approaches (shortcomings): <ul style="list-style-type: none"> • Encouraging cultural learning • Posing cultural reflection questions • Forgiving, giving space (language) • Asking the right questions (language) • Accepting own disadvantage Capabilities (assets): <ul style="list-style-type: none"> • Culture-specific and culture-general knowledge • Ability to switch cultural frames • Effortless communication in multiple languages • Ability to code-switch Shortcomings (examples) <ul style="list-style-type: none"> • Not good enough to translate on the spot • Lack of cultural knowledge 	<ul style="list-style-type: none"> • Respondents not only bridge when they are highly multicultural or multilingual (asset-based), but also when they notably doubt one or the other (shortcoming-based) • There are various types of bridging approaches • Certain capabilities are needed for some of the bridging approaches (asset-based) 	Why can and do individuals bridge cultural (language) barriers if they have multicultural (multilingual) shortcomings? → Refining research questions
2	Constant comparison (Glaser & Strauss, 1967)	Capabilities (shortcomings): <ul style="list-style-type: none"> • Sensitivity to interpret situations of cultural barriers • Sensitivity to interpret situations of language barriers Motivation (shortcomings): <ul style="list-style-type: none"> • Driven by cultural empathy (internal) • Driven by language empathy (internal) Motivation (assets): <ul style="list-style-type: none"> • Motivated because externally requested • Motivated because of desire to help 	<ul style="list-style-type: none"> • Shortcoming-based capabilities allow them to bridge • The motivation to bridge is substantially different if asset- vs. shortcoming-based bridging occurs 	How did respondents develop their capabilities and motivation to bridge?
3	Temporal bracketing (Langley, 1999)	Antecedents (assets): <ul style="list-style-type: none"> • Deep embeddedness in multiple cultures • Deep embeddedness in multiple languages Antecedents (shortcomings): <ul style="list-style-type: none"> • Trigger moments • Reflection on trigger moments • Learning and coping 	<ul style="list-style-type: none"> • Respondents' unique experiences have an impact on their capabilities and motivation to help bridge cultural and language barriers (both for asset- and shortcoming-based bridging) • Through learning and coping from shortcoming-based trigger moments, respondents developed a repertoire of strategies that they ultimately use to bridge 	Putting the pieces together in a model to generate theory

➡ Theory generation

Iteration between data collection, data analysis and literature

Figure 2

Multiculturals' and Multilinguals' Strength-Based and Weakness-Based Bridging Process



MATERIALITY DISCLOSURE IN SUSTAINABILITY REPORTING: EVIDENCE FROM VIETNAMESE PUBLIC LISTED COMPANIES

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Abstract

Manuscript type: Research paper

Research aims: This paper aims to examine the determinants affecting companies to report material sustainability information in their annual reports.

Design/Methodology/Approach: To determine the factors influencing materiality disclosure, content analysis was conducted on the annual reports of 100 public listed companies in Viet Nam in 2021 and using the PLS-SEM method to examine the proposed relationships.

Research findings: The empirical results indicate that among the factors of the board activity, board independence, board size, company size, profitability, leverage and industry, there are 3 factors, including the board activity, board independence, board size, play a significant role in the determination of materiality disclosure. Meanwhile, other factors are insignificant predictors of materiality disclosure. The results show that many listed companies in Vietnam disclose some amount of material sustainability information. However, the level of disclosure remains relatively low.

Practitioner/policy implications: The results should be of great interest to policymakers who are concerned with formulating sustainability policies to achieve greater materiality disclosure. It also provides strategic insights to companies that board characteristics, such as board activity and board independence, influence materiality disclosure. Board members are urged to consider the importance of the reporting materiality determination process; otherwise, poor reporting may result in conflict with major stakeholder groups who do not see the material issues disclosed in the sustainability reports.

Research Limitation/Implications: The results are limited to the total study sample of 100 listed companies in Vietnam. Future researchers may expand the research sample, or can compare materiality disclosure with other countries to enrich the sustainability reporting literature.

Keywords: *Materiality Disclosure; Sustainability Reporting; Vietnamese public listed companies.*

THE IMPACT OF HOME COUNTRY CULTURAL, ADMINISTRATIVE, GEOGRAPHICAL AND ECONOMIC DISTANCE DIMENSIONS ON CSR ACTIVITIES BY MNEs IN EMERGING MARKETS,

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Abstract

This paper investigates the impact of the home country's cultural, Administrative, Geographical and Economic distance measures on the excess Corporate Social Responsibility expenditure incurred in the host countries by MNEs. Using data of MNEs in India for 2014-2020 and a Random-Effects Panel Regression, the CSR activities are impacted by these distance measures. We find that foreign shareholders have a statistically significant impact on CSR activities in Emerging markets.

Keywords: *Emerging Markets, Emerging market firms, MNEs*

INTRODUCTION

As globalisation has accelerated in the last three decades, foreign direct investment (FDI) has risen considerably. Even though, due to the COVID-19 epidemic, global FDI fell by 42% in 2020, from \$1.5 trillion in 2019 to an expected \$859 billion. According to UNCTAD's Investment Trends Monitor, in the first half of 2021, it reached an estimated \$852 billion, suggesting better than predicted rebound momentum. According to UNCTAD's World Investment Report 2021, global FDI reached more than \$2000 billion in 2016, the highest level in a decade. The growing recognition that FDI is a win-win strategy that benefits both home and host countries is the driving force behind the continued expansion of multinational companies (MNEs) abroad operations. For example, home economies benefit from market expansion, capital gains from earnings sent by abroad companies, and access to local market data. Similarly, host countries profit significantly from FDI since it aids in developing jobs, acquiring valuable foreign technology, and increasing exports, all of which boost the balance-of-payments position of local markets.

However, we must accept that some governments and academics have highlighted the negative features of MNE activities, even arguing that MNEs are one of the biggest impediments to developing-country economic growth (Chang, 2003; Dixon & Boswell, 1996a, 1996b; Perraton, 2007; Ziegler, 2005). These academics' explanations suggest various undesirable consequences. MNE activities are frequently overly energised and extravagant, and foreign enterprises aim to dominate the markets they enter, posing a threat to national sovereignty. Furthermore, increased local rivalry posed against MNEs eventually cast-offs

locally created businesses, resulting in a decline in employment. MNEs, in particular, reinvest just a tiny portion of their income in local economies, sapping the benefits of both capital inflows and the balance of payments.

One of the most effective strategies to reduce FDI scepticism is for MNEs in foreign markets to fulfil various corporate social responsibilities (CSR) (Galbreath, 2009; Mishra & Suar, 2010). Multinational corporations (MNEs) now operate in a complicated environment where their ties with host governments are essential. Their corporate social responsibility (CSR) is emphasised to reflect shifting public perceptions of their societal responsibilities. Social responsibility is addressed through CSR initiatives for the local economy, society, environment, and local business stakeholders such as suppliers, customers, officials, and employees (Luo, 2006). In other words, if MNEs engage in activities that go beyond their direct economic and financial interests, further their social good, and use their internal resources in ways that benefit local markets through committed participation as members of society, the negative perception of FDI could be significantly reduced (Sheth & Babiak, 2010; Snider et al., 2003).

The liability of foreignness (LOF) is another concern that foreign affiliates of multinational corporations (MNEs) face in host countries (Mezias, 2002; Nachum, 2003; Zaheer, 1995). Due to a lack of understanding about a foreign affiliate, host-country stakeholders may apply preconceptions or impose different requirements than a host-country firm, resulting in unfavourable implications for the foreign affiliate (Eden & Miller, 2004; Kostova & Zaheer, 1999). Evidence reveals that LOF affects foreign affiliates and can significantly impact their ability to survive and perform in their host nations (Mezias, 2002; Mosakowski & Zaheer, 1997). The distance between home and host countries, particularly the institutional and geographic spread, has been projected to raise LOF by causing foreign enterprises in host countries to be more unfamiliar and discriminatory (Eden & Miller, 2004; Kostova & Zaheer, 1999).

According to academics, foreign enterprises may engage in isomorphic behaviour, such as adopting local firms' practices, to overcome LOF (Miller & Eden, 2006; Zaheer, 1995). (Campbell et al., 2012) looked at a new coping mechanism to deal with LOF: "good faith" social contributions to the host country in the form of corporate social responsibility (CSR). Socially desirable contributions can also help foreign participants develop a symbolic image and gain local acceptance (Kostova et al., 2008). Thus, foreign MNEs located further away from the host country should be strategically incentivised to participate in CSR. As a result, a positive association between distance and foreign-affiliated CSR might be expected. Several arguments suggest a different relationship, such as MNE managers may be hesitant to engage in overseas CSR if they are less able to identify with or feel empathetic toward host-country constituents, and MNEs may perceive the return on overseas CSR activities as lower or less specific than similar investments at home, and thus allocate a smaller share of the MNE's overall CSR budget to overseas activities. These reasons suggest that CSR spending by foreign affiliates is inversely

related to distance (Campbell et al., 2012).

Our research contributes to the literature by examining CSR as a coping mechanism for LOF, allowing foreign affiliates to gain social legitimacy in their host countries, and further examining the influence of foreign stakeholders on MNE CSR activities in emerging markets by using a large sample of MNEs. This research focuses on MNEs' CSR initiatives in the Indian market. As previously examined and theorised by particular academics (Campbell et al., 2012), we show that distance impedes the costs of establishing social legitimacy in a host country. According to (Reimann et al., 2012), IB researchers are only now becoming interested in the role of CSR in MNEs' emerging market operations. Further, (X. Yang & Rivers, 2009) also point out that little research has been done on the strategic or altruistic incentives that drive MNE CSR in host countries.

The theoretical development and formulation of hypotheses are presented in the following section. The third section discusses the data gathering method, model specification, and variables employed. The fourth section displays and discusses the results. The final remarks, as well as the study's limitations, are presented in Section five.

THEORY

While there are many scholarly definitions of CSR (McWilliams et al., 2006; Rodriguez et al., 2011; Sheth & Babiak, 2010; Snider et al., 2003), (McWilliams, 2016) are likely the most well-known and the most applicable for our purposes. It is defined as,

"actions that appear to further some social good, beyond the firm's interests and that which is required by law."

CSR involves activities by private firms (particularly MNE subsidiaries in this paper) that appear to further some social good, where the activity level is "above and beyond" that mandated by the government (Campbell et al., 2012). This definition suggests a possible way to capture the CSR activities of MNEs in host countries.

Because it deals with how corporations' mechanisms impact their behaviour, the institutional theory is crucial to what CSR – corporate social responsibility – stands for (Brammer et al., 2012; Morgan et al., 2010; W. Richard Scott, 2007). (Famiola & Adiwoso, 2016) recognised two institutional constraints that MNE subsidiaries face: the parent and the host nation context. In emphasising legitimacy, the LOF literature borrows from the institutional literature (DiMaggio & Powell, 1983; Meyer & Rowan, 1977; Zucker, 1987). "A generalised perception or assumption that an entity's actions are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions," according to the definition of legitimacy (Suchman, 2014).

To obtain legitimacy with the parent, subsidiaries may embrace the parent's CSR practises, or subsidiaries may establish different CSR techniques to gain legitimacy in the host

nation set (Chan & Makino, 2007; Hughes et al., 2017; Kostova et al., 2008). Organisations respond to stakeholder requests due to institutional forces (Reimann et al., 2012; X. Yang & Rivers, 2009). Because some stakeholders are more potent than others due to institutions (J. L. Campbell, 2007), and no organisation has unlimited resources or managerial attention, CSR reporting, even in large MNEs, may be strategically positioned to gain legitimacy from specific stakeholder groups, whether global or local, rather than meeting all expectations (Newson & Deegan, 2002; Wang et al., 2016). In international marketplaces, their decision-making and practices are repeated and built into routines through time, resulting in shared values and beliefs. MNEs' CSR policies and structures are traditionally influenced by the coercion of powerful local entities, relationships with other local enterprises in global markets, internal MNE members' attitudes and expertise toward CSR, and the values and tendencies of members in the local population (Husted & Allen, 2006).

From this perspective, an essential consideration regarding MNE CSR is the institutional distance between home and host countries in the regulatory, cognitive and normative domains. To put it another way, the larger the distance between home and host countries, the higher the LOF and the greater the requirement to satisfy local legitimacy (J. T. Campbell et al., 2012b).

On the other hand, the greater distance may reduce MNEs' inclination or ability to engage in CSR in host nations. Managers of international affiliates may be less motivated to engage in overseas CSR since the greater the distance between the home and host countries, the less likely they are to identify with host-country constituents and see benefits from host-country CSR. Furthermore, the distance may harm the ability of overseas affiliates to engage in CSR. "Often, CSR is attacked as an expensive method that only produces long-term results" (Russo & Perrini, 2010) says.

Scholars realise that distance is a multidimensional construct that captures several sorts of the distance between countries rather than a one-dimensional idea. The CAGE index (Ghemawat, 2001), which stands for Cultural, Administrative, Geographic, and Economic distance, is one of the most well-known multidimensional measurements. (Lavie & Miller, 2008) used a CAGE approach to capture the degree of foreignness of a firm's alliance partners in a recent study on alliance portfolio internationalisation. We've explained specific reasons why each sort of CAGE distance between the affiliate's home country and the host country is related to lower CSR investment in the host country rather than increased CSR investment.

The cultural distance can be characterised as disparities in social conventions, religions, languages, and ethnicities between persons in the home and host nations and operationalised at the macro-level (Ghemawat, 2001; Shenkar, 2001). (Kogut & Singh, 1988) concluded that cultural remoteness has a significant influence on entry mode. To understand how cultural distance can affect CSR, we'll start by talking about empathy as a social driver of CSR. Over

time, foreign affiliates acclimatise to these cultural variations, but the risk of failure rises as cultural adaptation becomes more complex (Barkema et al., 1996).

The concept of administrative distance is combined with regulatory and institutional distance, which is described as "the difference or resemblance between the regulatory and institutional environments of an MNE's home and host nations (Kostova & Zaheer, 1999). According to our argument, the cost of adjusting to host-country policies and regulations is higher for enterprises that come from home nations with a considerably different administrative heritage than the host country (Eden & Miller, 2010). If complying with host-country standards is more challenging for companies located further away, CSR costs should rise as the administrative distance between home and host countries grows.

Geographic distance, which depicts physical isolation, is sometimes linked to difficult transportation and communication ties and the absence of a common boundary (Ghemawat, 2001). We suggest that, even if financial resources travel across borders at a cheap cost, geographic remoteness still significantly impacts CSR investment. Personal touch between performers improves the chances of a sympathetic response and the impression of attachment (Ray, 1998). Greater geographic distance between the parent's top management team and the host nation's stakeholders and population should result in less regular human contact if CSR policy is defined at the parent-firm level. Due to increased transportation costs, host-country interest organisations may be less likely to submit funding requests in person.

Economic distance is manifested in inequalities in consumer wealth/income and variances in the costs and quality of production factors (Ghemawat, 2001). As a result, it's reasonable to assume that countries with similar income or wealth levels will have similar societal norms and regulations. Their businesses will engage in equal amounts of CSR. This shows that the closer the foreign affiliate is to the host country, the more likely it is to engage in CSR.

To recap, (Freeman & McVea, 2005) argues in their landmark work that commercial ties should include everyone who can "impact or be affected by" a corporation. Stakeholder theory emphasises that an organisation's ability to provide adequate wealth, value, or satisfaction for its significant stakeholders is critical to its stability and survival (Kakabadse et al., 2008; Maon et al., 2009). Stakeholders can be defined as "those parties who have a stake in or a claim on the firm" (Evan & Freeman, 1988) or as "those groups who can affect or are affected by the achievement of an organisation's goals" (Freeman & McVea, 2005). Stakeholder theory research has focused on methodically addressing the question of which stakeholders merit or require managerial attention (Mitchell et al., 1997).

MNEs, more than indigenous firms, operate in an alien environment as a result of FDI. Thus, the relationship between the corporation and local stakeholders is especially vital for MNEs to overcome such foreignness in unknown foreign host markets (Hadjikhani et al., 2008).

Most businesses, including MNEs, strive to maximise shareholder wealth by adopting measures that boost revenue. MNEs have ethical and philanthropic responsibilities to all stakeholders in foreign markets. They are expected to be society-oriented, participating in volunteer activities to improve the local community's well-being as a whole (Singh et al., 2007).

The number of years the organisation has existed in the host country is referred to as subsidiary age. In terms of CSR disclosures, we believe that younger subsidiaries will first deviate from their parent since they need to earn legitimacy (Jawahar & Mclaughlin, 2018) from local governments and civil society to compete in the host environment and achieve a competitive advantage (Guay et al., 2004; Hadjikhani et al., 2008; Reimann et al., 2012). A subsidiary that is just starting operations in a new host country institutional framework might report CSR focus on specific target groups in the host nation to recruit more members of those target groups to the subsidiary (Kulkarni & Rodrigues, 2014) and assist it in fulfilling host country economic goals (Hughes et al., 2017; Y. Yang & Konrad, 2011).

When the subsidiary is small, organisations may prefer to report those target groups in CSR that address host country problems rather than parental expectations to progressively create contractual and social links with local governments and civil society to obtain their endorsements (Deephouse, 1996). The number of countries in which a parent company operates is called global presence. As the company's worldwide presence grows, so does its access to additional labour markets in its operating nations. We should expect less pressure on a subsidiary in an emerging market country to adhere to the host country's context. If a subsidiary is likely to respond to parental expectations rather than host country institutional forces, it is determined by the parent's region of origin (Newson & Deegan, 2002).

In institutional theory, the 'country-of-origin effect' (Noorderhaven & Harzing, 2003) argues that much CSR activity follows Western norms and values. After all, most multilateral organisations that monitor or set CSR frameworks are based in the west. Critical customers, investors, and the media – all of whom are based in the west – may parse their information about an organisation's social responsibility through the judgments or frameworks established by such multilateral organisations (Ali et al., 2017; Dorobantu, 2017; Park et al., 2014). The most basic description of the industry is whether the company is in the service or manufacturing business (Q. Yang et al., 2008). Manufacturing companies may be more unionised, and unions may use coercive isomorphic pressure on subsidiaries to respond to local employee difficulties rather than global issues (Harcourt et al., 2005). Organisations in the services business, on the other hand, want more vital interaction with specific target groups within the workplace (French et al., 2007; Konrad & Linnehan, 1995).

METHODOLOGY

Sample

Our paper is about corporate social responsibility (CSR) among subsidiaries of

companies worldwide in a rising market, namely India. The data was collected for 2014–2020, giving us the most recent opportunity to look into Indian companies' CSR efforts. Based on their Annual Turnover, we considered the world's most economically successful organisations using the ORBIS database. We created a final list comprising active organisations with at least one Indian branch and ranked based on their Annual Turnover. This list of firms was then used to extract data from ProwessIQ, a statistical data collection centre generated by the Centre for Monitoring Indian Economy (CMIE).

Dependent Variable

The dependent variable *Excess CSR expenditure* is the total amount spent on CSR activities during the year excess of CSR expenditure to be incurred as per Companies Act 2013 as reported to the government. The corresponding computation is provided below.

$$\text{Excess CSR Expenditure} = \text{Total amount spent on CSR activities during the year} - \text{CSR Expenditure to be incurred as per Companies Act 2013}$$

Independent Variables

Since there are different distance measures, namely, Cultural, Administrative, Geographical and Economic distance, each of these measures was extracted from various sources for all the countries. The cultural distance was generated from the GLOBE dataset. Using the formula by (Kogut & Singh, 1988), the cultural distance between a firm's home country h and India was indicated by,

$$\sum_{d=1}^4 (I_{dh} - I_{di})^2 / n_d V_d$$

Here, I_{dh} is the value of the GLOBE index for cultural dimension d of country c , i indicates India, and V_d represents the inter-country variance of the GLOBE index along with dimension d . The variable n_d denotes the number of different dimensions for the corresponding distance. Under the cultural distance, there are 17 dimensions, briefly stated in table A1. Although this formula has been criticised, it is still the most widely used index for cultural distance. Even some practitioners have modified the same procedure based on their assumptions.

Similarly, the administrative data used is the World Bank's governance indicators: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, the rule of law, and control of corruption. This data is used with the formula stated above to index this variable.

Meanwhile, the geographical distance data was extracted from CEPII, and the average distance between countries is provided. The economic distance data is computed from the difference in GDP per capita for the home and the host country. This variable is then transformed using the formula below.

$$\log\left(1 + \left|GDP_{India} - GDP_{hc}\right|\right)$$

Overall, we get four different distance dimensions. Then, in order to build a measure of overall CAGE distance, we performed a primary factor analysis. Because we were primarily interested in causal modelling and the impact of CAGE distance as a latent variable, we decided to employ common factor analysis. However, principal component and principal factor analyses yield identical results in most research circumstances (Wilkinson et al., 1996). All factor loadings met traditional cut-off criteria and were statistically significant. This single variable in the model is denoted by *CAGE* in the model.

Further, another variable of importance is *fpromoters*, which is the share of foreign promoters in each firm. This variable denotes the percentage of shares owned by the foreign promoters listed on any stock exchange for this Indian subsidiary. The values are zero for two scenarios if the rate of shares owned by the foreign promoters is zero and even if the firm is not listed on the stock exchange.

Control Variables

There are various control variables used, such as the *age* of the subsidiary, which is the difference between the current year and the Incorporation year of the subsidiary. If not available, the year when the financials were first reported to the government is assumed to be the Incorporation year of establishment for the subsidiary. There are various methods to compute the *size* of a firm; we take the size decile available on ProwessIQ to denote the firm's size, which lies between 1 to 10, with 10 indicating the bigger firm size. The firm size is used as a dummy variable in the analysis. Other variables include a dummy variable with 0 if the firm belongs to the manufacturing sector and one if the firm belongs to the service sector, denoted by *industry*. The model also consists of year-specific dummy variables to control any economic event that might impact the analysis and home country-specific dummy variables.

Further, the average net profit of MNE for the last three years (*avgprofit3*) is used as a control variable to demonstrate the idea that the average net profit will impact the decision-making process among MNE. Besides that, the total assets in the host country (*tassets*) are also used to demonstrate the idea stated above. Along with determining the relationship with the shares of foreign promoters, the investments outside the host country, i.e., India, are also examined by instituting as a control variable.

Analysis

The model used for the analysis is stated below. This model checks for the significance of the relationship and the direction of the relationship between different factors that impact the decision of MNEs for excess CSR expenditure in the host country.

$$\text{ExcessCSR}_{it} = \beta_0 + \alpha_1 \text{CAGE}_{it} + \alpha_2 \text{fpromoters}_{it} + \beta_1 \text{age}_{it} + \beta_2 \text{avgprofit3}_{it} + \beta_3 \text{tassets}_{it} \\ + \beta_4 \text{finvestment}_{it} + \beta_5 \text{size}_i + \beta_6 \text{sector}_i + \beta_7 \text{Year}_t + \beta_8 \text{homecountry}_i + \varepsilon_{it}$$

Separate regression was also computed with each of the distance measures and the share of foreign promoters. Consequently, we simultaneously compared the results across foci while separately determining which organisational characteristics are associated with a subsidiary from different continents. The

RESULTS

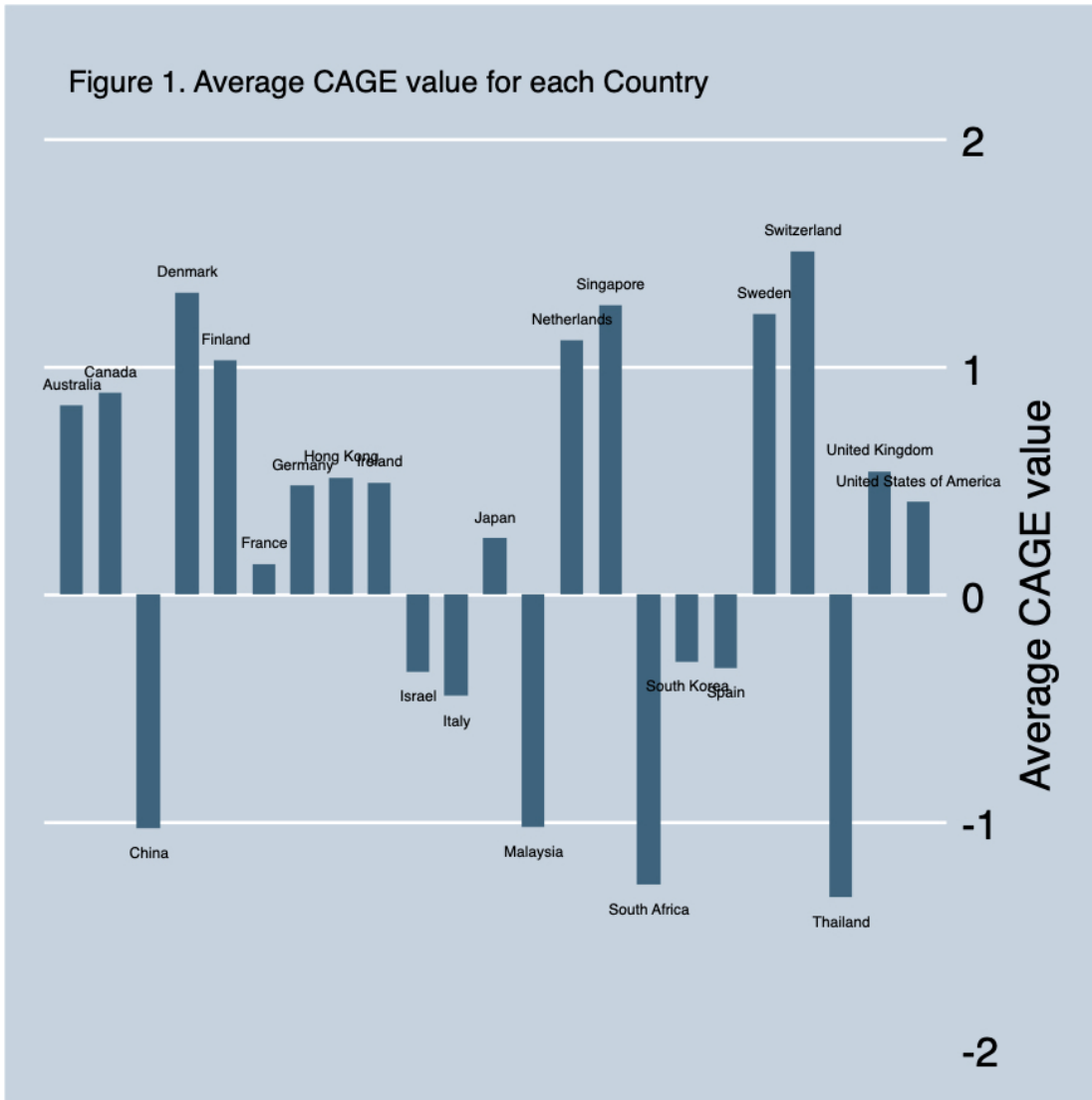
The collected data constitutes 481 firms from 2014 to 2020. Before getting into the results, the data is extensively investigated. Table 1 provides the descriptive statistics for the variables, stating the mean, standard deviations, and minimum-maximum values of the variables.

Variable	Observations	Mean	Standard Deviation	Minimum	Maximum
age (Number of years)	3367	29.28	19.02	9	152
CAGE	3367	0.41	0.44	-1.39	1.83
avgprofit3 (million \$)	3367	24.44	86.51	-170.30	1388.85
tassets (million \$)	3367	516.67	2211.30	0	36411.04
fpromoters (% share)	3367	4.77	17.11	0	80.30
finvestment (million \$)	3367	4.21	73.55	0	2391.17
Excess CSR (million \$)	3367	-0.09	1.21	-24.95	18.88

The average age among the sample of firms is 29, while the maximum is 152, denoting that the distribution is right-skewed. Similarly, the average net profit for three financial years, the total assets, the percentage share of the foreign promoters and the amount of foreign investment by the firm are also right-skewed. In contrast, the CAGE variable and Excess CSR expenditure seem to be normally distributed.

The essential component to discuss is the linear dimensionality reduced variable CAGE distribution, comprising the cultural, administrative, geographical and economic distances between the host country and the home country. Figure 1 plots the average values of the corresponding variable across its constituent home country. The plots for average Cultural, Administrative, Geographical and Economical Index values for the corresponding home country are provided in Figures A1, A2, A3 and A4, respectively.

Figure 1. Average CAGE value for each Country



Because the model's functional form is immaterial to diagnosing collinearity, we ran multicollinearity diagnostics using a linear regression model, as shown in Table A3. All individual variable VIF values were less than 5.5, and the mean VIF for all models was less than 3, indicating that multicollinearity did not affect our findings.

Table 2 presents the results of the random effects panel regression model for the Excess CSR expenditure. Meanwhile, all the random effects regression models are stated in Table A4, while Table 2 only contains the result with the CAGE variable. These models control year-specific, home-country specific, sector-specific and size-specific dummy variables.

Model 1 of Table A4 includes only control variables. All the variables are statistically significant ($p < 0.05$) except the age of the company and the constant term. While the overall model is statistically significant, the Wald statistic shows that the p-value is less than 0.05. Now, Model 2 includes the Cultural Distance measure as an additional independent variable and is not statistically significant. In contrast, Model 3, including the Administrative Distance

measure, states that the other variable is statistically significant and negatively related to the excessive CSR expenditure. Similar to Model 2, the Geographical Distance measure and the Economic distance measures are also individually added to the model, as shown in Model 4 and Model 5, respectively, and are statistically significant. This might conclude that only the administrative distance measure is impacting the decision to incur additional CSR expenditure in the host country.

Finally, based on the results of Model 6 with the CAGE variable incorporating the four distance measures as a single dimensionality reduced variable, except for the firm's age, all the variables are significant in the model ($p < 0.05$), keeping aside the dummy variables. It can be seen that the model is also statistically significant with Wald Statistic ($p < 0.05$).

Table 2. Impact of home countries' CAGE distance dimensions and foreign shareholders on CSR activities among MNEs in India

	Model 6	
	Excess CSR expenditure	
	Coef.	Std. err.
Main effects:		
CAGE	-0.877***	0.231
Foreign Promoters (In %)- Shares held	0.00731***	0.00175
Controls:		
Age of the company	-0.00110	0.00181
Average net profit for last three financial year	-0.00919***	0.000290
Total assets	0.000121***	0.0000133
Investment outside India	0.00318***	0.000299
Constant	0.952**	0.415
Year Dummies	Yes	
Country Dummies	Yes	
Size Dummies	Yes	
Sector Dummy	Yes	
Wald statistic		2.71e-272
N. of cases	3367	
* p<0.1 ** p<0.05 *** p<0.01		

The negative impact of the CAGE variable concludes a detrimental effect on the additional CSR expenditure by the firms, similar to the results found earlier (J. T. Campbell et al., 2012b). Further, the percentage share of foreign promoters had a positive impact on the

dependent variable, with a 10% increase in foreign shareholders, leading to a \$0.07 million increase in additional CSR expenditure. Among all the models, the company's age was statistically insignificant and had no impact on the decision making for additional CSR expenditure. While as a control variable, the average net profit for three financial years was negatively related. This could be due to the belief in overcoming the liability of foreignness, resulting in a reduction of the excess CSR expenditure. As these MNEs believe their net profits as increasing due to overcoming the liability of foreignness, these firms tend to decrease their spending on adapting the local firm's practices of social contribution. However, some component of the original isomorphic behaviour remains, which can be seen by the statistically significant coefficients of the total assets and the investment outside India by these MNEs. Comparatively, these coefficients are less than the coefficient of the average net profit for three financial years but have a positive impact on the excess CSR expenditure. As the MNE's profits increase, it generates assets and increases its investments. Thus, the overall effect of the firm expansion will result in a negative impact on the CSR expenditure due to the behaviour change.

As for the interpretation of the coefficient of CAGE, the original four measures determined the difference between the host country and the home country in absolute terms without the sign of their respective distance measures. While the linear dimensionality reduced variable had values that were scaled-down and centred around zero. The only use for the coefficient of the CAGE variable is its significance in the model. At the same time, its impact can be determined by the coefficients of the individual distance measures in the earlier models. We can state that the Administrative Distance is the primary factor impacting the excess CSR expenditure by the MNEs in the host country. As the Administrative Distance measure increases, the difference between the regulatory and institutional environments of an MNE's home and host nations widens. The firms find it challenging to incur the additional CSR expenditure. This could occur due to the higher cost of adjustment for MNEs in the host country, as stated in previous literature (Eden & Miller, 2010).

DISCUSSION AND CONCLUSION

This paper tests the impact of the Cultural, Administrative, Geographical and Economic differences faced by the MNEs on the Corporate Social Responsibility expenditure by these enterprises in the host country. Using a Random Effects Panel Regression model on the data of MNEs in India for 2014-2020, we find that these differences do impact the decision-making by MNEs in incurring additional CSR expenditure in the host country. The data was checked for any multicollinearity issues that could affect the overall significance of the models.

Although the number of firms was limited and the time span only seven years, the results could be verified with studies conducted in other countries. The limitation of data was due to the enactment of mandatory CSR expenditure by the government of India in 2013. Thus, the

data on excess CSR expenditure was not available before that. This analysis can be extended to a multi-country study which will help increase the number of firms over a more extended period.

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APPENDIX

Table A1.

Table A1. Cultural, Administrative, Geographical and Economic Distance Measures	
Cultural Distance Measures	
C1	Uncertainty Avoidance Societal Practices
C2	Future Orientation Societal Practices
C3	Power Distance Societal Practices
C4	Collectivism I Societal Practices (Institutional Collectivism)
C5	Humane Orientation Societal Practices
C6	Performance Orientation Societal Practices
C7	Collectivism II Societal Practices (In-group Collectivism)
C8	Gender Egalitarianism Societal Practices
C9	Assertiveness Societal Practices
C10	Uncertainty Avoidance Societal Values
C11	Future Orientation Societal Values
C12	Power Distance Societal Values
C13	Collectivism I Societal Values (Institutional Collectivism)
C14	Human Orientation Societal Values
C15	Performance Orientation Societal Values
C16	Collectivism II Societal Values (In-group Collectivism)
C17	Gender Egalitarianism Societal Values
C18	Assertiveness Societal Values
Administrative Distance Measures	
A1	Control of Corruption
A2	Government Effectiveness
A3	Political Stability and Absence of Violence/Terrorism
A4	Regulatory Quality
A5	Rule of Law
A6	Voice and Accountability
Geographical Distance Measures	
G1	Distance between Capital of two Countries
Economic Distance Measures	
E1	GDP per capita (constant 2015 US\$)

Table A2.

	age	CAGE	avgprofit3	tassets	fpromoters	finvestment	Excess CSR
age	1.0000						
CAGE	0.1343	1.0000					
avgprofit3	0.1379	-0.0212	1.0000				
tassets	0.2746	0.0000	0.1822	1.0000			
fpromoters	0.4659	0.0666	0.1775	0.0543	1.0000		
finvestment	0.2282	-0.0083	-0.0055	0.5401	0.0024	1.0000	
Excess CSR	0.0615	-0.0012	-0.5751	0.1110	0.0060	2349	1.0000

Table A3.

Variable	VIF	1/VIF
tassets	1.53	0.654914
finvestment	1.46	0.684449
age	1.44	0.69666
fpromoters	1.32	0.756989
avgprofit3	1.08	0.922414
CAGE	1.02	0.978442
Mean VIF	1.31	

Table A4. Impact of home countries' distance dimensions and foreign shareholders on CSR activities among MNEs in India using Random Effects Panel Regression

	Model 1		Model 2		Model 3	
	Excess CSR expenditure		Excess CSR expenditure		Excess CSR expenditure	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
Foreign Promoters (In %) - Shares held	0.00733***	0.00175	0.00733***	0.00175	0.00732***	0.00175
Controls:						
Age of the company	-0.00111	0.00181	-0.00111	0.00181	-0.00110	0.00181

Average net profit for last three financial year	-0.00923***	0.000 290	- 0.0092 3***	0.000 290	-0.00920***	0.000 290
Total assets	0.000122***	0.000 0133	0.0001 22***	0.000 0133	0.000121***	0.000 0133
Investment outside India	0.00318***	0.000 300	0.0031 8***	0.000 300	0.00318***	0.000 299
Cultural			-4.979	43.52		
Administrative					-0.421***	0.112
Geographic						
Economic						
Main effects:						
CAGE						
Constant	0.0500	0.341	5.807	50.65	1.338***	0.483
Year Dummies	Yes		Yes		Yes	
Country Dummies	Yes		Yes		Yes	
Size Dummies	Yes		Yes		Yes	
Sector Dummy	Yes		Yes		Yes	
Wald statistic		3.92e- 269		3.92e- 269		3.15e- 272
N. of cases	3367		3367		3367	
* p<0.1 ** p<0.05 *** p<0.01						

Table A4.

Table A4 (continued). Impact of home countries' distance dimensions and foreign shareholders on CSR activities among MNEs in India using Random Effects Panel Regression						
	Model 4		Model 5		Model 6	
	Excess CSR expenditure		Excess CSR expenditure		Excess CSR expenditure	
	Coef.	Std. err.	Coef.	Std. err.	Coef.	Std. err.
Foreign Promoters (In %) - Shares held	0.00733***	0.001 75	0.0073 2***	0.001 75	0.00731***	0.001 75
Controls:						
Age of the company	-0.00111	0.001 81	- 0.0011 1	0.001 81	-0.00110	0.001 81
Average net profit for last three financial year	-0.00923***	0.000 290	- 0.0092 2***	0.000 290	-0.00919***	0.000 290
Total assets	0.000122***	0.000 0133	0.0001 22***	0.000 0133	0.000121***	0.000 0133

Investment outside India	0.00318***	0.000 300	0.0031 8***	0.000 300	0.00318***	0.000 299
Cultural						
Administrative						
Geographic	-0.0000276	0.000 241				
Economic			-0.708	1.145		
Main effects:						
CAGE					-0.877***	0.231
Constant	0.338	2.843	3.400	5.428	0.952**	0.415
Year Dummies	Yes		Yes		Yes	
Country Dummies	Yes		Yes		Yes	
Size Dummies	Yes		Yes		Yes	
Sector Dummy	Yes		Yes		Yes	
Wald statistic		3.92e- 269		2.10e- 268		2.71e- 272
N. of cases	3367		3367		3367	

* p<0.1 ** p<0.05 *** p<0.01

Table A4. (continued)

Figure A1.

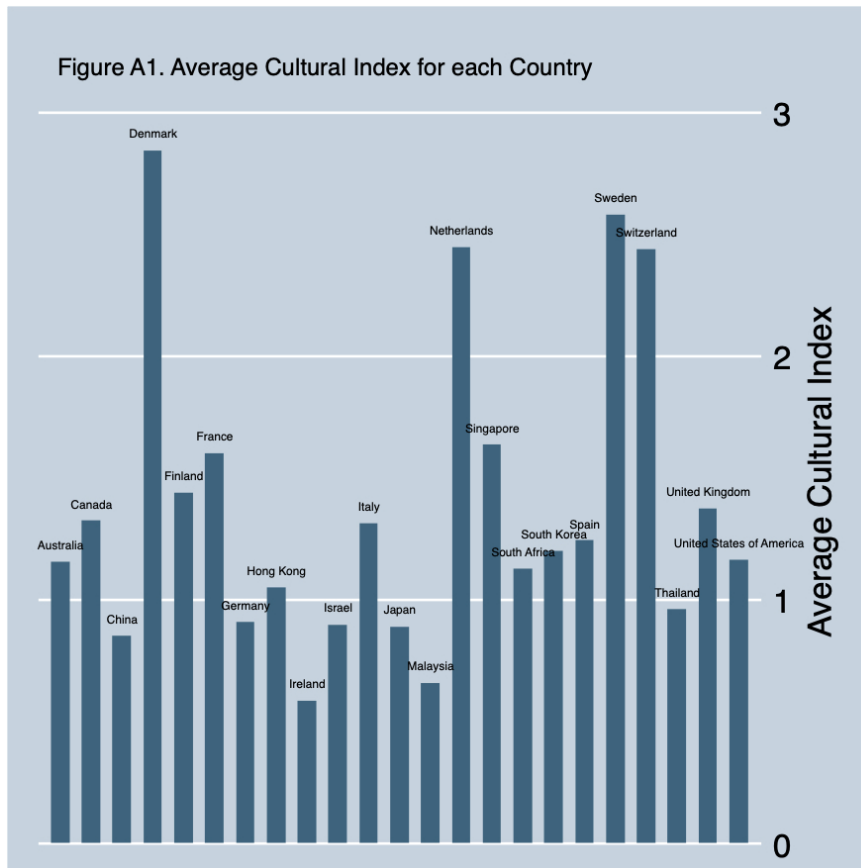


Figure A2.

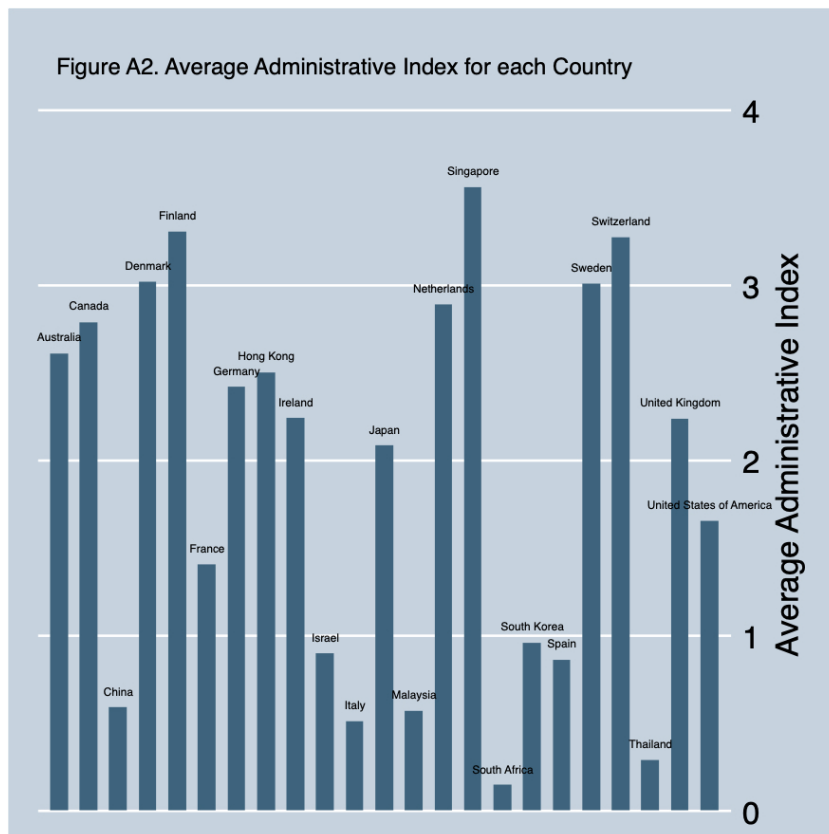


Figure A3.

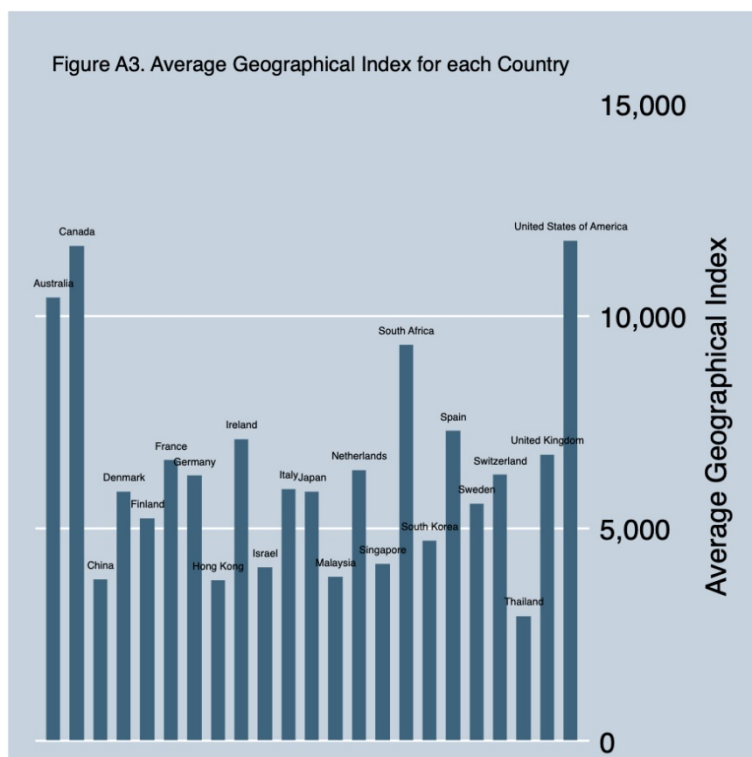
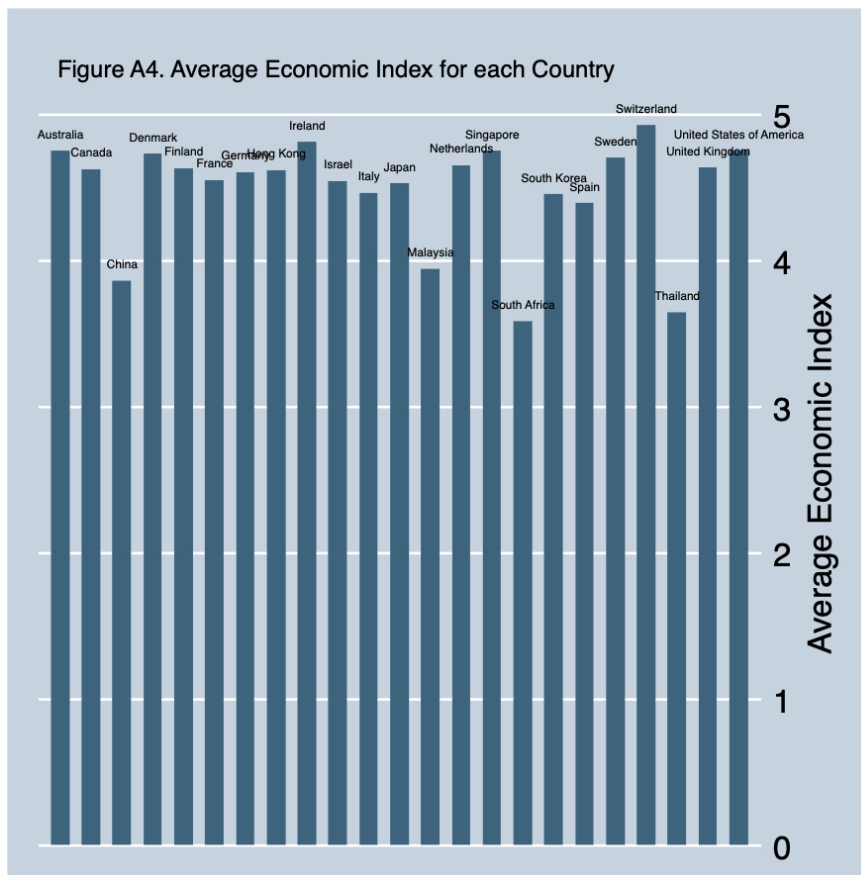


Figure A4.



MANAGEMENT LEVEL HUMAN RESOURCES FOR BUILDING SMART CITY IN VIETNAM

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Abstract

Building smart cities is becoming a trend in the world. One of factor need to have to perform successful is human resource. The article focuses on pointing out the current situation of urban management human resources in Vietnam, which is facing problems such as weak leadership and management capacity, lack of professional qualifications, not yet meeting development requirements urban areas, especially in the process of smart city development. This is due to the process of staff rotation between job positions, the lack of policies on training and fostering the development of urban management human resources, and the lack of proper attention to the training and retraining of staff urban management human resources... The article also mentions the direction of developing human resources for urban management to meet the new requirements of smart city development and proposes some solutions such as: (i) Research, complete improve the system of state management documents on the training and retraining of human resources for urban management in association with the Strategy on human resource development for urban areas; (ii) Maintain and promote training and fostering to improve urban development and construction management capacity to meet the requirements of knowledge and skills associated with professional standards for managers. urban areas at all levels; (iii) Strengthening coordination and consistency among management agencies on training and retraining; (iv) Renovate the financial mechanism in the direction of assigning budget estimates to training institutions; (v) Develop and renew training programs for urban managers according to job positions.

Key words: smart city, human resources, management level human, urban management

**CORPORATE SOCIAL RESPONSIBILITY IN THE HOSPITALITY
INDUSTRY: AN EMPIRICAL STUDY OF FOUR-AND-FIVE STAR HOTELS
IN VIETNAM**

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Abstract.

This paper examines corporate social responsibility (CSR) practices in the hospitality industry of Vietnam. We adopted the stakeholder theory as the basis for your analysis to choose the CSR measurements. A questionnaire survey was delivered to 64 four-and-five star hotels in 3 major cities including Hanoi, Hai Phong, and Quang Ninh, to collect data for our study. After 5 months, we received 438 valid responses from managers and employees working in the hospitality industry. The SPSS software was employed for our analysis. Our findings show that CSR to the community is evaluated to be most fully implemented by the surveyed hotels, followed by CSR to customers and CSR to the environment. In addition, CSR to suppliers is considered to be the worst.

Keywords: *Corporate social responsibility, hospitality industry, Vietnam*

THE NEW GRADUATE LABOR MARKET IN JAPAN AND VIETNAM: COMPARISON OF CAREER ADAPTABILITY AND CAREER EXPLORATION

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Abstract

The Japanese labor market is unique in hiring new graduates in bulk, even if specific positions are not yet established, and in educating them internally for organizational socialization. Meanwhile, the Vietnamese labor market adopts the Western HRM system, which only hires new employees when vacancies occur. In comparison with the Japanese labor market, it is more difficult for recent graduates to obtain employment in the Western labor market. These differences in the labor market influence the behavior and career development of university students. However, interestingly, the Vietnamese labor market has recently implemented a hybrid hiring system, creating a portfolio of new graduates and experts in certain firms. The school-to-work transition is an essential concept in career development theory and a crucial aspect of labor policy that influences the unemployment of the younger generation. This study clarifies the relationship between career adaptability, which is a psychosocial resource for managing the occupational transition measured by the Career Adapt-Abilities Scale, and career exploration, which is a career-search behavior using a career exploration survey. Based on 145 students from Japanese and Vietnamese universities, the results suggest that only Japanese students showed a significant causal relationship between career exploration (self-exploration and environmental exploration) and career adaptability, whereas in the case of Vietnam, we failed to find any significance. The implications for career development, career education in university, and the labor market in both countries are discussed.

Keywords: *career exploration, career adaptability, Japanese new graduate hiring system, Vietnam, school to work*

1. INTRODUCTION

Savickas (1999) emphasized the importance of the transition of youth from school to work (STW) because it signifies the beginning of full-time employment in the career landscape.

Therefore, students should acquire career-relevant literacy while still in college. Career adaptability was defined by Savickas (1997) as the psychological resources that enable an individual to find a suitable job. Career education in universities aims to assist students in mastering this career adaptability (Savickas, 1999, Savickas and Porfeli, 2002). However, the

perception of its importance is influenced by the economy and labor market structure of the country.

The Japanese labor market is distinctive compared to those of other countries, with an internal labor market that hires a large number of new university graduates on the same day, expects them to have long-term employment, and develops them into multi-functional human resources through job rotation, which is the transfer of personnel within the company.

To enable students to find employment in these labor markets within a month of graduation, career education has been enhanced to promote career exploration behaviors (Stumpf, Colarelli, and Hartman, 1983) such as self-exploration and environmental awareness beginning in the first year of college.

In contrast, Vietnam's labor market is an external labor market in the Western style, so universities likely do not offer career education that prepares students for simultaneous mass employment, as they do in Japan.

Consequently, the purpose of this study is to investigate the career exploration behaviors and adaptability of students in Japan and Vietnam, which have distinct graduate recruitment markets.

2. LITERATURE REVIEW

2.1 New graduate labor market and career education in Japan

Robinson (2003) describes the Japanese unique recruitment system in detail, along with the internal labor market and HR practice issues.

Japanese firms have traditionally focused on recruiting prospective white-collar, management-track employees from recent college graduates, also known as new graduates. It enables new employees to avoid prejudicing their receptivity to what they will learn in the company and to maximize their identification with the company.

In addition, Japanese companies are unwilling to allow new graduates to leave before seeing a return on their first training investment. Therefore, firms attempt to retain them through interesting task assignments, job rotation, and perks such as company housing. Lifelong employment is a relationship between employee and employer that lasts until retirement. As a result of this employment system, employees in multi-functions related to numerous divisions within a single firm become specialists in that firm, rather than the job.

On April 1, one day after graduation, new graduates join the firm. It indicates that the majority of Japanese firms begin their recruitment activities simultaneously, and students in the third or fourth grade attend the job fair, internship, and job interview during the same season. In Japan, the internal labor market has been created through single entry into the firm upon graduation. Since the employment relationship lasts until retirement, Japanese firms consider organizational

and cultural compatibility when hiring.

Ishikawa, Mizuno, and Amundson (2009) provide the following description of the function of career support in each Japanese university: “A survey conducted by the Japan Student Services Organization (2006) indicated that 71% of colleges nationwide were making some effort toward the career development of their students. As many as 92% of the colleges offered job placement assistance for their students through guidance, seminars, and workshops. Also, more than 78% of the colleges provided internship programs” (Ishikawa et al., 2009, p. 64).

The Japanese Ministry of Health, Labor, and Welfare (MHLW) published a standard curriculum for its “Career Education Program at Universities” in 2015, including syllabi, self-analysis worksheets, interviews with people from various occupations, and examples of university classes. This standard curriculum describes the following as instruction for college students (Table 1).

Table 1 Structure of career program by MHLW

Cluster	Theme
Self-awareness	Vocational Interests and Self-Understanding 1 (Theory and Interpretation)
	Vocational Interests and Self-Understanding 2 (Vocational Readiness Test)
	Vocational Interests and Self-Understanding 3 (Group work using the results of the vocational readiness test)
	Self-understanding using VRT cards 1 (interest)
	Self-understanding using VRT cards 2 (self-confidence)
	Self-understanding using VRT cards 3 (Analysis using the results)
	Deepening self-understanding using OHBY cards 1 (Implementation of OHBY card)
	Deepening of self-understanding using OHBY card 2 (Presentation after implementation of OHBY card))
	Understanding abilities, interests, and values for working (Career Insight 1)
	Knowing behavioral characteristics, personality and tendencies at work (Career Insight 2)
	Search for the right job based on vocational interests and abilities (Career Insight 3)
	Think about your future career plan (Career Insight 4)
Occupational understanding	Finding a job within a profession (through job analysis)
	Job analysis of occupation (e.g., part-time)
	Occupational interview
	Learn about the world of occupations (Utilization of Hello Work Internet Service 1)
	Occupational research (Utilization of Hello Work Internet Service 2)

	Learn about various ways of working (TOKYO Hataraku Net Pocket Labor Law)
	Learn about qualifications and licenses (Utilization of qualification websites)
	Learn from information on interviews with working people 1
	Learn from interviews with working people 2
	Learn from interviews with working people 3
	Interviews with working people
Others (labor market, labor law, work rule, etc.)	Consultation on problems to disk jockeys (Problem solving with case studies)
	Student Counseling Case Study
	Employment counseling case study
	Thinking about various problems in professional life (Career simulation program)
	Become a Labor Issues Advisor (Part-time job)
	Become a Labor Issues Advisor (Learn About Work Rules)
	Learn about Work Rules (TOKYO Hataraku Net Pocket Labor Law)
	Learn about the employment rate, turnover rate and labor market
	Learn about job information and application forms for finding a job
	Learn about job cards (career plan sheets for those without work experience, graduates, etc.)
	Learn about job training

Source: "Collection of career education programs for college students" by MHLW (2015)

In accordance with this directive from the government, Japanese colleges actively engage in career education by offering a comprehensive and systematic career development program.

Using the career development theory, we can discuss the Japanese recruitment system's career education. In light of the fact that most recent graduates lack a clear understanding of their employability, career training courses may be effective at enhancing career adaptability resources (Savickas and Porfeli, 2012). It would be prudent to equip students with career adaptability resources throughout their academic careers so that they can launch a successful career. It reflects a person's willingness, knowledge, skills, and attitudes to manage important career development tasks, navigate transitions, and confront potential career challenges with resilience (Guan, Liu, Guo, Li, Wu, Chen Xu, and Tian, 2018). Therefore, the development of initiative based on the training's lessons may enable students to engage in career preparation or exploration activities (Green, Noor, and Hashemi, 2020). This argument shows that Japanese career education develops the student's career exploration and adaptability.

In contrast to Japanese universities, career education has yet to become a national standard in Vietnam. This is due to the fact that the labor market for university students in Vietnam is distinct from Japan's internal labor market, forming a completely free external labor market.

Companies do not recruit only once a year, as they do in Japan, but throughout the year as positions become vacant. Therefore, students can independently conduct their job search in accordance with their interests and career objectives, as career-search activities are left up to their initiative. In recent years, however, many Japanese companies have expanded into Vietnam, and Vietnamese companies have also begun hiring recent graduates. Therefore, future research will focus on the career exploration behavior and level of career adaptability of Vietnamese university students.

2.2 School to Work

Three substages comprise the STW transition: 1) tentative, 2) trial, and 3) stabilizing. Career support at the university focuses on the first tentative substage, which consists of the tasks of specification and instrumentation, that is, choosing an occupation and acquiring the necessary training (Savickas, 1999). Then, Savickas (1999) concludes that career development theory provides a useful model for comprehending the STW transition of work-bound youth and discusses how theories can be applied to facilitate the STW transition. There are four examples of supportive materials and methods designed to ease the transition of STWs: orientation, instruction, coaching, and role-playing (Savickas, 1999)

Orientation is the process of enhancing students' career comprehension. According to the career development theories discussed by numerous scholars, career orientation promotes students' awareness of upcoming tasks and decisions. In the orienting stage, "Anticipatory guidance" which is an interactive discussion type of class management, works effectively to help students plan their attitudes, competencies, and activities.

By teaching cognitive and behavioral skills that can be used to advance a student's career, the teaching stage fosters students' competence in planning and exploring. For instance, teaching "work is different from school" such as the differences in membership permanence or the promoting procedure, etc.

Coaching teaches techniques for career management. Understanding the employer's expectations of employees and acquiring the skills necessary to meet those expectations assists students in adjusting to a new environment. Examples include knowledge about the company and its culture, teamwork, positive relationships with coworkers, and the ability to see the big picture.

Role rehearsal aids in the propagation of job issues. By problem-based learning and role-playing and discussion of case stud, students' work adaptability and, consequently, their ability to increase to their first full-time job are enhanced.

2.3 Career exploration

Recent career research has defined career exploration as intentional behavior and cognitions that provide access to information about occupations, jobs, or organizations that were not

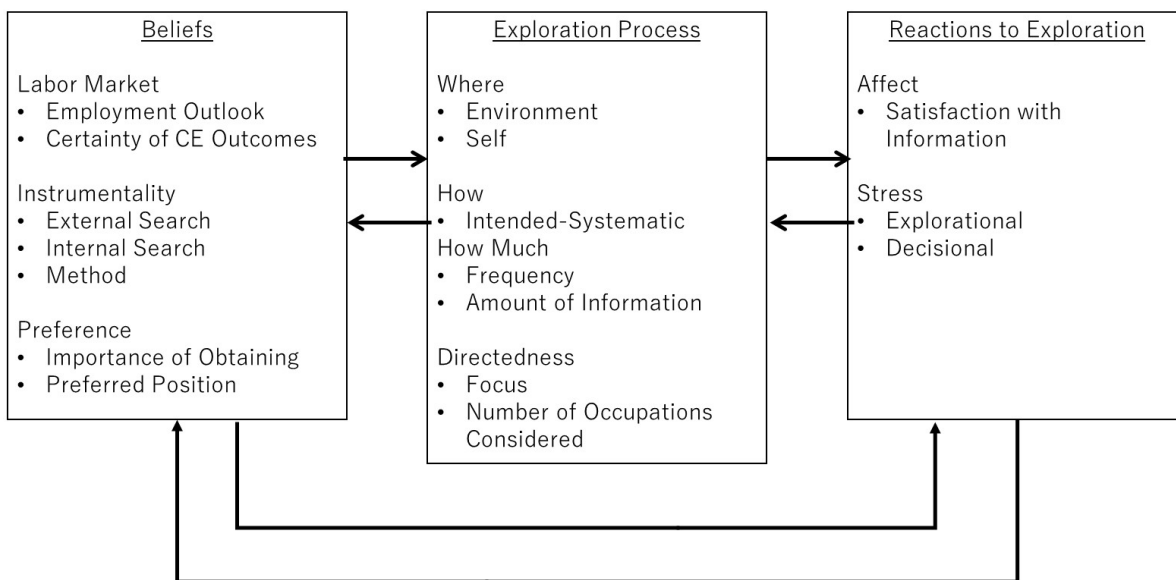
previously in the stimulus field (Stumpf, et al., 1983).

One of the most important concerns for students is how to make a seamless STW transition. Students are required to explore themselves internally and gather information about their external environment in order to find a suitable career. Thus, career exploration is the process by which individuals explore themselves and their environment in relation to their career development (Stumpf et al., 1983).

Stumpf et al. (1983) discussed two dimensions of career exploration: self-exploration, in which individuals examine their interests, values, and experiences and create a clear image of who they are and how these internal attributes influence them in their future careers; and career exploration. And the other is environmental exploration, in which people gather information on jobs, organizations, and occupations to make more informed career decisions (Stumpf et al., 1983).

Through these two explorations, individuals are able to identify suitable employment opportunities, improve their employment status, and overcome obstacles and challenges during career transitions. This is why school strongly encourages career exploration to facilitate a smooth transition for students. As Stumpf et al. (1983) demonstrated, the definition of career exploration includes intentional behavior and cognition, which are incorporated into the career exploration process model (Figure 1).

Figure 1: Process model of career exploration



Source: Stumpf et al. (1983, p. 194)

Based on the process model of career exploration, Stumpf et al. (1983) listed 16 factors in three dimensions during the scale development procedure. The Exploration process dimension includes not only Environment Exploration and Self-Exploration, but also Intended-Systematic Exploration, Frequency, Amount of Information, Number of Occupations Considered, and

Focus. There are three factors within the dimension of Reactions to exploration, including Satisfaction with Information, Explorational Stress, and Decisional Stress. The final dimension is beliefs, which include Employment Outlook, Certainty of CE Outcomes, External Search, Internal Search, Method, Importance of Obtaining and Preferred Position. Originally, the career exploration survey (CES) consisted of 62 questionnaires to measure the 16 factors listed above. However, Environment Exploration and Self-Exploration scales have been used extensively in subsequent studies (c.f., Green, Noor, and Hashemi, 2020; Guan, Wang, Liu, Ji, Jia, Fang, Li, Hua and Li, 2015).

2.4 Career adaptability

After graduating from school, students may find difficulty finding a place to belong. It is difficult for students to find a workplace that will accept them. This is a crucial entry-level issue in the labor market (Chen, Liu and Wen, 2022). According to career construction theory, career adaptability illustrates the multiple psychological resources involved in a person's career development problem-solving process (Savickas, 1997, 2013). The definition of career adaptability resources are the self-regulation strengths or capacities that a person can draw upon to solve the unfamiliar, complex, and ill-defined problems presented by developmental vocational tasks, occupational transitions, and work traumas (Savickas, 1997); therefore, this ability is crucial during the STW transition.

Savickas and Porfeli (2012) discussed career adaptability is a psychosocial construct that refers to an individual's resources for coping with current and anticipated tasks, transitions, and traumas in their occupational roles that alter their social integration. Interestingly, these resources do not reside at the core of the individual, but rather at the intersection of person and environment. This indicates that career adaptability has significant room for growth.

Guan et al. (2015) argue that career exploration (Stumpf et al., 1983) may serve as a proximal antecedent for individuals' career adaptability. Because Savickas (2013) stated that individuals must continually gain understanding of their own characteristics and the complexities of their working environments through a variety of personal experiences in order to develop the skills. According to previous research, training programs also improve university students' career adaptability resources (e.g., Green et al., 2020).

Individuals with career adaptability, or the 4Cs (concern, control, curiosity, and confidence), are able to manage, negotiate, or address career changes (Savickas and Porfeli, 2012). First, "career concern" is apprehensions about managing what one perceives to be relevant to one's career-related future, and second, "career control" is the tendency to view the future as manageable, suggesting the use of self-regulation strategies to adapt to the needs of different situations and influence the setting. Third, "career curiosity" is the propensity to explore the environment in order to gather information about oneself and career options in order to match oneself with the available occupational situations. Lastly, "career confidence" represents the

personal competencies of individuals to face and address career challenges for attaining obstacles in order to achieve success in their vocational tasks and transitions (Savickas and Porfeli, 2012). 4C exploration experiences and information-seeking activities produce the capability for an individual to implement their life design choices. Career adaptability can be conceptualized as follows: 1) becoming concerned about one's vocational future, 2) taking control of trying to prepare for one's vocational future, 3) displaying curiosity by exploring possible selves and future scenarios, and 4) strengthening bolstering the confidence to pursue one's aspirations.

Savickas and Porfeli (2012) developed the universal measurement of career adaptability known as the Career Adapt-Abilities Scale (CAAS), which was administered to both students and adult workers in 13 countries: Belgium, Brazil, China, France, Iceland, Italy, Korea, the Netherlands, Portugal, South Africa, Switzerland, Taiwan, and the United States. The results of this comparative study show that Taiwan, China, and Iceland had the highest means, whereas France, Korea, and Italy had the lowest means. Savickas and Porfeli (2012) stated that they cannot interpret the meaningfulness of the differences in scores because they do not know which part is a measurement artifact and which part reflects true differences. Moreover, further study is needed to identify theoretical predictors of the mean differences between economies, cultures, and countries.

According to Savickas's (1999) STW theory, Japanese universities provide their students with substantial career education. In many Japanese universities, career education is recognized as a basic liberal arts credit, and the curriculum consists of problem-based learning, diagnostics for self-understanding, group discussions, and case studies as opposed to 15 weeks of nonstop lectures. In contrast, career education is not as prevalent at Vietnamese universities as it is in Japan, and there are instances in which students seek employment before or after graduation or start their own businesses. In other words, whereas Japanese universities attempt to develop integrated career adaptability through education, career adaptability in Vietnam is developed through individual career exploration behavior.

Hypothesis 1: Career exploration is greater among Vietnamese students than among Japanese students.

Hypothesis 2: Career adaptability is greater among Japanese students than among Vietnamese students.

2.5 Causal relationship among career exploration and career adaptability

There are two trends of analytical model of the relationship between career exploration and career adaptability. One is career adaptability will serve as an incentive for career exploration (e.g., Green et al., 2020; Li, Guan, Wang, Zhou, Guo, Jiang, Mo, Li and Fang, 2015). Conversely, the other one is career exploration will be behavior-based learning to develop career adaptability (Chen, et al., 2022; Guan, et al., 2018; Guan et al., 2015; Zhao, Li, Chen,

Hao and Qin, 2022).

Li et al. (2015) examined whether career adaptability mediates the associations between personality traits and career exploration behavior among Chinese university students (N = 264). The results showed that career adaptability is a crucial mediator between personality traits and career exploration behavior. In the mediation model, career concern and career curiosity were the most important dimensions. It suggests that two dimensions of career adaptability, namely concern and curiosity, may be especially predictive of career exploration. (Li et al., 2015)

Green et al. (2020) examined the efficacy of a training course. It seeks to develop the proactive personality and career adaptability of college students (concern, control, curiosity, and confidence). Six months after completing the course, students would demonstrate the appropriate adaptability (career planning, career decision-making self-efficacy, career exploration, and occupational self-efficacy).

This research model shows that career adaptability influences career exploration, based on the theory that career adaptability represents self-regulatory resources and career exploration represents outcome variables.

However, the other model argues that career exploration also influences on career adaptability. Guan et al. (2018) propose that career exploration activities can assist individuals in gaining access to more pertinent career information and opportunities. Through these activities, students can increase their career curiosity and career concern by considering their future career options. In addition, the exploration behavior facilitates students' decision-making and bolsters their career process skills. This sense of control can also boost a person's career confidence by revealing their problem-solving strengths. This concept's theoretical foundation is grounded in the experiential learning theory (Kolb, 1984). Since career exploration behaviors aid individuals in gaining insight into their internal and external environments, they are advantageous. In addition, Savickas (2013) emphasized the importance of personal experiences in the development of adaptability, citing the need for individuals to continually gain insights into their characteristics and the complexity of their working environments. In this model, career exploration serves as a predictor to increase career adaptability rather than a result.

The majority of research based on this argument creates the mediation model, such as career adaptability as the mediator between career exploration and career decision self-efficacy (Zhao et al., 2022), career exploration and adaptability as the mediator between core self-evaluation and job search outcomes (Chen et al., 2022), and career exploration as the mediator between cultural distance and career adaptability (Guan et al., 2018). In addition, a high level of parental support and a low level of parental interference had positive effects on the career exploration of Chinese undergraduates, positively predicting their career adaptability (Guan et al., 2015).

Since the purpose of this study is to compare career adaptability in result to differences in the labor market surrounding Japanese and Vietnamese students and the resulting differences in

university career education, we will adopt the latter argument, a model in which career exploration behavior affects career adaptability.

Hypothesis 3: Career exploration positively influences career adaptability in both countries.

3. DATA AND METHODOLOGY

3.1 Overview of the survey

3.1.1. Target survey respondents

In this study, information on Japanese university students and Vietnamese universities was collected as follows. In Japan, hard-copy questionnaires were distributed on the last day of class to students who took a course on “career design” (15 weeks of 90-minute classes as a two-credit basic liberal arts course) at a private university in Tokyo during the second semester of 2019 (September to January). The intended audience consisted of third- and fourth-year students.

In Vietnam, fourth-year students who took a course on human resource management (five-hour classes for nine days for three credits as an intensive course in a specialized subject) at a national university in Hanoi from August to September 2021 were given an online questionnaire on the last day of class and it was collected after class. Fourth-year students were the target audience.

From Japan, 96 data sets were obtained, 50 from males and 46 from females. The case from Vietnam contains 52 data sets, 7 from men and 45 from women.

3.1.2. Measures

The CES (Stumpf et al., 1983) was used to measure activities related to career exploration. Two subdimensions comprise the CES: self-exploration (five items; e.g., “Reflected on how my past relates to my future career”) and environment exploration (six items; e.g., “Attended various career orientation programs”). Students rated the items on a 5-point Likert scale (1 = *a little*, 5 = *a great deal*).

For CAAS (Savickas and Porfeli, 2012), we utilized 24 items (6 items for each of the four dimensions of concern, confidence, curiosity, and control) to assess career adaptability. All items were scored on a 5-point Likert-type scale (1 = *not strong*, 5 = *strongest*). CES and CAAS have been translated into Vietnamese and Japanese.

As these targets belong to the same grade, the only control variables are age and gender.

3.1.3. Data analysis

Since this is a comparative study of Japanese and Vietnamese students in upper secondary universities, we proceeded with the data analysis under the assumption that there are no significant differences in demographic factors such as occupation and age, aside from

nationality and learning environment.

Due to the paucity of prior research on the CES scale in both Japan and Vietnam, an exploratory factor analysis was conducted on the CES scale using SPSS28.0, combining data from both countries. However, only one item (understood a new relevance of past behavior for my future career) was excluded because it had factor loadings that spanned both factors. As a result, the Cronbach's alpha was .798 for environmental exploration, and .719 for self-exploration, respectively.

We did not conduct an exploratory factor analysis because the CAAS scale is a global indicator (Savickas and Porfeli, 2012) and has been used in numerous studies with high reliability. Instead, we obtained reliability coefficients for the lower dimensions based on previous studies. The results of Cronbach's alphas were .842 for concern, .864 for control, .877 for curiosity, and .912 for confidence.

Subsequent basic statistics, analysis of variance, correlation, and regression analyses were also hypothesis tested using SPSS 28.0 in the same manner.

4. RESULTS AND FINDINGS

4.1 Results of *t*-test analysis of career exploration and career adaptability among Japanese and Vietnamese students

Table 2 displays the means, standard deviations, and *t*-test results for each variable (CESE, CESO, concern, control, curiosity, and confidence) among Japanese and Vietnamese data.

Table 2 Mean, standard deviation, and result of Student's *t*-test

	Japanese Students		Vietnamese Students		<i>t</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Age	21.24	1.02	21.08	0.52	
CESE	3.70	0.87	4.29	0.59	4.35 ***
CESO	4.11	0.67	4.41	0.63	2.67 **
Concern	3.85	0.70	3.29	0.66	4.66 ***
Control	3.82	0.79	3.37	0.66	3.48 **
Curiosity	3.76	0.81	3.36	0.65	3.10 **
Confidence	3.80	0.82	3.15	0.66	4.90 ***

p* < .05. *p* < .01. ****p* < .001.

All dimensions revealed a significant difference between the Japanese and Vietnamese student groups. The results of the *t*-test analysis revealed that Vietnamese data scored significantly higher than Japanese data for career exploration in the cases of CESE (*t* = 4.35, *df* = 143, *p* = .000) and CESO (*t* = 2.67, *df* = 145, *p* = .008). This result indicated that Vietnamese

students are more career-minded than Japanese students. The results therefore support Hypothesis 1.

On the contrary, Japanese data scored higher significantly than Vietnamese data for career adaptability of all lower dimensions; concern ($t = 4.66, df = 145, p = .000$), control ($t = 3.48, df = 145, p = .001$), curiosity ($t = 3.10, df = 146, p = .002$) confidence ($t = 4.90, df = 146, p = .000$). These results support Hypothesis 2 that career adaptability is higher for Japanese students than Vietnamese students.

4.2. Comparison of bivariate correlations between Japanese and Vietnamese students

Inter-correlations among CESE, CESO, concern, control, curiosity, and confidence were presented in Table 3.

Table 3 Comparison of bivariate correlations between Japanese and Vietnamese students

Country	Japanese Students						
	No. Variables	1 CESE	2 CESO	3 Concern	4 Control	5 Curiosity	6 Confidence
Vietnamese Students	1 CESE	-	.461***	.369***	.369***	.496***	.393***
	2 CESO	0.05	-	.436***	.421***	.554***	.393***
	3 Concern	.337*	-0.13	-	.561***	.729***	.706***
	4 Control	0.12	0.08	.627***	-	.642***	.657***
	5 Curiosity	.279*	-0.04	.658***	.518***	-	.778***
	6 Confidence	.306*	-0.18	.542***	.653***	.508***	-

Note. Correlations for the Japanese student's group ($n = 96$) are displayed above the diagonal; correlations for the Vietnamese students' group ($n = 52$) are displayed below the diagonal.

* $p < .05$. ** $p < .01$. *** $p < .001$. (two-tailed).

There are two findings. First, both Japanese and Vietnamese data showed highly significant internal correlation among the lower dimension of career adaptability. Concern correlated positively with control (J: $r = .561$, V: $r = .627$), curiosity (J: $r = .729$, V: $r = .658$), confidence (J: $r = .706$, V: $r = .542$), control correlated positively with curiosity (J: $r = .642$, V: $r = .518$), confidence (J: $r = .657$, V: $r = .653$), and curiosity correlated positively with confidence (J: $r = .788$, V: $r = .508$). All those correlations show the significance level under .001.

Second, the Japanese data showed that CESE and CESO were also highly correlated with carrier adaptability, whereas the Vietnamese data showed that CESE was only weakly correlated with some carrier adaptability and CESO was not correlated with any carrier adaptability. The results shows the correlation among CESE with concern (J: $r = .369, p < .001$; V: $r = .337, p < .05$), with control (J: $r = .369, p < .001$; V: $r = .12, ns$), with curiosity (J: $r =$

.496, $p < .001$; V: $r = .279, p < .05$), with confidence (J: $r = .393, p < .001$; V: $r = .306, p < .05$), and CESO with concern (J: $r = .436, p < .001$; V: $r = -.13, ns$), with control (J: $r = .421, p < .001$; V: $r = -.08, ns$), with curiosity (J: $r = .554, p < .001$; V: $r = .04, ns$), with confidence (J: $r = .393, p < .001$; V: $r = .18, ns$).

The results show that career exploration behavior and career adaptability are strongly related for Japanese students, while self-exploration is not related to career adaptability for Vietnamese students and environmental exploration is only slightly related.

Although the mean value of Vietnamese students' career exploration behavior was higher than that of Japanese students, the next step is to use regression analysis to determine whether Vietnamese students' career exploration behavior contributes to the development of career adaptability.

4.3. Regression analysis of career adaptability

We conducted regression analysis to further examine the differences between Japanese and Vietnamese cases influencing career exploration toward career adaptability on a dimensional level (Table 4). The results of the regression analysis showed differences in the structure of the influence relationship between dimensions in each country.

Table 4 Regression analysis of career adaptability

Variables	Concern		Control		Curiosity		Confidence	
	J Model1	V Model2	J Model3	V Model4	J Model5	V Model6	J Model7	V Model8
Age	.107	-.108	.020	.043	.104	-.115	.087	-.087
Gender	.047	.020	.255	-.120	.046	.156	.098	.164
CESE	.206	.358*	.217*	.124	.304**	.278*	.262*	.308*
CESO	.331**	-.148	.324**	.067	.397***	-.045	.261*	-.188
Ad R square	.215***	.075	.262***	-.050	.371***	.032	.199***	.086

Note. J, Japanese student's group; V, Vietnamese student's group.

* $p < .05$. ** $p < .01$. *** $p < .001$.

In the majority of Japanese cases, both CESE and CESO had an impact on career adaptability. Model 1 showed that CESO was a significant predictor of concern ($\beta = .331, p < .01$) and had a high explanatory power ($R^2 = .215, p < .001$). Models 3, 5, and 7 all shows both CESE and CESO were significant predictors of control ($\beta = .217, p < .05$ and $\beta = .324, p < .01$; $R^2 = .262, p < .001$), curiosity ($\beta = .304, p < .01$ and $\beta = .397, p < .001$; $R^2 = .371, p < .001$), confidence ($\beta = .262, p < .05$ and $\beta = .261, p < .05$; $R^2 = .199, p < .001$).

In the case of Vietnamese, where the results are quite different, only the CESE has a significant impact on certain dimensions of career adaptability; however, none of the models demonstrated a sufficient coefficient of determination. Models 2, 6, and 8 all shows only CESE

was significant predictor of concern ($\beta = .358, p < .05; R^2_{24} = .075, ns$), curiosity ($\beta = .278, p < .05; R^2 = .032, ns$), confidence ($\beta = .308, p < .05; R^2 = .086, ns$). Moreover, Model 2 showed that career exploration had no effect on the control group.

These results partially support Hypothesis 3, which states that career exploration positively influences career adaptability in both countries. We conclude that only Japanese students showed a significant causal relationship between career exploration and career adaptability, whereas in the case of Vietnam, we failed to find any significance.

5. DISCUSSION

This study examined the relationship between career exploration and career adaptability in a sample of Japanese and Vietnamese students. In Japan, explaining career exploration (CESE and CESO) affected career adaptability (concern, control, curiosity, confidence) across all dimensions. In the case of Vietnamese, where results differ, only a few dimensions of career adaptability are influenced by CESE. Even though Vietnamese career exploration (CESE, CESO) scored significantly higher than Japanese data, the significance of the coefficient of determination as a regression model was not significant.

These results have theoretical and practical ramifications. In the case of Japan, career exploration behavior was highly correlated with and causally linked to career adaptability for the following reasons: Japan's labor market is an internal labor market, with mass hiring of new graduates, and university education focuses on career preparation. The curriculum of career education includes self-understanding, vocational understanding, and environmental understanding, such as the labor market and labor laws, and students are systematically prepared for employment beginning with their first year of college. This educational content is intended to promote two career exploration behaviors: self-exploration (CESO), in which each student reflects on his or her vocational interests, values, and experiences; and environmental exploration (CESE), in which each student gathers information about occupations and organizations. In addition, Japanese career education has studied extensive research on Savickas and, based on STW theory, is attempting to find career education and intervention strategies that incorporate career adaptability as an outcome variable.

In contrast, Vietnam's labor market is an external labor market, meaning that students are not hired simultaneously and are expected to seek employment at their own pace. Therefore, it is difficult for students to find employment unless they act independently, and the scores for self-exploration and environmental exploration were higher due to the perception that career exploration behavior is more spontaneous among Vietnamese university students than among Japanese university students. Self-exploration did not increase career adaptability at all in Vietnam, and environmental exploration had a limited impact on career adaptability. According to Kolb (1984), one possible explanation for this failure of behavior to result in competence or resource is that the continuum of learning cycles is not functioning. Kolb (1984) conceptualized

experiential learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38). Kolb (1984) asserted that a learner typically follows a four-stage cycle in order to transform experience into knowledge. The first stage is “concrete experience,” in which a new situation or experience is encountered, or an existing experience is reinterpreted. The second stage is “reflective observation,” which involves reviewing or reflecting on new experience; the importance of this stage lies in the consistency between experience and comprehension. The third stage is “abstract conceptualization,” which is reflection that generates a new concept or a modification of an already existing abstract concept. The final fourth stage is “active experimentation,” in which the learner applies the concept to the real world to observe the results. Throughout this cycle, the second and third concepts of reflection and conceptualization may be crucial for career advancement. The fact that CESO had no effect on career adaptability in Vietnam, however, suggests that reflection will be a focus of future research and practical consideration of career education in Vietnamese universities.

Currently, Vietnam’s labor market is an active external labor market, but high youth turnover poses a social challenge. When Vietnamese firms pursue a strategy of stable growth in the medium to long term, retaining young talent is crucial. There is the possibility of a transition to new graduate recruitment and the establishment of an internal labor market similar to Japan. Therefore, career education that encourages self-discovery through reflection may one day be desirable in Vietnamese universities.

Despite the theoretical and practical implications discussed in this research, there are several possible limitations to the current investigation. First, data were collected from a single institution in each country. This data represents the case of these universities; however, it is difficult to say what it means for each country based on our findings. Second, we did not investigate career education in Vietnam in depth. It may be highly desirable to compare each country’s career education program and career path outcomes.

Therefore, future research should adopt a more rigorous quantitative and qualitative design to compare Japanese and Vietnamese career education.

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THE IMPACT OF INSTITUTIONAL SETTINGS ON THE RELATIONSHIP BETWEEN AUDITOR CHANGE AND COST OF DEBT: THE CASE OF EUROPE

Margarita Mejia-Likosova, Tobias Svanstrom

INTRODUCTION

Whenever companies change their auditors, they potentially signal relevant information to their credit providing banks. Whether the creditors perceive this auditor change positively or negatively will impact whether and how they adjust the cost of debt of the auditor changing companies. If creditors interpret the auditor change as resulting in an increase (decrease) in audit quality, they will decrease (increase) the cost of debt. We base our investigation on the assumption that how creditors react to an auditor change depends ultimately on its direction. An auditor change can be upward—from a non-Big N to a Big N auditor; downward—from a Big N to a non-Big N auditor; or lateral—within either Big N or non-Big N auditors (N is currently 4, referring to Deloitte, EY, KPMG, and PwC which are “the Big 4”). Assuming higher audit quality provided by Big 4 auditors (DeFond & Zhang, 2014), an upward auditor change is related to an increase in audit quality, thus reducing the information risk of the creditor, who is likely to react by decreasing the company’s cost of debt. Conversely, the creditor can be assumed to increase the cost of debt in the case of a downward change, while a lateral change should have no impact on the cost of debt.

There is substantial evidence from stock markets that supports a positive (negative) reaction from switches to (from) a Big 4 auditor (e.g., Chang, Cheng, & Reichelt, 2010; DeFond, Ettredge, & Smith, 1997; Dhaliwal, Schatzberg, & Trombley, 1993; Dunn, Hillier, & Marshall, 1999; Eichenseher, Hagigi, & Shields, 1989; Ferguson, Lam, & Ma, 2018; Knechel, Naiker, & Pacheco, 2007; Shu, 2000; Whisenant, Sankaraguruswamy, & Raghunandan, 2003). Surprisingly, however, the only previous study that empirically investigates the relationship between auditor changes and cost of debt documents results inconsistent with the evidence from stock market reactions (Francis, Hunter, Robinson, Robinson, & Yuan, 2017). Francis et al. (2017) used US data and found all types of auditor changes (downward, lateral, and upward) to be associated with a higher cost of debt, thereby suggesting that creditors regard all types

of auditor change as bad news. The authors explained their results with the assumption that any type of auditor change, irrespective of direction, could be viewed as a red flag that increases the information risk of creditors, hence resulting in higher costs of debt.

Given this apparent contradiction between the rationale regarding the relevance of auditor change direction and subsequent empirical findings by Francis et al. (2017), we wish to explore the explanation for this mismatch. We are particularly interested in discovering whether particularities in different national institutional settings under which creditors operate might play a decisive role in resolving this conundrum. This would testify to the fact that

creditors' response to audit-related information is not following generalizable and universally applicable principles but, instead, must be seen as embedded in diverse national contexts. Such findings would be of particular interest for a better understanding of the role of auditing and audit firms in a global context and, in particular, the influence perceptions of audit quality across different national institutional environments have on credit decisions, aspects that are of major relevance for the international accounting literature.

To execute this research agenda, we investigate the impact of auditor change on the cost of debt in Europe, primarily given the decisive institutional differences between the US and European countries. More specifically, we include data from 14 different European countries to perform the first large scale cross-country study on auditor change and the cost of debt. The countries included in this study are Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Russia, Spain, Sweden, and the United Kingdom. Given that there are also relevant national institutional differences among these European countries, we consider such differences to explain possible intra European variations in our results and arrive at further conceptually relevant insights regarding the impact of the institutional setting on the relationship between auditor change and cost of debt.

In general terms, the literature has suggested that the national institutional context impacts the incentives and behavior of auditors and audit firms (Knechel, Krishnan, Pevzner, Shefchik, & Velury, 2013) and the quality of audit services (DeFond & Zhang, 2014; Francis, 2011; Francis, Michas, &

Seavey, 2012). Therefore, one would expect to find corresponding actions among creditors, but it is still empirically unknown what such actions might be or if other signal effects from an auditor change dominate (i.e., red flags). Empirical evidence has documented the influence of the institutional setting on the level of audit quality delivered by Big 4 and non-Big 4 auditors (Francis & Wang, 2008). There also seem to exist different perceptions of the importance of audit quality as Khurana and Raman (2004a) found that the cost of capital is lower for Big 4 than for non-Big4 audited companies in high litigation¹ cost environments (i.e., US). In contrast, the cost of capital did not differ between Big 4 and non-Big 4 audited companies in relatively lower litigation cost environments (Australia, Canada, and the UK). Importantly, differences in litigation costs have been suggested to influence the auditor switching costs and thus companies' willingness to change their auditors (Kallunki, Sahlström, & Zerni, 2007). Together, these studies suggest that creditors may respond differently to auditor-related information depending on the characteristics of the institutional setting.

From Kallunki et al. (2007), one can deduce that high litigation costs for auditors, leading to high auditor-switching costs, should reduce incentives for companies to change auditors. Therefore, we argue that findings reported in Francis et al. (2017) (i.e., all types of auditor changes are associated with a higher cost of debt) might be due to the US high litigation

costs: High litigation costs render auditor-switching costly, providing disincentives for companies to change auditors. In such a context, it is likely that any type of auditor change appears suspicious in the eyes of creditors. By contrast, in a low litigation cost environment, auditor switching would be significantly less costly so that companies would not shy away from changing auditors. In such an environment, creditors would perceive an auditor change as an increase in audit quality and, therefore, as good news, resulting in reduced costs of debt.

Next to the low litigation costs, we regard two additional institutional factors likely to influence the message an auditor change is signaling to creditors: (1) the strength of auditing and reporting standards (Gul, Wu, & Yang, 2013; Jensen & Meckling, 1976), which indicates the value and impact of auditing in a given institutional environment; and (2) the insolvency recovery rate (Degryse, Ioannidou, Liberti, &

Sturgess, 2015), which indicates to what extent creditors are protected in case of client insolvency. As such, we will consider both aspects as two additional institutional contextual factors, moderating the relationship between types of auditor change and the cost of debt.

We perform a cross-country comparison following previous international studies to examine the effect of institutional factors on the role of audit and audit quality (Blandon, Argilés, & Ravenda, 2020; Choi, Kim, Lie, & Simunic, 2009; Francis et al., 2012; Francis & Wang, 2008; Gunn, Kawada, & Michas, 2019; Khurana & Raman, 2004a; Khurana & Raman, 2004b; Seetharaman, Gul, & Lynn, 2002). More specifically, we use data from 14 European countries to study the effect of institutional factors on the relationship between auditor changes and the cost of debt. For this purpose, we use a sample consisting of 35,085 firm-year observations from 3,981 non-financial listed companies performing one or more auditor changes during the 2007–2020 period.

We focus on Europe for several reasons. First and most importantly, Europe provides, for conceptual reasons, an excellent study context, given that in Europe, litigation costs are much lower than in the US²(Arena & Ferris, 2018; US-Chamber, 2013), resulting in lower switching costs (Kallunki et al.,

2007). This provides very different incentives to switch auditors compared to in the US (Kallunki et al., 2007), leading to potentially different creditors' responses to auditor changes. Moreover, despite the extensive attempts to harmonize accounting and auditor reporting standards and practices (BooLaky & Cooper, 2015; BooLaky & O'Leary, 2011), European countries continue to have heterogeneous institutional characteristics. This is likely to result in a conceptually interesting intra-European variation regarding the influence of institutional characteristics on the perception of creditors towards auditor changes. Second, Europe is of empirical interest, given that creditors' responses to auditor changes in the European setting are largely unknown but worth investigating due to the potential implications of auditor change on the cost of debt for companies, creditors, and the societies at large. Third, examining the

effect of institutional factors on the relationship between auditor changes and the cost of debt in the European

context is economically relevant, given that Europe constitutes the world's largest economic market. These factors combined render European countries an ideal setting for our investigation.

Overall, our results show, in sharp contrast to the findings by Francis et al. (2017), that in the European context, upward auditor changes are associated with a lower and decreasing cost of debt, suggesting that creditors perceive their information risk to be reduced when a Big 4 auditor (compared with a non-Big 4 auditor) is appointed. Moreover, our results show that the positive impact of upward changes (i.e., lower and decreasing cost of debt) is stronger (weaker) in institutional settings characterized by weak (strong) auditing and reporting standards (moderator 1) and weak (strong) insolvency recovery rate (moderator 2). We find (mainly) insignificant associations between both lateral and downward auditor changes and the cost of debt.

This study contributes to the literature on international accounting, specifically international auditing, in three main ways. First, we establish important boundary conditions to Francis et al.'s (2017) study, as we reveal the important role of the national institutional setting (in terms of low litigation costs) in determining the association between types of auditor changes and the cost of debt. Second, we highlight differences in the institutional setting across Europe in terms of strength of auditing and financial reporting and insolvency recovery rate and demonstrate how these differences moderate the association between auditor change and the cost of debt. Third, we show how different levels of audit quality (Big 4 vs non-Big 4 auditors) are perceived and valued by creditors differently according to the national context.

LITERATURE REVIEW AND DEVELOPMENT OF HYPOTHESES

The role of audit quality in reducing creditors' information risk and the expected impact of auditor change on the cost of debt

Creditors never know *ex ante* how likely a company is to repay a loan and the interest on it. To evaluate the current performance, future prospects, and potential risks, they depend to a large extent on the company's disclosure of financial information. However, this disclosure can be incomplete, unreliable, or erroneous (Berry, Faulkner, Hughes, & Jarvis, 1993), leading creditors to deal with problems of adverse selection, company's opportunistic behavior and moral hazard (Stiglitz & Weiss, 1981). To have financial information audited by independent auditors reduces information asymmetries between companies and creditors, lowering the information risk for creditors and assisting them in the credit granting and supervision process (Peek, Cuijpers, & Buijink, 2010). However, the extent to which information risk is reduced for creditors very much depends on the quality of the audited financial information and the quality of the auditors. Consequently, creditors should care about the direction of auditor

change because the effective use of accounting-based covenants depends on the high quality of financial reporting and auditing.

Companies change their auditors from time to time, either voluntarily or, more recently, mandatorily following the implementation of the EU regulations (2014/56/EU; Regulation 537/2014). Various reasons may drive the decision to change auditors voluntarily: pursuing a reduction of audit fees (Beattie & Fearnley, 1995; Gregory & Collier, 1996; Simon & Francis, 1988), avoiding unfavorable (qualified) audit opinions (Gómez-Aguilar & Ruiz-Barbadillo, 2003; Knechel, Naiker, & Pacheco, 2007; Lennox, 2000), overcoming diverging beliefs (Antle & Nalebuff, 1991), signaling improvements in the quality of financial reporting (Ettredge, Heintz, Li, & Scholz, 2011), indicating the need for additional or more effective services (Titman & Trueman, 1986), or punishing the incumbent auditor (Beattie & Fearnley, 1995). In addition, auditors may initiate switches to reduce their litigation and reputation risks in cases of suspected fraud or to free up resources (Hogan & Martin, 2009).

There are three possibilities for auditor changes, depending on the direction of the change: upward, i.e., replacing a non-Big 4 by a Big 4, downward, i.e., replacing a Big 4 by a non-Big 4, or lateral, i.e., replacing a Big 4 (non-Big 4) by another Big 4 (non-Big 4). The literature has established that the quality is generally higher for audits performed by Big 4 than for non-Big 4 auditors (for an overview, see Knechel et al., 2013). The lower cost of debt (i.e., lower interests) for Big 4 clients than for non-Big 4 clients is also relatively well documented in previous literature (Datta, Iskandar-Datta, & Patel, 1999; Diamond, 1989; Gul, Zhou, & Zhu, 2013; Karjalainen, 2011; Mansi, Maxwell, & Miller, 2004; Pittman & Fortin, 2004; Rodríguez & Alegría, 2012). However, the potential effect of the type of auditor change on the cost of debt is still unknown for institutional settings outside the US.

While the motivation for an auditor change is most likely to remain unknown for users of accounting information such as creditors (or researchers), the direction of auditor change is observable, which signals changes in audit quality. Signaling theory discusses how companies take actions to signal positive information to the receiver (Connelly, Certo, Ireland, & Reutzel, 2011), which in an audit setting may be the (voluntary) appointments of auditors (Blackwell, Noland, & Winters, 1998; Minnis, 2011) or, like in this study, an upward auditor change. Such upward auditor changes signal high integrity in terms of financial reporting to the creditor (Hay & Davis, 2004).

The creditor will consider the information risk when deciding on the interest rate for the loan, and the quality of the audit may have a significant effect on the perceived information risk (Arens, Elder, Beasley & Hogan, 2017, p.30). The overall mechanism by which the (type of) auditor change affects the cost of debt is the information risk which is affected by the audit (quality) and determines the interest rate charged (Arens et al., 2017). From an agency perspective, hiring a high-reputed Big 4 auditor, compared to a non-Big 4 auditor, can help the

company to reduce the information risk of creditors by signaling their credibility and honest concern for their interests (Blackwell et al. 1998; Datar, Feltham, & Hughes, 1991; Hay & Davis, 2004; Pittman & Fortin, 2004; Willenborg, 1999) and may contribute to the efficient resolution of contracting problems (Jensen & Meckling, 1976; Pittman & Fortin, 2004; Robin, Wu, & Zhang, 2017; Watts & Zimmerman, 1986).³ Therefore, the quality of both the replaced and the newly appointed auditor has to be taken into account when determining whether creditors are likely to evaluate the auditor change positively or negatively, thereby adjusting the company's cost of debt accordingly. Consequently, if creditors perceive that there is a difference in audit quality along the Big 4/non-Big 4 dichotomy, an upward (downward) auditor change should result in a lower (higher) cost of debt, while lateral auditor changes should have no impact (Causholli & Knechel, 2012; Fortin & Pittman, 2007; Karjalainen, 2011; Mansi et al., 2004; Pittman & Fortin, 2004).

Empirical evidence of the impact of auditor changes on cost of debt

The only study, to the best of our knowledge, which so far has empirically tested the direct impact of auditor change on the cost of debt is Francis et al. (2017). Using bank loan information from the DealScan database (1,629 loans for 312 US auditor-switching companies during the period 2000-2013), the authors compared the variation in loan spreads between auditor-switching companies and a matched sample of non-auditor-switching companies. Interestingly, they found higher loan spreads (i.e., higher cost of debt) for switching companies and this irrespective of the direction of the auditor change (upward, downward, or lateral) and of the party (auditor or client) initiating the relationship breakup. They attributed these results to a general increase in the information risk perceived by creditors when companies change their auditors. Creditors may react negatively when perceiving that the auditor change is opportunistic, for example, if undertaken by managers actively seeking to engage a more compliant auditor that would allow the company's preferred accounting choices in order to achieve specific reporting goals (Lennox & Pratt, 2003), or when perceiving the change to lower audit quality because the new auditor lacks client-specific knowledge (Gul, Fung, & Jaggi, 2009).

The findings of Francis et al. (2017) contradict in major ways the above-stated audit-quality rationale—that an upward (downward) auditor change should result in a lower (higher) cost of debt, while lateral auditor changes should have no impact on the cost of debt. It should be noted, though, that Francis et al. (2017) executed their study in one country only (the US), which has a very particular institutional setting characterized by high litigation and switching costs. Given that the quality of audits is vital for creditors across the globe and that perceptions of audit quality are associated with the Big 4/non-Big 4 divide, the study of Francis et al. (2017) has opened up a conundrum we consider worth resolving for conceptual and practical reasons.

Conceptually, it is important to understand whether the logic of an upward (downward)

auditor change being associated with a lower (higher) cost of debt, with lateral auditor changes having no impact, is flawed or not. This puzzle appears significant to international accounting, specifically international

auditing literature, as diverse findings from different country settings could provide important insights regarding the relevance of national institutional settings for worldwide auditing practices. In addition to these conceptual aspects, this puzzle is equally relevant for the managerial practice of global audit firms, international debt taking companies, and particularly international creditors, given that outside observers cannot evaluate what the motivations for an auditor change might be, so the (observable) direction of auditor change becomes all the more relevant to interpret correctly.

To address the conundrum, opened up by the counterintuitive findings of Francis and colleagues, we investigate (1) whether Francis et al.'s (2017) results regarding the negative consequences of auditor change irrespective of directionality also hold in different national institutional settings; (2) whether and how auditor change impacts the cost of debt differently in different national institutional settings; and (3) which factors in national institutional settings are of relevance in explaining differences in the impact of auditor change on the cost of debt across countries.

The impact of auditor change on the cost of debt in different litigation cost environments Previous literature has highlighted the relevance of litigation costs when evaluating the impact of auditor type on the cost of debt. For example, Khurana and Raman (2004a) documented that Big 4 clients have a lower cost of capital than non-Big 4 clients in an environment of high litigation costs like the US. At the same time, this difference was not found for Australia, the UK, and Canada, which are comparable countries in terms of the role of audit but feature significantly lower litigation costs.⁴Importantly, this evidence suggests that creditors may respond differently to auditor-related information in a high compared to a low litigation cost setting.

While high litigation costs appear to drive a higher audit quality, they may also result in higher switching costs and strong incentives to maintain the auditor-client relationship (Kallunki et al., 2007). Consequently, if litigation and switching costs for auditors are high, auditors will be more selective in undertaking new (risky) clients (Krishnan & Krishnan, 1997), and the client rejection rate will be higher in comparison to environments with relatively weak legal regimes (Laux & Newman, 2010). Thus, in a context of high litigation and switching costs, strong incentives exist for the auditor and client to continue the current relationship. In such an environment, creditors may interpret a (costly) auditor change as a suspicious disruption of the client-auditor relationship and as a bad signal, which could explain why an upward auditor change was not found associated with a lower cost of debt by Francis et al. (2017).

Since the European institutional environment is characterized by lower liability and switching costs (Choi, Kim, Liu, & Simunic, 2008; US-Chamber, 2013), the creditors' reaction to an auditor change in Europe may be very different from that in the US.⁵In particular, we expect the reactions of creditors in Europe to reflect perceptions of audit quality to a large extent. More specifically, an upward (downward) auditor change would signal to creditors a company's increased (decreased) willingness to provide credible and reliable financial information, thus resulting in a lower (higher) cost of debt. For lateral auditor changes, no effect is expected on the cost of debt. Based on the argumentation above, we formulate the first set of hypotheses:

H1a: Upward auditor changes are associated with a lower cost of debt.

H1b: Downward auditor changes are associated with a higher cost of debt.

H1c: Lateral auditor changes do not impact the cost of debt.

The moderating effect of the strength of auditing and reporting standards

One factor of a national institutional setting that is likely to affect the relationship between types of auditor change and the cost of debt is the strength of auditing and reporting standards (Gul et al., 2013; Jensen & Meckling, 1976). This factor is determined by the specifications of the accounting and auditing standards as well as their de facto application. In a setting characterized by strict auditing and reporting standards and their rigorous application, reliable information is published in a timely manner, the level of compliance with auditing and reporting standards is high, and therefore, the information is more transparent (Boolaky & Cooper, 2015). Thus, the strength of auditing and reporting standards has been found to play an important role in reducing information asymmetries between management and creditors and, thus, ensuring the effective functioning of capital markets (Carson, 2009; Lennox, 1999).

It can be expected that the use of a Big 4 auditor is valued higher when the role of auditing and financial reporting is weak(er). In this setting, the creditor may, in general, distrust the reported figures, particularly when non-Big 4 auditors audit them. In such an environment, an upward auditor change is likely to send particularly strong positive signals that the company prioritizes the reporting of reliable financial information, thereby reducing the information risk of the creditor, who can be assumed to respond with a reduction in the cost of debt. Conversely, in settings with weak(er) auditing and financial reporting standards, a downward auditor change might lead to strong negative creditor reactions, resulting in a particularly steep increase in the cost of debt. Finally, for lateral auditor changes, there is no reason to expect any moderating effect on the strength of auditing and reporting standards. Based on the argumentation above, we formulate the second set of hypotheses for upward and downward auditor changes:

H2a: A creditor's positive reaction (decreasing the cost of debt) to an upward auditor

change is the stronger, the weaker the auditing and reporting standards.

H2b: A creditor's negative reaction (increasing the cost of debt) to a downward auditor change is the stronger, the weaker the auditing and reporting standards.

The moderating effect of the insolvency recovery rate

The level of creditor protection in a country, which is reflected in the insolvency recovery rate, might also moderate creditors' responses to auditor changes. The recovery rate indicates the creditor's ability to repossess the collateral and reorganize debtors and largely depends on the legal rights that creditors have in reorganization and liquidation procedures (Degryse et al., 2015). The extent to which property rights are protected in a country has been found to affect creditors' incentives to monitor loans and their ability to contract and also to determine what loans are offered to firms and how these loans are structured and priced (Bae & Goyal, 2009). As creditors carefully assess probabilities of different outcomes in case the clients face financial difficulties and defaults, creditors care about insolvency recovery rates (Bae & Goyal, 2009) to the extent that they directly influence lending decisions (Degryse et al., 2015).

Prior research suggests that investor protection impacts the strength of the association between hiring a high-quality (i.e., Big 4) auditor and financial reporting quality (Francis & Wang, 2008; Gul et al., 2013). Moreover, Gul et al. (2013) find that the negative association between having a Big 4 auditor and the cost of debt is stronger in countries with strong investor protection. Based on these findings, the degree of creditor protection in a country can be expected to moderate the (strength of) association between auditor change and the cost of debt.

Gul et al. (2013) and Choi et al. (2008) suggest that demanding a high-quality auditor may substitute poor governance in weaker investor protection regimes, while Choi et al. (2008) show that audit fee differentials between Big 4 and non-Big 4 auditors are higher in weak than in strong investor protection regimes. These findings suggest that the positive (negative) reaction to upward (downward) auditor change may be stronger when the recovery rate is low (high) because the high-quality auditor role to ensure that creditors fully recover the remaining funds is even more important when the recovery rates are low.

Assuming that the use of a Big 4 auditor would be more valued when creditor protection is weaker, one would expect upward (downward) auditor changes to have a stronger positive (negative) impact in environments with lower insolvency recovery rates. For the association between lateral auditor changes and the cost of debt, there is no reason to expect any moderating effect on the insolvency recovery rate. Based on the argumentation above, we formulate the third set of hypotheses for upward and downward auditor changes:

H3a: A creditor's positive reaction (decreasing the cost of debt) to an upward auditor change is the stronger, the lower the insolvency recovery rate.

H3b: A creditor's negative reaction (increasing the cost of debt) to a downward auditor change is the stronger, the lower the insolvency recovery rate.

RESEARCH DESIGN

Data and sample

We use auditing and financial data at the company level from Compustat (Europe). At the time of our download (August 2021), it provided company ISIN codes for 14 European countries. To design our study to be as comprehensively as possible, we include all non-financial listed companies (after removing companies having less than three consecutive years of information) from all those 14 countries (Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Russia, Spain, Sweden, and the United Kingdom). We do so for the period of 2007-2020. The identification of the audit firm (signing the audit report) per year allows us to determine all types of auditor changes: that is, from a non-Big 4 to a Big 4 auditor (ChUp), from a Big 4 to a non-Big 4 auditor (ChDown) and between Big 4 auditors (ChBetwB4) or between non-Big 4 auditors (ChBetwNB4). After removing firm years with missing variables, the final sample consists of 35,085 firm-year observations from 3,981 firms.

Table 1 shows the distribution of observations by country, auditor, and year. We note that 26.20 percent of the observations come from the UK.⁶ Germany, France, and Sweden contribute combined to the sample with an additional 36.95 percent. The countries most affected by the financial crisis of 2008 (Greece, Ireland, Italy, Portugal, and Spain) account for about 17.39 percent of the observations in the sample. The remainder (19.46 percent) of observations comes from Norway, Russia, Finland, Netherlands, and Denmark.

PWC and KPMG audit the largest shares of companies in the sample: 18.54 and 17.52 percent of the observations, respectively. Companies that hire Big 4 auditors comprise 66.01 percent of the sample. The observations are homogeneously distributed across the 14-year period.

Table 2 shows the distribution of observations containing the different types of auditor change by country during the studied period. The UK, France, Germany, Italy, and Sweden contribute with 70.25 percent $((1,123 + 600 + 578 + 572 + 554)/4,878)$ of the auditor changes. An auditor change appears in 13.90 percent of the observations $(4,878/35,085)$, and the upward changes, ChUp, are the most frequent type (30.30 percent of the auditor changes). Table 3 reports the distribution of auditor changes by year.⁷

[Tables 1, 2, and 3 about here]

Tables 4 and 5 rank our 14 European countries and the US for comparative purposes, according to the average value of the strength of auditing and reporting standards and the average value of the insolvency recovery rate, respectively, for 2007-2020. These country

indexes are taken from the World Economic Forum's Global Competitiveness Report (World Economic Forum, 2017, 2018, 2019). The Nordic countries, Netherlands, the UK, and Germany have the highest values for both indexes, while Spain, Portugal, Greece, Italy, and Russia have the lowest values. Also, note that the US ranks in the middle for both indexes, which suggests that the litigation cost (particularly high in the US, in comparison to the European countries) is independent from the strength of auditing and reporting standards and the insolvency recovery rate.

[Tables 4 and 5 about here]

Dependent and main independent variables: cost of debt and types of auditor change As our dependent variable, cost of debt, is not directly observable, we calculate a proxy using information available in annual reports and accessible in Compustat (Europe). Following Pittman and Fortin (2004), Francis, Khurana, and Pereira (2005), and Huguet and Gandia (2014), we calculate our main test measure for the cost of debt by dividing the interest expenses (i.e., the variable "Interest and related expense—total" from Compustat) by the average of short- and long-term debt during the year.

We are aware that several limitations have been identified for this proxy (Cassar, 2011). First, the denominator represents the (total) debt rather than specific loans. This limitation is due to the lack of more specific information in the database. However, winsorizing the data at 1% each tail (i.e., eliminating outliers) helps to improve the estimations (Huguet & Gandia, 2011, p. 275; Pittman & Fortin, 2004, p.120). Second, the measure used can be a stale measurement because the observed interest rate includes contracts from previous years. This limitation is mitigated by the inclusion of the same variable lagged by one period as a control variable (Huguet & Gandia, 2011, p. 275). Furthermore, the GMM (generalized method of moments) model reported in the "robustness checks" section also addresses this limitation by including as explanatory variables two lags of the cost of debt. We acknowledge as a limitation that the measure used is not directly capturing the interest rate paid on all relevant credits, but instead, it represents a proxy. This approach is, nevertheless, commonly used in research in the field (Francis et al., 2005; Pittman & Fortin, 2004).

Regarding our test variables of interest (i.e., types of auditor changes), our tests inform about the overall impact of all auditor changes, including both auditor- and client-initiated changes. We differentiate, however, between three different types of auditor changes: upward from non-Big 4 to Big 4 (ChUp), downward from Big 4 to non-Big 4 (ChDown), and lateral within Big 4 (ChBetwB4) or non-Big 4 (ChBetwNB4) audit firms.

Moderating variables: Strength of auditing and reporting standards and insolvency recovery rate We include in our empirical models the moderating variables strength of auditing and reporting standards, AudRepSt, and insolvency recovery rate, InsolvRecov. These variables capture elements of the institutional setting in the specific countries and also serve as

a control for country effects. They are expected to influence creditors' perceptions about auditor changes in the different European countries. The values of AudRepSt and InsolvRecov are obtained from the World Economic Forum (World

Economic Forum, 2017, 2018, 2019). To test the impact of auditing and reporting standards (H2a and H2b) and insolvency recovery (H3a and H3b) on the association between the upward/downward auditor change and the cost of debt, we include the interactions between the most extreme auditor changes, ChUp and ChDown, and the country indexes AudRepSt and InsolvRecov.

Control variables

A set of control variables commonly used in bank loan contracting studies (Bharath, Dahiya, Saunders, & Srinivasan, 2011; Bharath, Sunder, & Sunder, 2008; Francis et al., 2017; Graham, Li, & Qiu, 2008; Kim et al., 2011), and for which data is available in Compustat (Europe), is included in the regression models. The first control is a dummy variable indicating if the audit opinion is unqualified and with or without additional explanatory remarks (Clean), as clean audit opinions are arguably good news for creditors. We also control for the age of the company (LnAge), calculated as the natural logarithm of the number of years that the company has been listed on the stock market, as older and more established companies are expected to borrow at more favorable rates. Next, we include the natural logarithm of total assets to control for size (Size), as the expected lower non-payment risk of larger companies should result in a lower cost of debt (Blackwell et al., 1998; Noguer-Gill de Albornoz & Muñoz-Illueca, 2007). To complement this static measure of size, we control for a firm's growth in terms of asset variation (Δ Assets), arguing that growing firms are likely to affect creditors' risk perceptions. As the most leveraged companies have a higher bankruptcy risk (Huguet & Gandia, 2014, p.273), which is likely to increase the cost of debt, the ratio of total liabilities to total assets (Leverage) is also included in the model.

High levels of operating performance, ROA (return on assets) are arguably good news for creditors. The paradox of liquidity (Myers & Rajan, 1995) regards Liquidity (the ratio of current to total assets) as a positive characteristic if it is related to a firm's ability to raise cash but as a negative one if related to the management's inability to invest the available cash optimally. We include ROA and Liquidity in the model. We next include a dummy variable which indicates whether the net income is negative (Loss), as companies reporting losses are riskier. Intangible assets, Intangibles (ratio of intangible assets to total assets), could mean fewer assets for collateral purposes but might indicate possible future benefits depending on the quality of the intangibles. Receivables (ratio of receivables to total assets) could signal the company's ability to attract a primary source of cash flows, and the variation in sales (Δ Sales) also has the potential to affect creditors' perceptions of risk. We include Loss, Intangibles, Receivables, and Δ Sales in the model. Following Francis et al. (2017), we next control for a

modified version of Altman's Z score (AltmanZmod), for which higher values indicate a lower default probability and, consequently, expect a negative association with the cost of debt. Finally, as the market component is disregarded from the modified Altman Z score, we control for the market-to-book ratio (MtoB) in the model, expecting a negative association with the cost of debt, as higher market valuations may be a sign of less risk perceived. Table 6 informs about the definitions of all variables relevant to this study.

[Table 6 about here]

The empirical model

We test our hypotheses using the main empirical models (see equations 1 and 2 below), which regress the cost of debt for company *i* in year *t* (CD_{it}) on the following explanatory variables: (with and without) one lag of the dependent variable cost of debt ($1 \text{ Lag } CD_{it}$), the four types of auditor change (ChUp, ChDown, ChBetwB4, and ChBetwNB4), the country indexes describing the institutional setting (AudRepSt in equation 1 and InsolvRecov in equation 2), their interactions with each type of auditor change, and a fixed set of control variables. The change of auditor occurs in year *t*. The firm and time subscripts are omitted from the equations for clarity.

$$CD = (1 \text{ Lag } CD) + ChUp + ChBetwB4 + ChBetwNB4 + ChDown + AudRepSt + ChUpXAudRepSt + ChBetwB4XAudRepSt + ChBetwNB4XAudRepSt + ChDownXAudRepSt + Clean + LnAge + Size + \Delta Assets + Leverage + ROA + Liquidity + Loss + Intangibles + Receivables + \Delta Sales + AltmanZmod + MtoB + e \quad (1)$$

$$CD = (1 \text{ Lag } CD) + ChUp + ChBetwB4 + ChBetwNB4 + ChDown + InsolvRecov + ChUpXInsolvRecov + ChBetwB4XInsolvRecov + ChBetwNB4XInsolvRecov + ChDownXInsolvRecov + Clean + LnAge + Size + \Delta Assets + Leverage + ROA + Liquidity + Loss + Intangibles + Receivables + \Delta Sales + AltmanZmod + MtoB + e \quad (2)$$

RESULTS

Correlations and descriptive statistics

Table 7 reports Pearson correlation coefficients for all possible pairs of dependent and independent variables included in the models. All values are below 0.8, which provides a first indication that there are no major problems with multicollinearity between the variables (Judge, Hill, Griffiths, Lutkepohl, & Lee, 1988). The highest reported correlations are (0.70) between AltmanZmod and ROA and (0.68) between AudRepSt and InsolvRecov. Additionally, an untabulated variance inflation factor (VIF) test including all dependent and independent variables shows values below 4, confirming no major multicollinearity concerns.

[Table 7 about here]

Table 8 reports the descriptive statistics for the dependent and independent variables.

Continuous variables are reported separately from dummy variables. Note that an auditor change occurs in 13.90 percent (4,878/35,085) of the observations, and the extreme auditor changes are the most frequent: upward ChUp and downward ChDown represent 30.30 (1,478/4,878) and 28.62 percent (1,396/4,878) of the auditor changes, respectively. The two types of lateral auditor changes (ChBetwB4 and ChBetwNB4) account for 23.12 percent (1,128/4,878) and 17.95 percent (876/4,878) of the auditor changes, respectively.

The cost of debt CD has a mean of 0.0333, which implies that the sample companies pay on average 3.33 percent of interest rate. This value is significantly lower than reported figures of 9.3 percent in Pittman and Fortin (2004) and 11.3 percent in Francis et al. (2005). These differences are likely to be mainly attributable to a lower general interest rate level in more recent periods (Trading economics, 2021). *[Table 8 about here]*

Regression models

Table 9 presents a multivariate analysis of the impact of the types of auditor change—ChUp, ChBetwB4, ChBetwNB4, and ChDown—on the cost of debt CD. The p-values are based on robust standard errors clustered by firm (Rogers, 1994), and the regressions include controls for year and industry. Models 3 and 4 include one lag of the dependent variable (1 Lag CD). Continuous variables are winsorized at the top and bottom 1%.

[Table 9 about here]

The consistent negative and significant coefficient for ChUp in Model 1 ($P=.006$) and Model 2 ($P=.014$), which holds after including one lag of the dependent variable in Model 3 ($P=.025$) and Model 4 ($P=.031$), gives support to the hypothesis H1a that upward auditor changes are associated with a lower cost of debt.

The insignificant coefficients for ChDown, ChBetwB4, and ChBetwNB4 across the different models provide no support for H1b (that downward auditor changes are associated with a higher cost of debt) but support H1c (that lateral auditor changes are not associated with the cost of debt).

Countries with higher auditing and reporting standards tend to have a lower cost of debt, as suggested by the negative coefficient for AudRepSt ($P<.001$ in Models 1 and 3). However, the positive sign of the interaction ChUpXAudRepSt ($P=.011$ in Model 1 and $P=.034$ in Model 3) suggests a smaller (larger) reduction of the cost of debt for companies performing upward changes in countries with higher (lower) auditing and reporting standards, thus supporting hypothesis H2a. In other words, a creditor's expected response to upward auditor changes (i.e., lowering the cost of debt) is stronger in countries with a weaker strength of auditing and reporting standards, meaning that upward auditor changes are more valuable in these countries. By contrast, the generally insignificant coefficient for ChDownXAudRepSt suggests that creditor's reaction to downward auditor changes is not significantly affected by the strength of

auditing and reporting standards in a country. Therefore, we find no support for H2b.

Countries with higher insolvency recovery rates also tend to have a lower cost of debt, as suggested by the negative coefficient for *InsolvRecov* ($P < .001$ in Model 2 and $P = .004$ in Model 4). However, the positive sign of the interaction *ChUpXInsolvRecov* ($P = .024$ in Model 2 and $P = .039$ in Model 4) suggests a smaller (larger) reduction of the cost of debt for companies performing upward changes in countries with higher (lower) insolvency recovery rate, thus supporting hypothesis H3a. In other words, a creditor's expected response to upward auditor changes (that is, lowering the cost of debt) is stronger in countries with weaker insolvency recovery rates, meaning that upward auditor changes are more valuable in these countries. By contrast, the insignificant coefficient for *ChDownXInsolvRecov* suggests that creditor's reaction to downward auditor changes is not significantly affected by the insolvency recovery rate in a country, providing no support for H3b.

Regarding the control variables, we find conformity across the models in the negative and mostly significant coefficients for *LnAge*, *ROA*, *Liquidity*, *Intangibles*, and *MtoB*, which are in line with the expectations that more experienced, economically profitable, liquid, and intangible-intensive companies, as well as the highly market-valued companies, should have a lower cost of debt.

Conversely, Δ *Assets*, *Leverage*, *Loss*, and Δ *Sales* show in general positive and significant coefficients, suggesting that growing, highly leveraged companies and companies reporting losses or increasing sales are associated with a higher cost of debt.

Addressing endogeneity

Addressing endogeneity concerns in empirical studies is important, but there is typically no single best way of doing this. We address the three sources of endogeneity which are most likely to affect the validity of the results obtained when using panel data: reverse causality (simultaneity), dynamic endogeneity, and omitted variables (Ullah, Akhtar, & Zaefarian, 2018).

Francis et al. (2017) state that the relationship between an auditor change and the cost of debt does not necessarily reflect a causal effect of the auditor change on the cost of debt. As both variables are simultaneously determined in our model (simultaneity), the causal effect might also go in the opposite direction, in that a creditor requires or recommends in the loan terms (including the cost of debt) the company to change their auditors at a certain point (reverse causality). It is also likely that past realizations of the cost of debt influence the status of the company and the current value of the cost of debt (dynamic endogeneity). A further possibility is that company characteristics (e.g., financial status) or other unobserved factors influence both the decision to change auditor and the cost of debt (omitted variables).

To address the problem of reverse causality, we rely on the empirical study of Donovan,

Frankel, Lee, Martin, and Seo (2014), which examines debt contracts for concerns related to auditor quality, finding no evidence that lenders require companies to switch auditors as a condition for granting a loan. Moreover, Francis et al. (2017) argue that there would be no reason for a bank to ask companies to change auditors as a requirement to obtain a loan if the auditor change leads, in any case, to an increase in the cost of debt (as it does in Francis et al. (2017)). Empirically, we deal with the reverse causality concern by exploiting the dynamic structure of our panel data. In some of our models, we include one lag of the dependent variable 1 Lag CD. If only the past value of the cost of debt influences the decision to change auditors, then the influence of auditor changes in the cost of debt should disappear. However, the effect of upward auditor changes, ChUp, on the cost of debt remains significant and negative after controlling for the past values of the cost of debt in a dynamic panel model, thus disregarding the possibility that our results are driven by reverse causality.

To address the problem of dynamic endogeneity, we explore the impact of the auditor changes on the variation in the cost of debt (see Table 10). For example, if upward auditor changes, ChUp, influence the cost of debt, then ChUp should also be associated with the change in the cost of debt before and after the change of auditor. Our results hold when using the variations of cost of debt Var CD as the dependent variable.

[Table 10 about here]

In addition, we use the Generalized Method of Moments (GMM) model presented in Table 11 to jointly address all the above-mentioned aspects of endogeneity. The two-step GMM (Arellano-Bond dynamic panel-data estimation) is argued to be more efficient than fixed effects (FE), as it controls for unobserved heterogeneity, simultaneity, and dynamic endogeneity, is robust to heteroskedasticity and autocorrelation (Roodman, 2009), and helps to overcome endogeneity arising from reverse causality (Ullah et al., 2018). By using instrumental variables and a two-step least square approach, the GMM controls for simultaneity, and by internally transforming the data and including two lags of the dependent variable, it also controls for dynamic endogeneity. The GMM model confirms our main findings in that upward auditor changes are related to the lower and decreasing cost of debt and that the institutional setting (determined by the strength of auditing and reporting standards and the insolvency recovery rate) plays an important role in creditors' positive perceptions of upward auditor changes.

[Table 11 about here]

To address the problem of omitted variables, we include a broad set of control variables (firm financials) and control the models for year and industry. We show that time and industry effects, as well as other characteristics of the firm, do not drive the main results.

Robustness checks

As previously mentioned, the dependent variable CD is a proxy for the cost of debt. For robustness purposes, therefore, we rerun the regressions using an alternative cost of debt measure: interest expenses divided by average short-term debt. This measure has a mean of 0.082, which is closer to the cost of debt means of 0.093 in Pittman and Fortin (2004) and 0.113 reported in Francis et al. (2005). When we use this cost of debt measure, the results are qualitatively like the ones reported in this study.

Starting from June 17, 2016, the EU regulatory framework requires mandatory audit firm rotation after 10 years for companies of public interest (Regulation (EU) No 537/2014).⁸ Because creditors' reactions may be affected by whether the auditor change is mandatory or voluntary, we address this issue further by breaking the sample into two sub-periods, 2007-2015 and 2016-2020, for which the results are qualitatively similar to the results obtained with the full sample for the period 2007-2020.

There are many different additional institutional characteristics that could potentially moderate the relationship between (type of) auditor change and cost of debt. Therefore, we perform further tests using different country indexes (representing the institutional setting of a country) likely to impact creditors' reactions to auditor changes. Besides strength of auditing and reporting standards and insolvency recovery rate, we consider country indexes related to the development of financial markets, investor protection, legal rights, ethics and corruption, regulation of securities exchanges, soundness of banks, ease of access to loans, protection to minority shareholders' interests, and financing through local equity market (World Economic Forum, 2017, 2018, 2019). However, none of these indexes has individually the same significance, nor are any directly linked to the (role of) auditors and (protection of) creditors like the strength of auditing and reporting standards and the insolvency recovery rate.

As many companies have closing dates different than December 31, we controlled for the closing month, and the results did not change qualitatively.

Given that the observations from the UK represent around one-fourth of the sample (9,191 out of the 35,085 observations) and that this country has by far the highest liability cost among the European countries, we replicate our regressions for the UK (see Table 12) and the remaining 13 countries (see Table 13) separately. In Table 13, the results for the sample of the 13 remaining European countries (without the UK) are consistent with the ones reported for the entire 14-country sample (see Table 9), indicating that the UK observations do not drive the results.

[Table 12 about here]

[Table 13 about here]

The results for the UK (see Table 12) are different from the ones for the rest of the European countries. These results are, as one might expect for a country with high liability

(litigation and switching) costs, (more) consistent with Francis et al.'s (2017) results for the US, in the sense that auditor changes that are significantly related to the cost of debt have positive signs. In particular, lateral changes between non-Big 4 auditors (ChBetwNB4) are significantly associated with a higher cost of debt ($P=.029$ in Model 1 and $P=.018$ in Model 2) in the UK. To further check the robustness, we run the tests separately for EU countries (i.e., Finland, France, Denmark, Portugal, Ireland, Spain, Greece, Germany, Italy, Netherlands, Sweden, and the United Kingdom—the UK was part of the EU until February 2020), non EU countries (i.e., Norway and Russia), Nordic countries (Finland, Sweden, Norway, and Denmark) and Southern Europe (Spain, Italy, Ireland, Greece, and Portugal). In all cases, the key result for upward auditor changes does not change (ChUp is negatively related to the cost of debt CD). Interestingly, for the last group of countries (Southern Europe), all types of auditor changes exhibit a negative and significant sign, possibly suggesting that auditor-client independence is particularly valued in these countries.

We recognize that our results are not exactly comparable with those of Francis et al. (2017). This is because different types of data are available in the databases used in both studies. This, in turn, also led to some differences in cost of debt measures and control variables. These differences finally also prompted the use of different methods and models. For example, given the characteristics of our sample (large, multi-country, multi-period, and with the possibility of more than one treatment—auditor change—per firm), we used OLS regressions based on robust standard errors clustered by firm and the GMM model instead of the difference in difference (DID) method used by Francis et al. (2017) for a sample of companies from one country having only one treatment (one auditor change per company).

To show that the differences in databases and methodologies used in this study are not significant enough to obstruct the comparison of our results with those of Francis et al. (2017) and to influence our conclusions, we ran the OLS regression based on robust standard errors clustered by firm for a reduced

US sample from ORBIS database and arrived, despite these differences, at results similar to those of Francis et al. (2017), in the sense that the significant relationships between types of auditor change and the cost of debt were equally positive.

DISCUSSION

This study confirms for the context of 14 European countries our prediction that creditors' perceptions and reactions to an auditor change are dependent on its direction. More specifically, we demonstrate that creditors' reactions to upward auditor changes are, as expected, positive. The findings of our study indicate that upward auditor changes lead to lower and decreasing costs of debt, thereby supporting the notion that creditors perceive the appointment of a Big 4 auditor to reduce their information risk. While our findings largely support our initial theorizing, they stand in contradiction to results from the US, according to

which all types of auditor change, no matter the direction, result in a higher cost of debt (Francis et al., 2017). We explain these contradictory results with major differences in the national institutional contexts. More specifically, we argue that the litigation costs—and the resulting auditor switching costs—constitute the most important institutional differences, triggering diverse creditors' responses to auditor change. Moreover, in terms of our moderators, we show that the positive impact of upward changes (i.e., lower and decreasing cost of debt) is stronger (weaker) in institutional settings characterized by weak (strong) auditing and reporting standards as well as by a weak (strong) insolvency recovery rate.

Theoretical contributions

Our findings demonstrate that the institutional setting matters for how creditors respond to auditor-related information in general and auditor changes in particular. For the European (low litigation) setting, we establish that different types of auditor change (upward, downward, or lateral) signal different information about the company to creditors, who differentiate their response to auditor change based on the perceived quality of the new auditor relative to the dismissed/resigned auditor.

Even if our findings for a low litigation cost context stand in opposition to previous findings for a high litigation cost context by Francis et al. (2017), we are in no way disputing the validity of their findings; instead, we build on their results by establishing the boundary conditions of this important study. Therefore, on a theoretical level, we suggest that creditors' responses to auditor changes are dependent on the institutional setting and thus not uniform across countries. This view is further supported by our intra European comparisons providing additional evidence for the importance of the national institutional setting, specifically regarding the strength of auditing and reporting standards and insolvency recovery rate. Our sample of 14 European countries with different legal and cultural traditions covers a wide spectrum regarding these moderating variables, and on this basis, we establish that these factors moderate the relationship between auditor change and the cost of debt. More specifically, our results indicate that the positive impact of upward changes has more value in environments where the strength of auditing and financial reporting standards is weaker than elsewhere, and the insolvency recovery rate is lower. Our intra-European comparative findings further reinforce the relevance of institutional settings when assessing how creditors, as one of the key users of audited financial statements, perceive the value of audits provided by two different types of auditors (i.e., Big 4 vs non-Big 4).

Our study adds to prior research which has documented the relevance of the institutional setting for (actual) audit quality (DeFond & Zhang, 2014; Francis, 2011; Francis et al., 2012; Knechel et al., 2013) and for how creditors respond (e.g., in terms of the cost of debt) to audit(or)-related information (Khurana & Raman, 2004a; Khurana & Raman, 2004b). These findings are in line with documented evidence that litigation exposure matters for audit quality

(Francis & Wang, 2008; Hope & Langli, 2010; Khurana & Raman, 2004a). Specifically, we share the view of Kallunki et al. (2007) that differences in litigation cost can be expected to impact how selective auditors in different institutional settings are in accepting new clients (i.e., rejection rate) as well as the (perceived) switching costs. Adding support to Francis et al. (2017), findings also indicate that creditors indeed consider the switching cost of auditors in their assessment of what an auditor change signals in terms of the credibility of the financial statements.

This study also confirms previous research documenting that creditors perceive Big 4 and non-Big 4 auditors to deliver audits of different quality (Karjalainen, 2011; Kim, Simunic, Stein, & Yi, 2011).

Overall, we emphasize the importance of the national institutional context for creditors' perceptions about auditor changes and, in extension, of auditing practice in more general terms. In an even broader context, we view our study as part of the vast research stream in international business research, stressing the relevance of the institutional context, thus questioning the universal applicability of generalized assumptions (Brouthers, 2002; Henisz & Swaminathan, 2008; Peng, Wang & Jiang, 2008). In various, highly contextualized managerial areas, such as international HRM or international marketing, such a position might not be uncommon. However, in the area of international auditing, in particular when considering the worldwide oligopoly of the global Big 4 auditors (Asthana, Khurana, & Raman, 2018), and the standardized format of the global audit service in terms of tasks and procedures (Cooper, Holderness, Sorensen, & Wood, 2019; Huang & Vasarhelyi, 2019), stressing context-specificity and -dependency might still lead to conceptually and practically important new insights.

Practical implications

Our findings also have important practical implications in the European context for various audiences, including the three directly involved actors (1) audited companies, (2) creditors, and (3) auditors, and in addition, (4) the overall economy of a country. Our results should encourage companies that are currently using a non-Big 4 auditor to seek upward auditor changes, as this can lead to immediately lower costs of debt and a reduction in future borrowing costs due to enhanced perceptions of trust and credibility. However, this must be carefully weighed against the likely higher audit fees associated with a Big 4 auditor than a non-Big 4 auditor. For creditors, auditor changes and specifically the direction of auditor changes signal relevant information in terms of audit quality and information risk that creditors can systematically refer to as valuable input to evaluate the debtor's credit situation and determine lending policies and risk management strategies. As for Big 4 auditors, they can be encouraged in that their appointment by a company is considered good news for creditors and that their services are more valued (in comparison with non-Big 4s). For non-Big 4 auditors,

results instead indicate that they still need to develop their audit service before it can be perceived to have the same quality as Big 4 auditors. Finally, for the economy at large, the message is that the creditors (as key users of financial statements) seem to care about audit and audit quality and that the national institutional context plays an important role in determining the auditors' contribution to reducing information asymmetries and how they are perceived and valued (by creditors). In our particular European low litigation cost context, Big 4 auditors are perceived to provide a valuable and differentiated service contributing to information transparency.

Limitations and future research

We acknowledge that this study is subject to limitations that could be the starting point for future research. First, we do not have information about whether the auditor changes investigated were auditor or client-initiated. Auditor-initiated changes are more likely to signal unfavorable news about the client, its operations, and its financial status. For example, future researchers may wish to test in an experiment how creditors would respond to different types of auditor- and client-initiated auditor changes, respectively. Additionally, it would be interesting to investigate how this might impact the ability to be granted a loan and the loan conditions (i.e., interest rate, covenants, amortization).

Second, we do not have access to the switching costs for each of the countries included in the sample. Such information would allow for a direct test of how the costs related to auditor changes (within European countries and between Europe and the US) impact the association between the (type of) auditor change and the cost of debt.

Third, the dependent variable, cost of debt, was proxied with the information available in the annual reports. As already explained, this is due to different types of information being accessible in relevant databases available for the US and Europe. However, as explained in the "robustness checks" section, when using a reduced US sample from ORBIS and different debt measures from Francis et al. (2017), we arrived at qualitatively very similar results as Francis et al. (2017) in the sense that the significant relationships between types of auditor change and the cost of debt in the US are positive. Based on these findings, we are confident that differences in measurements are not driving the contrasting results, and therefore, our conclusions and inferences remain.

Fourth and finally, it would have been interesting to know when and under what circumstances creditors re-negotiate loan conditions (Peek et al., 2010) due to the auditor change. This information was, however, not available. In principle, renegotiation of a loan can occur at any time during the lifespan of a loan, even though, in practice, debt contract renegotiations can be both costly and lengthy (Bell, Doogar, & Solomon, 2008).

CONCLUSIONS

In this study, we find that the institutional setting plays a decisive role in determining how creditors perceive different types of auditor changes. We establish that in a low litigation (and auditor switching) cost environment, such as Europe, different types of auditor change lead to different responses from creditors, which are reflected in the cost of debt for the auditor-changing company. Most importantly, we confirm that creditors respond positively to upward auditor changes (i.e., with a lower and decreasing cost of debt). Apparently, creditors view this change as reflecting ambitions in terms of high financial reporting quality. Different from a high litigation cost environment, perceptions of audit quality seem to dominate the response of creditors to auditor change in a low litigation cost environment. When litigation and auditor-switching costs are low, the incentives to keep the incumbent auditor are weaker. Creditors are less likely to consider an auditor change as suspicious and may view upward switching positively, leading to a lower cost of debt. The lack of support for an increase in the cost of debt from a downward auditor change might be explained by creditors also considering the auditor independence effect of the auditor changes to be positive, not only the quality differentiation effect between Big 4 and non-Big 4 auditors.

Furthermore, for an intra-European comparison, we could equally confirm the relevance of the national institutional context for two moderating variables, the strength of auditing and reporting standards and the insolvency recovery rate, further supporting the relevance of the national institutional settings in international auditing. Overall, our findings indicate that core assumptions regarding creditors' response to auditing practice are not necessarily generalizable and universally applicable but instead highly context dependent. While these findings may be discomfiting from the perspective of reaching more homogenous and comparable auditing practices globally, they contribute to our understanding of the role of auditing in different institutional contexts and provide an important contribution to the international accounting and auditing literature.

NOTES

¹ Litigation (or liability) costs are the costs of claims, whether resolved through litigation or other claim resolution processes. Litigation costs impose indirect costs to companies (in addition to the direct costs of doing business) which derive from the uncertainty created by litigation and have the potential to distort or hinder effective business decision-making. An example of these costs is the auditor switching costs, which include the costs of terminating the current and starting a new auditor-client relationship plus the costs to subscribe new contacts between the parties.

² The Eurozone has an average liability (litigation) cost of 0.63 percent as a fraction of the combined GDP, while the UK has by far the highest liability cost (1.05 percent) among the European countries. This UK fraction is, however, still substantially lower than in the US (1.66

percent) (US-Chamber, 2013).

³ From an auditor independence perspective, an auditor change may be viewed positively.

⁴ The interest rate charged by the creditor is a function of three components, risk-free interest rate, business risk and information risk.

⁵ The liability cost, among the European countries considered, varies from 0.40 percent of the GDP in the Netherlands to 1.05 percent in the UK (US-Chamber, 2013, p.2). The average for the Eurozone is 0.63 percent. These figures are much lower than the one for the US (1.66 percent).

⁶ The fact that the UK represents more than one fourth of the sample is not driving the results. If the UK is removed from the analyses, similar results are obtained for the remaining countries.

⁷ Interestingly, auditor changes are more frequent during the years of global financial crisis (2007, 2008, and 2009), that is 576, 539, and 458 auditor changes respectively. Note also that downward auditor changes (ChDown) dominate in 2020 (i.e., 53.91 percent of the auditor changes). This is likely due to the Covid 19 pandemic which obliged clients to reduce their costs for hiring, for example, non-Big 4 auditors instead.

⁸ Except for Italy, which required mandatory rotation of audit firms after 9 years during the entire study period, the auditor changes in the remaining 13 European countries were not influenced by the regulation (EU) No 537/2014 on mandatory audit firm rotation in 2007-2015 (results do not change qualitatively if Italy is removed from the sample). For the period of 2016 onwards, decisions to change the auditor might have been (partly) influenced by this

regulation. For the entire study period (2007-2020), however, only very few auditor changes which directly occurred due to the mandatory audit firm regulation can be expected. Therefore, our main results are unlikely to be (significantly) affected by this regulation.

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TABLES

Table 1. Distribution of observations (N) by country, auditor, and year

Country N % Firms % Auditor N % Year N %

UK 9,191 26.20 1,220 30.65 PWC 6,505 18.54 2007 2,984 8.51 Germany 4,851 13.83
508 12.76 KPMG 6,148 17.52 2008 2,876 8.20 France 4,523 12.89 470 11.81 EY 5,483 15.63
2009 2,797 7.97 Sweden 3,591 10.24 418 10.50 Deloitte 5,022 14.31 2010 2,707 7.72 Italy
2,399 6.84 248 6.23 Non-Big4 11,927 33.99 2011 2,601 7.41 Norway 1,610 4.59 203 5.10 Total
35,085 100 2012 2,522 7.19 Greece 1,475 4.20 148 3.72 2013 2,474 7.05 Russia 1,436 4.09
148 3.72 2014 2,451 6.99 Finland 1,380 3.93 135 3.39 2015 2,439 6.95 Spain 1,296 3.69 125
3.14 2016 2,411 6.87 Netherlands 1,208 3.44 147 3.693 2017 2,349 6.70 Denmark 1,192 3.40
116 2.91 2018 2,255 6.43 Portugal 497 1.42 41 1.03 2019 2,192 6.25 Ireland 436 1.24 54 1.36
2020 2,027 5.78 Total 35,085 100 3,981 100 Total 35,085 100

Table 2. Distribution of types of auditor change by country (2007-2020) Country

Country	ChAud	ChUp	ChBetwB4	ChBetwNB4	ChDown	N	%	N	%	N	%	N	%	N	%			
UK	1,123	12.22	230	20.48	243	21.64	376	33.48	274	24.40	France	600	13.27	260	43.33			
	70	11.67	48	8.00	222	37.00	Germany	578	11.92	172	29.76	163	28.20	87	15.05			
	572	23.84	244	42.66	102	17.83	46	8.04	180	31.47	Sweden	554	15.43	188	33.94			
	10.65	192	34.66	Russia	268	18.66	93	34.70	32	11.94	39	14.55	104	38.81	Greece			
	15.97	16	6.72	155	65.13	29	12.18	Spain	205	15.82	58	28.29	74	36.10	16	7.80		
	187	11.61	54	28.88	62	33.16	12	6.42	59	31.55	Finland	171	12.39	46	26.90	82	47.95	
	22.81	Netherlands	145	12.00	30	20.69	71	48.97	13	8.97	31	21.38	Denmark	135	11.33	41	30.37	
	57	42.22	7	5.19	30	22.22	Portugal	67	13.48	13	19.40	28	41.79	13	19.40	13	19.40	
	8.03	11	31.43	13	37.14	1	2.86	10	28.57	Total	4,878	13.90	1,478	30.30	1,128	23.12	876	17.96
	1,396	28.62																

The column ChAud indicates, for each country, the percentage of observations containing an auditor change. For example, 12.22% of the UK observations (1,123 out of 9,191) contain an auditor change. The remaining columns show, for each country, the distribution of the observations with auditor changes by type of auditor change. For example, in the UK the 20.48% of the auditor changes (230 out of 1,123) are upwards (ChUp).

Year

Table 3. Distribution of types of auditor change by year ChAud ChUp ChBetwB4 ChBetwNB4 ChDown N % N % N % N % N %

Year	ChAud	ChUp	ChBetwB4	ChBetwNB4	ChDown	N	%	N	%	N	%	N	%	N	%				
2007	576	19.30	213	36.98	52	9.03	138	23.96	173	30.03	2008	539	18.74	202	37.48				
	14.47	104	19.29	155	28.76	2009	458	16.37	162	35.37	59	12.88	98	21.40	139	30.35			
	15.70	160	37.65	69	16.24	84	19.76	112	26.35	2011	368	14.15	135	36.68	67	18.21			
	21.20	2012	278	11.02	92	33.09	62	22.30	53	19.06	71	25.54	2013	259	10.47	84	32.43		
	39	15.06	75	28.96	2014	289	11.79	89	30.80	94	32.53	45	15.57	61	21.11	2015	298	12.22	
	30.87	95	31.88	50	16.78	61	20.47	2016	260	10.78	77	29.62	105	40.38	35	13.46	43	16.54	
	250	10.64	35	14.00	118	47.20	30	12.00	67	26.80	2018	252	11.18	50	19.84	84	33.33	26	10.32
	92	36.51	2019	281	12.82	62	22.06	100	35.59	36	12.81	83	29.54	2020	345	17.02	25	7.25	84
	24.35	50	14.49	186	53.91	Total	4,878	13.90	1,478	30.30	1,128	23.12	876	17.96	1,396	28.62			

The column ChAud indicates, for each year, the percentage of observations containing an auditor change. For example, 19.30% of the 2007 observations (576 out of 2,984) contain an auditor change. The remaining columns show, for each year, the distribution of the observations with auditor changes by type. For example, in 2007 the 36.98% of the auditor changes (213 out of 576) are upwards (ChUp).

Table 4. Strength of auditing and reporting standards (country index)

2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020*	Average
------	------	------	------	------	------	------	------	------	------	------	------	------	-------	---------

Finland 6.2 6.1 6.2 6.2 6.1 6.3 6.4 6.4 6.5 6.6 6.6 6.6 6.5 6.5 6.4 Norway 6.1 6.1 6.1 6.1
6.0 5.9 6.1 6.3 6.3 6.4 6.4 6.0 6.0 6.0 6.1 Sweden 6.3 6.1 6.1 6.3 6.3 5.9 5.9 5.9 6.0 6.2 5.9 6.0
6.0 6.0 6.1 Netherlands 6.0 6.1 5.9 5.8 5.8 6.0 5.9 5.9 6.0 6.1 6.3 6.3 6.2 6.2 6.0 UK 6.3 6.0 5.6
5.6 5.9 5.9 5.8 5.8 5.9 6.0 6.0 5.8 5.4 5.6 5.8 Denmark 6.2 6.0 5.9 5.7 5.7 5.3 5.2 5.5 5.7 5.6 5.7
5.8 5.7 5.8 5.7 Germany 6.3 6.1 5.8 5.6 5.3 5.5 5.5 5.6 5.8 5.8 5.7 5.5 5.4 5.4 5.7 France 6.1 5.9
5.6 5.5 5.6 5.3 5.3 5.5 5.5 5.6 5.7 5.7 5.4 5.6 5.6 US 5.8 5.9 5.3 5.0 5.2 5.2 5.3 5.5 5.7 5.8 5.8
5.8 5.8 5.8 5.5 Ireland 6.2 6.1 5.3 4.7 4.3 4.6 4.8 4.9 4.8 4.9 5.1 5.1 5.3 5.2 5.1 Spain 5.2 5.3
5.0 4.9 4.9 4.6 4.4 4.5 4.6 4.7 4.8 5.2 5.5 5.3 4.9 Portugal 5.5 5.3 4.9 4.9 4.9 4.9 4.8 4.9 4.4 3.9
4.0 4.2 4.3 4.3 4.7 Greece 5.1 5.0 4.9 4.7 4.5 4.4 4.3 4.3 4.1 4.0 3.9 3.7 3.8 3.8 4.3 Italy 4.5 4.4
4.0 4.0 4.3 4.1 4.0 4.2 4.2 4.1 4.3 4.5 4.4 4.5 4.2 Russia 3.9 3.8 3.7 3.8 3.8 3.8 4.0 4.1 4.1 4.0
4.0 4.3 4.3 4.3 4.0

Source: World Economic Forum. The Global Competitiveness Index 2007-2017, 2018, and 2019. * We assume that the index value for 2020 is the average of 2018 and 2019 values.

Table 5. Insolvency recovery rate (country index)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020*	Average
Norway	90.7	89.0	89.0	90.9	90.6	90.8	91.3	92.3	92.5	92.9	93.1	93.1	92.0	92.6	91.5
Finland	88.2	87.3	87.3	89.4	89.1	89.7	90.2	90.2	90.1	90.3	88.3	88.3	88.3	88.9	Netherlands
	87.1	83.2	83.2	82.5	88.0	89.2	89.5	89.9	88.9	89.3	89.7	89.8	90.1	90.0	87.9
	86.5	89.4	87.3	87.1	87.0	87.5	87.8	88.0	88.1	88.5	88.5	88.3	87.7	Ireland	87.1
	86.9	87.5	87.6	87.7	87.7	87.7	85.8	85.8	86.0	85.9	86.9	UK	84.6	84.2	84.7
	88.6	88.6	88.6	85.2	85.2	85.3	85.3	86.8	Germany	81.9	80.5	80.5	81.9	82.9	78.4
	84.4	80.6	80.6	80.4	80.5	81.6	US	75.9	76.7	76.7	81.5	81.5	81.5	82.3	82.3
	82.3	82.3	80.9	Sweden	74.7	75.1	75.1	77.3	75.8	74.7	75.5	76.1	76.6	77.9	78.1
	76.5	Spain	72.8	67.6	67.6	70.5	75.6	76.5	72.3	71.3	71.2	78.3	76.6	76.6	77.3
	74.0	69.4	69.4	72.6	70.9	74.6	71.6	64.0	65.5	66.6	63.8	63.8	64.5	64.2	68.2
	44.5	45.0	45.6	48.2	77.2	77.5	78.5	78.5	73.5	73.5	73.8	73.7	62.9	Italy	61.8
	63.4	62.7	62.8	63.1	63.9	64.6	64.6	65.2	64.9	62.1	Russia	42.2	41.6	41.6	39.3
	42.6	41.3	38.1	40.2	40.7	42.1	41.4	41.3	Greece	44.8	44.2	44.2	43.2	41.8	40.9
	35.6	33.6	33.6	33.2	33.4	38.0									

Source: World Economic Forum. The Global Competitiveness Index 2007-2017, 2018, and 2019. * We assume that the index value for 2020 is the average of 2018 and 2019 values.

Variable Definition

Table 6. Definition of variables

CD (cost of debt) interest expense divided by the average short- plus long-term debt 1
Lag CD (cost of debt in the previous year, t-1)

ChAud (change of auditor) 1 if the auditing firm (that is, the firm signing the audit

report) in year t is different from the auditing firm in year t-1, 0 otherwise

ChUp (upward change or change up) 1 if the auditing firm (that is, the firm signing the audit report) in year t is a Big 4 and the auditing firm in year t-1 is a non-Big 4, 0 otherwise
ChBetwB4 (lateral change between Big 4 auditors) 1 if the auditing firm (that is, the firm signing

the audit report) in year t is a Big 4 and the auditing firm in year t-1 is another Big 4, 0 otherwise

ChBetwNB4 (lateral change between non-Big 4 auditors) 1 if the auditing firm (that is, the firm signing the audit report) in year t is a non-Big 4 and the auditing firm in year t-1 is another non-Big 4, 0 otherwise

ChDown (downward change or change down) 1 if the auditing firm (that is, the firm signing the audit report) in year t is a non-Big 4 and the auditing firm in year t-1 is a Big 4, 0 otherwise

AudRepSt (strength of auditing and reporting standards) country index retrieved from the World Economic Forum (2007-2017, 2018 and 2019)

InsolvRecov (insolvency recovery rate) country index retrieved from the World Economic Forum (2007-2017, 2018 and 2019)

Clean (auditor opinion) 1 if the auditor report is unqualified without additional explanatory language, 0 otherwise

LnAge natural logarithm of the number of years that the company has been listed in the stock market (proxied by the number of years of firm information available in Datastream)

Size natural logarithm of total assets

Δ Assets (% variation in total assets) difference between total assets in years t and t-1 divided by total assets in year t-1

Leverage total liabilities divided by total assets

ROA (return on assets) operating income after depreciation divided by total assets

Liquidity current assets divided by total assets

Loss 1 if the net income is negative, 0 otherwise

Intangibles intangible assets divided by total assets

Receivables receivables divided by total assets

Δ Sales (% variation in sales) difference between sales in years t and t-1 divided by sales in AltmanZmod^{year t-1} (modified Altman's (1968) Z score) = (1.2A + 1.4B + 3.3C + 0.9D)/Total Assets, where A is working capital, B is retained earnings, C is EBIT and D is total sales
MtoB (market to book) market value of equity divided by book value of equity

Table 7. Pearson's correlation matrix

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(1)	CD	
																						1	
	(2)																						
		(3)																					
			(4)																				
				(5)																			
					(6)																		
						(7)																	
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																(17)							
																	(18)						
																		(19)					
																			(20)				
																				(21)			
																					MtoB		

This table reports pairwise correlations between the variables used in the main regressions. All variables are described in Table 6. The correlation coefficients are based on data winsorized at the 1st and 99th percentiles to mitigate the influence of extreme values. The sample includes 35,085 firm-year observations over the period 2007 – 2020.

Table 8. Descriptive statistics

Variable N mean sd min p25 p50 p75 max

CD 35,085 0.0333 0.0293 0 0.0138 0.0272 0.0447 0.2304 1 Lag CD 34,389 0.0344

0.0297 0 0.0146 0.0286 0.0459 0.2304 Var CD 34,389 -0.0009 0.0212 -0.1286 -0.0060 -0.0006
0.0043 0.1189 AudRepSt 35,085 5.5423 0.6824 3.6645 5.3828 5.7505 5.9924 6.5772
InsolvRecov 35,085 75.8272 15.5994 33.2000 73.5000 80.6000 87.6000 93.1000 Age (years)
35,085 15.6367 7.0046 1 10 15 21 34

LnAge 35,085 2.6268 0.5286 0 2.3026 2.7081 3.0445 3.4012 Size 35,085 6.0535 2.4637
-0.9442 4.2523 5.7981 7.6552 12.0612 ΔAssets 35,085 0.1229 0.5972 -0.8781 -0.0449 0.0339
0.1370 8.3652 Leverage 35,085 0.5832 0.2839 0.0136 0.4196 0.5694 0.7100 2.6300 ROA
35,085 0.0190 0.1952 -2.3479 0.0044 0.0515 0.0920 0.3659 Liquidity 35,085 0.4700 0.2219
0.0261 0.2992 0.4620 0.6286 1

Intangibles 35,085 0.2019 0.2039 0 0.0252 0.1351 0.3276 0.8177 Receivables 35,085
0.2003 0.1423 0.0001 0.0925 0.1724 0.2746 0.7022 ΔSales 35,085 0.0979 0.4221 -0.9048 -
0.0485 0.0441 0.1527 2.5030 AltmanZmod 35,085 0.8071 3.5501 -59.2990 0.5969 1.2737
1.9373 4.5861 MtoB 35,085 1.4097 2.6804 -4.5306 0 0.6331 1.8806 20.2983

Variable NN=1 % of N % of

ChAud

ChAud 35,085 4,878 13.90 100

ChUp 35,085 1,478 4.21 30.30

ChBetwB4 35,085 1,128 3.22 23.12

ChBetwNB4 35,085 876 2.50 17.96

ChDown 35,085 1,396 3.98 28.62

Clean 35,085 25,860 73.71

Big4 35,085 23,158 66.01

Loss 35,085 10,596 30.20

This table presents the descriptive statistics for the cost of debt CD, one lag of cost of debt (1 Lag CD) and the variation of cost of debt (Var CD), the country indexes AudRepSt (strength of auditing and reporting standards) and InsolvRecov (insolvency recovery rate), and a fixed set of control variables at the firm level. The frequencies for the (type of) auditor changes and the dummy variables Clean, Big4, and Loss are also included. Continuous variables are winsorized at the top and bottom 1%.

Table 9. Types of auditor change and cost of debt (14 European countries)

Model 1 Model 2 Model 3 Model 4

CD = interest expense /

(short + long term debt) Coef. P value Coef. P value Coef. P value Coef. P value 1 Lag CD

0.6125 0.000 0.6143 0.000 ChUp -0.0137 0.006 -0.0078 0.014 -0.0087 0.025 -0.0048 0.031
ChBetwB4 -0.0065 0.299 0.0011 0.841 0.0015 0.733 0.0023 0.497 ChBetwNB4 0.0065 0.516
0.0012 0.815 0.0018 0.789 -0.0002 0.935 ChDown -0.0088 0.121 -0.0030 0.397 -0.0016 0.748
-0.0010 0.755 AudRepSt -0.0039 0.000 -0.0014 0.000 ChUpXAudRepSt 0.0024 0.011 0.0016
0.034 ChBetwB4XAudRepSt 0.0009 0.410 -0.0004 0.627 ChBetwNB4XAudRepSt -0.0005
0.797 0.0001 0.910 ChDownXAudRepSt 0.0019 0.064 0.0003 0.770 InsolvRecov -0.0001
0.000 -3E-05 0.004 ChUpXInsolvRecov 0.0001 0.024 0.0001 0.039 ChBetwB4XInsolvRecov
0.0000 0.641 0.0000 0.385 ChBetwNB4XInsolvRecov 0.0000 0.542 0.0000 0.367
ChDownXInsolvRecov 0.0001 0.171 0.0000 0.777 Clean 0.0005 0.374 0.0006 0.333 -0.0003
0.351 -0.0003 0.344 LnAge -0.0045 0.000 -0.0049 0.000 -0.0009 0.007 -0.0010 0.002 Size -
0.0001 0.754 0.0000 0.973 0.0000 0.795 0.0000 0.560 ΔAssets 0.0027 0.000 0.0027 0.000
0.0028 0.000 0.0028 0.000 Leverage 0.0165 0.000 0.0170 0.000 0.0068 0.000 0.0070 0.000
ROA -0.0075 0.010 -0.0067 0.021 -0.0049 0.005 -0.0045 0.009 Liquidity -0.0270 0.000 -
0.0283 0.000 -0.0139 0.000 -0.0144 0.000 Loss 0.0076 0.000 0.0076 0.000 0.0042 0.000 0.0042
0.000 Intangibles -0.0099 0.000 -0.0111 0.000 -0.0054 0.000 -0.0059 0.000 Receivables -
0.0090 0.009 -0.0082 0.017 0.0008 0.597 0.0012 0.446 ΔSales 0.0042 0.000 0.0041 0.000
0.0041 0.000 0.0040 0.000 AltmanZmod -0.0002 0.383 -0.0002 0.334 0.0000 0.972 0.0000
0.977 MtoB -0.0002 0.015 -0.0003 0.005 -0.0001 0.165 -0.0001 0.087 Constant 0.0737 0.000
0.0577 0.000 0.0274 0.000 0.0212 0.000 Year controls Yes Yes Yes Yes Industry controls Yes
Yes Yes Yes N 35,085 35,085 34,389 34,389 R² 0.2054 0.2013 0.5316 0.5312

This table presents a multivariate analysis of the impact of the four different types of auditor change ChUp, ChBetwB4, ChBetwNB4, and ChDown on the cost of debt CD. The p-values are based on robust standard errors clustered by firm (Rogers, 1994). The OLS regressions include the country indexes AudRepSt (strength of auditing and reporting standards) and InsolvRecov (insolvency recovery rate), the interactions between the four types of auditor change and each of the two indexes, a fixed set of control variables at the firm level in year t, and controls for year and industry. Models 3 and 4 include one lag of the dependent variable (1 Lag CD). Continuous variables are winsorized at the top and bottom 1%.

Table 13. Types of auditor change and cost of debt (13 European countries, without the UK)

Model 1 Model 2 Model 3 Model 4

CD = interest expense /

(short + long term debt) Coef. P value Coef. P value Coef. P value Coef. P value 1 Lag CD
0.6399 0.000 0.6424 0.000 ChUp -0.0137 0.008 -0.0078 0.020 -0.0066 0.099 -0.0036 0.125
ChBetwB4 -0.0059 0.343 0.0015 0.783 0.0042 0.345 0.0041 0.251 ChBetwNB4 0.0133 0.211
0.0043 0.419 0.0088 0.166 0.0028 0.359 ChDown -0.0106 0.067 -0.0042 0.275 -0.0018 0.735
-0.0001 0.972

AudRepSt -0.0041 0.000 -0.0013 0.000 ChUpXAudRepSt 0.0023 0.020 0.0011 0.162
ChBetwB4XAudRepSt 0.0008 0.477 -0.0010 0.241 ChBetwNB4XAudRepSt -0.0022 0.281 -
0.0015 0.204 ChDownXAudRepSt 0.0023 0.036 0.0002 0.832 InsolvRecov -0.0001 0.000 -2E-
05 0.022

ChUpXInsolvRecov 0.0001 0.052 0.0000 0.223 ChBetwB4XInsolvRecov 0.0000 0.580
-0.0001 0.148 ChBetwNB4XInsolvRecov 0.0000 0.726 0.0000 0.562 ChDownXInsolvRecov
0.0001 0.124 0.0000 0.889 Clean 0.0013 0.052 0.0014 0.045 0.0001 0.715 0.0001 0.794 LnAge
-0.0052 0.000 -0.0056 0.000 -0.0011 0.004 -0.0013 0.001 Size 0.0001 0.800 0.0001 0.612
0.0000 0.741 0.0000 0.577 ΔAssets 0.0029 0.000 0.0029 0.000 0.0033 0.000 0.0033 0.000
Leverage 0.0174 0.000 0.0182 0.000 0.0064 0.000 0.0066 0.000 ROA -0.0122 0.000 -0.0110
0.002 -0.0076 0.000 -0.0072 0.000 Liquidity -0.0278 0.000 -0.0295 0.000 -0.0142 0.000 -
0.0147 0.000 Loss 0.0066 0.000 0.0066 0.000 0.0036 0.000 0.0036 0.000 Intangibles -0.0104
0.000 -0.0122 0.000 -0.0052 0.000 -0.0058 0.000 Receivables -0.0076 0.037 -0.0067 0.069
0.0023 0.157 0.0028 0.096 ΔSales 0.0041 0.000 0.0039 0.000 0.0037 0.000 0.0037 0.000
AltmanZmod 0.0001 0.836 0.0000 0.892 0.0002 0.073 0.0002 0.083 MtoB -0.0002 0.145 -
0.0002 0.064 0.0000 0.532 -0.0001 0.339 Constant 0.0712 0.000 0.0551 0.000 0.0243 0.000
0.0185 0.000 Year controls Yes Yes Yes Yes

Industry controls Yes Yes Yes Yes N 25,894 25,894 25,517 25,517 R² 0.2045 0.1987
0.5523 0.5515

This table presents a multivariate analysis of the impact of the four different types of auditor change ChUp, ChBetwB4, ChBetwNB4, and ChDown on the cost of debt CD in the European sample except for the UK (i.e. Denmark, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Norway, Portugal, Russia, Spain, and Sweden). The p-values are based on robust standard errors clustered by firm (Rogers, 1994). The OLS regressions include the country indexes AudRepSt (strength of auditing and reporting standards) and InsolvRecov (insolvency recovery rate), the interactions between the four types of auditor change and each of the two indexes, a fixed set of control variables at the firm level, and controls for year and industry. Models 3 and 4 include one lag of the dependent variable (1 Lag CD). Continuous variables are winsorized at the top and bottom 1%.

REDUNDANCY ANALYSIS TO UNCOVER GENDER DIFFERENCES IN BUSINESS INCUBATION: AN EXPLORATORY APPROACH

Rimi Zakania

Abstract

A key support mechanism for entrepreneurs is the business incubator programs, which provide tailored assistance and a conducive work environment for early-stage entrepreneurs. Despite the need for diversity in entrepreneurship and incubators' positive impact, women remain under-represented in the incubation environment, indicating a gender-based barrier to incubation and entrepreneurship. Extant research on incubation is largely gender-neutral. This research addresses this gap in scholarship by designing a behavioral intention model rooted in social psychology theories to explain entrepreneurs' intention to participate in incubation programs and assessing if gender differences exist. We develop a multidimensional measure of intention (e.g., usefulness, ease of use, and self-efficacy) to test our model. Studying 346 nascent entrepreneurs, we find that female entrepreneurs are not convinced if incubation programs are beneficial considering their use and access. This highlights the need for adopting inclusionary best practices to expand the applicant pool for business incubation programs.

Keywords: *Business Incubation, women, intention, gender*

Introduction

The extant entrepreneurship literature generically describes the concept of business incubation as a support program where business founders share workspace and equipment and receive professional business assistance with the end goal of becoming a viable, sustainable business upon completion of the program (Marlow et al 2015; Marlow et al 2005; Hackett et al 2004). Although business incubation has been a proven process for firm growth and increased survival rate of start-ups; women remain under-represented in these programs (Maxheimer et al, 2021; Agnete Alsos, Hytti, & Ljunggren, 2011; Fiske, Cuddy, Glick, & Xu, 2002; Heilman, 2012; Marlow & McAdam, 2012; Marlow & Patton, 2005). To that end, several researchers found that women who get the support they need; such as participating in business support programs, often outperform their male counterparts (Amezcuca 2010; Pompa, 2013; Bendell et al 2019; Smith et al 2020).

This study aims to explore why few nascent women entrepreneurs choose to participate in business incubation programs. To investigate this question, the study evaluates nascent entrepreneurs' internal attitudes and beliefs to better understand their decisions on whether to use business incubation programs and if gender plays a role in this association. Drawing on theories of social psychology, the study uses the theory of planned behavior (Ajzen, 1991, 2002;

Fishbein & Ajzen, 1980), social cognitive theory (Bandura, 1977, 1986, 2012), and the technology acceptance model (Venkatesh & Davis, 2000) to explain the inner understanding (perception), attitudes and beliefs, of the nascent entrepreneurs in their decision to apply (entry) a business incubation program and if gender differences exist.

This study developed the business incubation acceptance model extending the technology acceptance model proposed by Venkatesh & Davis (2000) to investigate the study's overall research question; why nascent entrepreneurs' choose not to seek or apply to business incubation services. The business incubation acceptance model illustrates that perceptions of nascent entrepreneurs' personal beliefs and attitudes, form intention and it is widely understood that intentions affect a person's actions. To investigate the dependent variable intention to incubate the research team adopted a reflective and formative scale (Arnett, et. al 2003) to add further rigor to the proposed model. The measurement scale developed in this study explored nascent entrepreneurs' perceptions of business incubation programs. The research model defined intention to incubate as the nascent entrepreneur's readiness (or willingness) to apply to a business incubation program. The study attempted to explain the variance of this construct through three key independent constructs: ease of use, usefulness, and self-efficacy. Gender difference was also explored by evaluating biological sex gender and gender roles as a set of behaviors and attitudes based on one's actual or perceived sexuality and is anchored on notions of femininity and masculinity (Steffen, 2015) (see Figure 1).

Given there is not a widely applied or existing scale, consistent with our priorities we develop a business incubation intention scale to test our hypotheses. Implementing a quantitative research design, this study empirically tests the nascent entrepreneurs perceived usefulness and ease of use of a business incubation program, and their self-efficacy around successfully completing the program. For gender we used biological sex as a dichotomous variable and gender roles is measured using the Traditional Masculinity-Femininity (TMF) scale, which was designed to assess central facets of self-ascribed masculinity-femininity (Kachel et al 2016). Partial least squares was the primary statistical technique used to evaluate the research model. Our stratified sample consisted of 346 early-stage entrepreneurs, with respondents of 164 men and 180 women. The findings of this study supported the notion that perception (attitudes and beliefs) do influence an entrepreneur's intention to participate in a business incubation program. In addition, the study uncovered gender is a mediating factor in an entrepreneur's perception of business incubation programs.

The remainder of the paper proceeds as follows. A review the relevant literature and development of our hypotheses, followed by the methods , discussion and empirical results.

Literature Review

Business Incubators Relevance to the Entrepreneurship Process. Business incubation programs were developed on the principle of increasing the survival rate and growth rate of

new firms. This is done by supporting companies with a high potential for success but are inhibited by a lack of resources (Lesakova, 2012). The incubation process assists and guides firms in overcoming obstacles, thereby creating companies that can better manage challenges that are competitive, profitable, and sustainable (Salvador & Rolfo, 2011). The goal of a business incubator is to create self-sustaining businesses that contribute to the local economy by creating new jobs, diversifying industries, revitalizing neighborhoods, and reducing unemployment. (Al Mubarak & Busler, 2011; Bizzotto, 2003; Mutambi, Buhwed, Byaruhanga, & Trojer, 2010).

Over the last two decades, researchers have empirically tested and identified several indicators which lead to a successful business incubation program (Hackett & Dilts, 2004; Hackett & Dilts, 2008; Theodorakopoulos, K. Kakabadse, & McGowan, 2014a, 2014b; Udell, 1990). Out of these studies, strong empirical support was found for three key indicators in describing the business incubation process: Selection, Program, and Graduation. For the purpose of this study, we define each indicator accordingly: *Selection* defined as the evaluation, recommendation, and selection of new start-up applicants into the business incubation program (Aerts, Matthyssens, & Vandenbempt, 2007; Culp, 1996; Henry & Treanor, 2010; Lumpkin & Ireland, 1988; Smilor, 1987; Tsaplin & Pozdeeva, 2017); *Program* defined by the services provided by the business incubator (Campbell et al., 1985; Smilor and Gill, 1986; Smilor, 1987; Rice, 2002; Markley and McNamara, 1995; Mian 1996; Hackett & Dilts, 2004a ; Bruneel et al., 2012); and *Graduation*, which is defined by the performance and viability of the businesses after completing the incubator program (Bollingtoft, Ulhoi, Madsen, & Neergaard, 2003; McAdam & Marlow, 2008). These variables help form the concept of a business incubation program.

Nascent Women Entrepreneurs and Business Incubation Programs. Research regarding nascent women entrepreneurs has been steadily evolving. Amezcua's (2010) baseline research model indicated that nascent women entrepreneurial firms that are clients of business incubators represent better odds of survival, higher performance, increased growth in sales, and higher levels of employment growth than nascent men. In addition, several researchers have agreed that when women-owned firms get the resources they need, they can more easily overcome obstacles of gender bias and acquire legitimacy for their businesses (Amezcua, 2010; Boden Jr & Nucci, 2000; Godwin, Stevens, & Brenner, 2006; Henry & Treanor, 2010; McAdam & Marlow, 2008). All things being equal, researchers have also found that female-owned entrepreneurs are just as likely as men to succeed when given access to resources, contacts, and legitimacy necessary to function (Amezcua, 2010).

Other studies have explained the low participation rates of women entrepreneurs in business incubators by focusing on their experiences. For example, Scharff's (2011) post-experiential gender study analyzed how women internalize, process, and engage in the high-stakes, high-stress environment of a business start-up. Henry and Treanor (2010) discussed

establishing selection policies around gender, providing a balance of women mentors, and including gender balance in promotional activities. McAdam and Marlow (2008; 2012) discussed the male-dominated culture of incubation facilities. They shared how nascent women entrepreneurs felt excluded and had difficulties balancing gender roles, not only from the incubation culture, but also from the expectations of themselves as entrepreneurs, women, wives, and mothers, which often conflicted (Marlow & McAdam, 2012).

Gender role identity. Traditionally, studies viewed gender from a biological gender perspective where both sex and gender are equivalent, meaning women are human females and men are human males depending on *biological* features (chromosomes, sex organs, hormones, and other physical features). Some influential researchers lead the movement of considering the distinction between sex and gender (De Beauvoir & Parshley, 1953; Simone de Beauvoir, 1972). Subsequently, other gender-based studies distinguished gender and sex depending on *social* and psychological factors (social role, position, behavior, or identity as opposed to strictly biological differences) (Rubin, 1975; Nicholson, 1994).

Brush's 1992 study serves as a basis for interpreting gender differences in women entrepreneurs. Brush (1992) stated entrepreneurs both men and women can be similar in terms of personality, risk-taking propensity, and psychological traits, despite when individual characteristics differ regarding education, occupational experience, motivations, and availability of business start-up resources. This study aims to take a deep dive into the gender differences of both biological sex and gender roles, and the characteristic differences, like experience and motivation, that shape a nascent entrepreneurs perspective on entering a business incubation program.

Theoretical Influences on Intention to Behavior. Some of the entrepreneurship research geared toward theory of planned behavior has made profound progress in demonstrating how attitudes and beliefs of nascent entrepreneurs, especially around social values leading to the intent of becoming an entrepreneur, have actually indicated action (Carr & Sequeira, 2007; Kautonen, van Gelderen, & Fink, 2015; Krueger Jr, Reilly, & Carsrud, 2000). Applying the theory of planned behavior (Ajzen, 1988), this study examines nascent entrepreneurs' attitudes and beliefs to better understand how perceptions form intention to act.

The theory of planned behavior (TPB) is a generalized theory used to accurately predict individuals' intentions and actions. Ajzen (2002) described the theory of planned behavior as a model that takes into consideration three types of beliefs: a) behavioral beliefs or attitudes, b) consequence of the behavior that forms positive or negative feelings or normative beliefs and expectations of others; and c) control beliefs or factors that may further or hinder performance such as abilities, skills, habits.

The Technology Acceptance Model (TAM) is a well-established research stream that evolved from the theory of planned behavior by studying the relationship between cognitive,

and emotional factors, and technology application (Yawen and Li, 2021). The technology acceptance model started to garner substantial theoretical and empirical support when it was discovered that beliefs and attitudes of technology users formed the intention of users based on external observation variables (Yawen and Li, 2021; Venkatesh & Davis, 2000; F. D. Davis, et.al 1989; Ajzen, 1988;). In the last 30 years, the Davis's technology acceptance model (1989) has become a seminal piece due to its wider applicability in technology and other representative research contexts (Yawen and Li, 2021). TAM's basic elements are, behavior intent which refers to the willingness of a user to adopt new technologies; perceived usefulness which is the understanding of a user to accept new technology; and perceived ease of use which is the undertaking to use new technologies (Tambun et al., 2020; Yawen and Li, 2021). Across the many empirical tests, TAM's perceived usefulness, and perceived ease of use continue to remain strong predictors of the users intention based on inner understanding (Martasubrata and Priyadi, 2020; Syarwani and Ermansyah, 2020; Korry, 2020; Pibriana, 2020; Ranugalih et al., 2020; Yawen and Li, 2021). In other words, intention and attitudes of the user (Sipayung et al., 2020; Sugeng et al., 2020; Liu and Chen, 2021; Yawen and Li, 2021).

This study extends the Ajzen (1988) generalized theory of planned behavior and the Venkatesh & Davis (2000) technology acceptance model into the entrepreneurship discipline and more specifically into the business incubation field of research. We posit that business incubation programs provide nascent entrepreneurs with an experiential learning environment to develop their business acumen and improve their chance for success (Jones et al. 2021; Kennett, et al 2020); however, the attitudes and beliefs of the entrepreneurs keep them from using these services. In this study, we developed the parallel model to the technology acceptance model to help support the understanding of nascent entrepreneurs' intention to enter into a business incubation program. This research identified perceived usefulness and ease of use of Business Incubation as reflective variables that can influence behavior.

Social Cognitive Theory. Social cognitive theory helps to address the dynamic interaction of an individual's personal (i.e., cognitive or affective) behaviors to frame intentions that precede individual action (Bandura, 1977, 1986, 2012). One of the key constructs in social cognitive theory is self-efficacy. Self-efficacy, which is an individual's belief in his or her ability to perform a certain behavior, has been adopted to explain behavioral intentions in various research disciplines (Ambrose & Chiravuri, 2010). Many researchers believe that some of the differences in new business creation rates are attributable to women's self-efficacy and stereotypical gender environments (Boden & Nucci, 2000; Javadian et al., 2014; S. Marlow et al., 2008). In addition self-efficacy will also be used a reflective variable, as it has been shown to have a distinct impact on the decision to initiate nascent entrepreneurial activities; this impact is more significant than actual abilities (Manoj, 2015).

Redundancy Analysis through Reflective and Formative Scales. In this study, we conceptualized a nascent entrepreneur's intention to incubate as readiness (or willingness) to

apply to a business incubation program determined by both reflective and formative processes. Operationalizing a construct using a inter-dependent set of measures is known as redundancy analysis (Chin, 1998), where one set of measures is dependent on another. In a reflective *construct*, the causality flows from the construct to the indicators, that is, the indicators are caused by the construct (Roy et al 2012). In a formative construct, the causality flows from the indicators to the construct, that is, the indicators cause the construct. Thus, a formative construct is the result of an aggregate of indicator variables (Roy et al 2012).

This study created reflective (specific beliefs) and a formative (general beliefs) constructs, to add further depth and useful insights to understanding a complex problem (Chin, 1998; Arnett et al. 2003; Tehseen et al, 2019; 2020). Accordingly, we used Selection, Program, and Graduation, to generally describe the business incubation program; these are the formative variables. The second set of variables ease of use, usefulness, and self-efficacy, are independent variables and specifically describe the perception of the incubation process; these are reflective variables.

The research model in this study gives a nuanced understanding to the difficulties women entrepreneurs face when starting a business. We begin to peel back the layers to explain why women may be reluctant to join a business incubation program. Previous studies focus on programmatic fixes and creating more attractive internal environments for women, but this study takes it a step further and opens the conversation to a richer and deeper understanding of the beliefs and attitudes affecting nascent entrepreneurs' intentions to use business incubation programs.

The Research Model and Hypothesis

This study attempts to explain the variance in this dependent variable, nascent entrepreneur's readiness (or willingness) to apply to a business incubation program, through a number of cognitive and affective determinants: ease of use, usefulness, and self-efficacy. In addition, we examine the moderating effect of biological sex (i.e., gender) and gender (i.e., gender roles). The conceptual model of the study representing both the reflective and formative processes are captured below:

[Insert Figure 1 about here]

Usefulness of a Business Incubation Program and Gender. This research identified perceived *usefulness* (Venkatesh & Davis, 2000) an indicator that can influence behavior. Drawing on this logic, we expect nascent entrepreneurs' attitude toward entering an incubation program to be similar to individuals' attitudes and beliefs in adopting a new technology because both require an inner understanding and change in attitude of the user (Sipayung et al., 2020; Sugeng et al., 2020; Liu and Chen, 2021). Furthermore, building on the technology acceptance model, we propose that a business incubation program's usefulness would influence a nascent entrepreneur's intention to incubate. We defined usefulness of a business incubation

program as a person's attitude and belief that participating in a business incubation program will enhance their business performance and increase their businesses survival rate. The perceived usefulness of the overall business incubation program can develop from the entrepreneur's perception about specific characteristics (or Formative variables) of the program such as the *application process* (represented as "selection" in the model); the *programmatic activities* (represented as "programs" in the model), and an increase in business performance after completing the program (represented as "graduation outcome" in the model).

H1: A nascent entrepreneur's perception of the usefulness of a business incubation program is positively associated with the intention to incubate.

To see whether there is a difference between males and females from a biological sex or social construction perspective. Similarly we explored gender roles, which are behaviors based on perceived sexuality. Based on prior research which states women and men think differently about how and why to start a business (Boohene et.al, 2008; Santos et.al, 2010; Santos et.al 2016; Parga-Montoya et.al 2020), we argue there are gender differences in the attitudes and beliefs of the *usefulness* of a business incubator program. Therefore, biological sex and gender roles is hypothesized as moderating variables in the model. Accordingly, the hypotheses relating to gender and usefulness are:

H1a: Biological sex will moderate the relationship between a nascent entrepreneur's perception usefulness of business incubation and the intention to incubate.

H1b: Gender roles will moderate the relationship between a nascent entrepreneur's perception of usefulness of business incubation and the intention to incubate.

Ease of Use of a Business Incubation Program and Gender. The study identified perceived *ease of use* (Venkatesh & Davis, 2000) as an indicator that can influence a nascent entrepreneurs' attitude and belief toward entering an incubation program. Building on the technology acceptance model, an individual's inner understanding needed to shift one's attitude and beliefs toward adopting new technology, is similar to an nascent entrepreneurs' inner understanding needed to join a business incubation program (Sipayung et al., 2020; Sugeng et al., 2020; Liu and Chen, 2021). Specifically, we propose the ease of use of a business incubation program would influence an entrepreneurs intention to incubate. We define ease of use of a business incubation program as a person's belief that participating in a business incubation program will be easy to accomplish or complete. The perception about the ease of use of the incubation program can be formed, using Formative variables, by the effortlessness to apply for entrance into the program (or "selection"), the perceived effortlessness to attend and complete the activities within the business incubator (or "program"), and the perceived effortlessness of increased business performance after completing the program (or "graduating outcomes").

H2: A nascent entrepreneur's perception of ease of use of a business incubation program is positively associated with the intention to incubate.

Further, since previous research established gender differences exist between male and female entrepreneurs (Boohene et.al, 2008; Santos et.al, 2010; Santos et.al 2016; Parga-Montoya et.al 2020), we argue biological sex and gender role differences, due to differences in the availability of resources and their cognitive makeup, gender (i.e., the social construction of the notion) will likely influence the direct relationship between entrepreneurs' attitudes and beliefs of ease of use and intention. Accordingly, biological sex and gender roles is hypothesized to influence the intention to incubate.

H2a: Biological sex will moderate the relationship between a nascent entrepreneur's perception of ease of use of a business incubation program and the intention to incubate.

H2b: Gender roles will moderate the relationship between a nascent entrepreneur's perception of ease of use of business incubation and the intention to incubate.

Business Incubation Self-efficacy and Gender. This study identified self-efficacy as an indicator that can influence a nascent entrepreneurs' attitude and belief toward entering a business incubation program. Self-efficacy is the belief in one's ability to produce designated levels of performance (Bandura, 1977). Extending the general notion of self-efficacy, drawing on the technology acceptance model (Venkatesh & Davis, 2000) and theory of planned behavior (Ajzen, 2002), we propose that the nascent entrepreneur's attitude and belief in their ability to further their business performance through skills and new abilities may influence the intention to incubate.

This study defined business incubation self-efficacy as the nascent entrepreneur's belief in their ability to grow or scale their business within a business incubation program. The nascent entrepreneur's business incubation self-efficacy can be formed, from a set of Formative variables, the confidence associated with being selected into the incubation program (or "selection"), the confidence with successfully increasing skills and abilities throughout the program (or "program"), and the confidence to increase the business survival rate after completing the program (or "graduation outcomes").

H3: A nascent entrepreneur's business incubation self-efficacy is positively associated with the intention to incubate.

Bandura (1986) defined self-efficacy as the self-judgment on one's ability to execute a series of actions to achieve a desired goal. As such, an individual's self-perception of their ability to complete a task has a significant effect on their actual ability to pursue the task (Bandura, 1978). That said, prior research suggests significant gender differences in entrepreneurial self-efficacy around cultural norms and gender role stereotypes; resulting in diverse self-beliefs which feed into gender disparity (Liu et al 2019).

Drawing on the extant literature on self-efficacy and gender differences (Liu et al 2019, Boden & Nucci, 2000; Javadian et al., 2014; Marlow et al., 2008), we predict women

entrepreneurs may have a negative view of their self-efficacy. Based on biological sex and gender roles of the nascent entrepreneurs, we predict a differentiated moderating influence. Accordingly, the hypotheses relating to self-efficacy are:

H3a: Biological sex will moderate the relationship between a nascent entrepreneur's business incubation self-efficacy and the intention to incubate.

H3b: Gender roles will moderate the relationship between a nascent entrepreneur's business incubation self-efficacy and the intention to incubate.

Methodology

Sample and Method

A stratified random sample was adopted for this study⁶. The sample was stratified by gender but was random in selection. The sample drew from individuals who had started setting-up or running an entrepreneurial venture but had not chosen to enter a business incubation program at the point of survey dissemination. This rationale followed the GEM 2017 study for identifying nascent entrepreneurs; however, the study intentionally elected to leave in serial entrepreneurs as a control variable. The regression sample consisted of 346 early-stage nascent entrepreneurs, with 164 men and 180 women respondents.

Measurement of Variables

Measures from this study were developed from existing measures and adopted for the business incubation context⁷. The survey used a 7-point Likert-type scale (1 = strongly disagree, 7 = strongly agree) for the dependent and independent variables. To measure perceived usefulness, 6-items were used as the reflective measure and 15-items to measure formatively. For ease of use, 6-items were used to measure reflectively and 13-items measured formatively. To measure a respondents' self-efficacy, we asked them to rate their ability to complete several tasks found in the business incubation environment (Bandura, 1986). The instructions asked survey-takers to rate how confident they are in the task as of now. The degree of confidence was rated on a scale from 0 (*Cannot do*) to 10 (*Highly certain can do*). Lastly, to measure behavioral intent (Intention to use a business incubation program) 6-items were adapted from the technology acceptance model (Venkatesh and Davis, 2000).

This study examines biological sex determined at the time of birth, and gender roles as range of masculine or feminine. Biological sex was evaluated to see whether there is a difference between males and females from a social construction perspective. Gender roles were evaluated as a set of behaviors and attitudes that are considered acceptable for individuals

⁶ This study develops a scale for business incubation intention which was empirically tested and validated the research model. A web-based survey instrument was designed for this study and administered through Qualtrics, a third-party survey administrator.

⁷ Where the constructs are novel, in the absence of direct measures, proxy measures were created.

based on one's actual or perceived sexuality and are anchored on notions of femininity and masculinity (Steffen, 2015). Biological sex was measured as a dichotomous male/female variable. Gender roles are measured using the Traditional Masculinity-Femininity (TMF) scale, which was designed to assess central facets of self-ascribed masculinity-femininity (Kachel, Steffens, & Niedlich, 2016).

The Traditional Masculinity-Femininity (TMF) scale, which measures gender roles, is designed as a self-assessment instrument for masculinity-femininity (Thompson Jr & Bennett, 2015). The TMF consists of a 7-point-scale with six items: one for gender-role adoption ("I consider myself as..."), one for gender-role preference ("Ideally, I would like to be..."), and four for gender-role identity ("Traditionally, my 1. interests, 2. attitudes and beliefs, 3. behavior, and 4. outer appearance would be considered as...") in order to measure an individual's gender-role self-concept in a parsimonious way (Kachel et al., 2016). We also identified the relevant control variables using established scales. All items developed were first tested for face validity and then for preliminary convergent and discriminant validity through a pilot study.

Data Analysis

We employ Partial Least Squares (PLS) regression analysis, structural equation modeling, as well as redundancy analysis to statistically examine the relationships between the dependent construct (intention to incubate) and the three independent constructs: perceived usefulness of business incubation, perceived ease of use of business incubation, and self-efficacy. In PLS-SEM, relationships among latent variables are estimated and tested within the context of a measurement model, essentially using a combined regression and factor analysis within the same statistical procedure (Hrivnak Jr, 2009). Measuring a construct using two sets of measures is known as redundancy analysis (Chin, 1998), where one set of measures are reflective and the other formative. In this study, two sets of items were developed to measure each of the perceived belief constructs. One set of measures contained the reflective measures (usefulness, ease of use, and self-efficacy) that tap into the general feeling of the variables. The second set of measures (selection, program, and graduation) attempted to capture a comprehensive set of formative indicators that help create that perception. General beliefs and attitudes are formed from specific beliefs and attitudes (Chin, 1998). For example, the general beliefs about self-efficacy, usefulness, or ease of use of business incubation are formed from beliefs about specific components of business incubation. Accordingly, this research modeled specific beliefs arising from perceived beliefs about the incubation selection process, program, and graduation expectations as shown in Figure 1. Additionally, common methods bias was controlled by using a common marker variable in the measurement model (Podsakoff et al, 2003; Valence, Dastous, & Fortier, 1988).

Results and Discussion

This study sought to analyze influential behavior and better understand how nascent

entrepreneurs' perceptions form intention using the theory of planned behavior, the technology acceptance model, and related social-psychology theories. In addition, we examined whether biological sex or gender roles moderate these effects. Therefore, the dependent variable in this study is an intention to incubate. Table 1 presents the descriptive statistics for the regression sample. As it can be seen, the research team collected 180 female responses (52%) and 164 male responses (48%). The sample of respondents was ethnically diverse, with 49% identifying as Caucasian (white) and 51% identifying as minority (non-white). In addition, of the minority respondents, 24% were African American (Black), and 11% were Hispanic/Latino. The sample was also diverse by age and education. As a part of the study, the research team gave an extensive definition of business incubation and the process of how it works. The definition was critical because most of the respondents were first-time entrepreneurs and may not have been familiar with the business incubation process.

[Insert Table 1 about here]

To examine the links between the observed and latent variables, exploratory factor analysis (EFA) was conducted to help determine how many items uniquely measured ease of use, usefulness, and self-efficiency. Although most of the measurement scales have been used in previous literature, EFA was conducted because the scales were altered to fit the business incubation arena. Confirmatory factor analysis (CFA) was then performed to test the measurement structure of each latent construct. Table 2 reports the detailed information about CFA.

[Insert Table 2 about here]

Using PLS-SEM analysis the research team validated the outer model by testing and checking convergent and discriminant validity and reliability for all constructs. Fitting the inner model as the second step was accomplished primarily through path analysis with latent variables. Evaluation of the reflective measurement model, internal consistency considers two elements for evaluation: Cronbach's alpha and composite reliability (Hair et al., 2013). Considering the exploratory nature of the research, the results indicated robust values for both composite reliability (0.84 to 0.95) and Cronbach's alpha (0.71 to 0.96). All alpha and composite reliability values are well above the threshold of 0.7, indicating excellent reliability for each construct (Nunnally and Bernstein 1994). To evaluate the convergent validity, as suggested by Fornell and Larcker (1981), each average variance extracted (AVE) is above the minimum of .05, ranging from 0.56 to 0.61, indicating that convergent validity is well satisfied (Hair et al. 2012). Discriminate validity was examined based on the Heterotrait–Monotrait ratio. The results show values were also below 0.90 between constructs, further establishing sufficient discriminant validity among reflective constructs (Fornell and Larcker 1981). Detailed information on the correlation matrix for latent constructs can be found in the Table 3.

[Insert Table 3 about here]

The coefficient of determination (R^2) is a measure of the model's predictive accuracy

and represents the amount of variance in an endogenous construct explained by all exogenous constructs linked to it. Henseler et al. (2009) indicated that 0.67 is substantial, 0.33 is moderate, and 0.19 is weak when predicting accuracy for R^2 values respectively. Accordingly, we find all the models of this study are good at explaining the data with high R^2 values (Henseler, Ringle, & Sinkovics, 2009). The R^2 values for the constructs of intention, usefulness, ease of use, and self-efficacy are 0.508, 0.528, 0.342, and 0.498, respectively. Overall, our models provide a solid predictive accuracy.

Figure 1 presents the hypothesis test results from the path analysis. Hypothesis 1 explored the relationship between usefulness and intention to incubate. A nascent entrepreneur's perception that participating in a business incubation program will increase firm performance, which would be positively associated with his or her intention to incubate. The results indicated that the path from the usefulness to the intention of incubate was positive and significant ($\beta=0.354$, $p<0.001$). This result supports that incubators are generally considered as a useful tool for nascent entrepreneurs. H1a assumed that gender moderates this relationship. The multi-group analysis (MGA) for biological sex was found to run on two path coefficients, one for male and one for female. The result of the MGA indicated that there is a positive and significant moderating effect of biological sex ($\beta=0.199$, $p<0.01$) on the relationship between usefulness and intention to incubate. Thus, H1b is supported. The result of TMF (gender roles) suggests usefulness is negatively associated with the intention to incubate ($\beta=-0.140$, $p<0.001$), which means, compared with their counterparts, entrepreneurs with differentiated gender roles are less likely to find the business incubation program useful. This distinction is likely, as incubators are viewed as offering services for high-tech startups, whereas women entrepreneurs are represented largely among low tech industries (e.g., grocery, lifestyle business).

Hypothesis 2 predicted a positive relationship between the perception of ease of use and the intention to incubate. The results of PLS-SEM analysis show that the path from the ease of use to the intention to incubate was positive and significant ($\beta=0.266$, $p<0.001$). This result provides strong support for the H2 that when nascent entrepreneurs feel business incubation program is relatively easy to use, they are more likely to participate in it. H2a tests the moderating effect of biological sex on the above direct relationship. Using the multi-group analysis (MGA), we find a positive and significant coefficient for biological sex ($\beta=0.019$, $p<0.001$). The result from TMF (gender roles as a socio-cognitive construction), however H2b, shows that although there is no difference in gender perception. The strength of masculinity compared to femininity was not a significant moderator ($\beta=0.058$) on the relationship between ease of use and intention to incubate.

Hypothesis 3 investigated whether a nascent entrepreneur's self-efficacy is positively associated with the intention to incubate. The results indicated that the path from the self-efficacy to the intention to incubate was negative and significant ($\beta=-0.057$, $p<0.01$). Thus, H3 was not supported. In fact, the results suggest the otherwise, that not only self-efficacy is not

enough to entice a nascent entrepreneur to join a business incubation program, but people who are particularly high on self-efficacy are even less likely to participate in incubation programs. Using the MGA, we find a positive and significant moderating effect for biological sex on the relation between self-efficacy and intention to incubate ($\beta=0.104$, $p<0.001$). The statistical result of H3a suggests that there is, in fact, a difference between males' and females' view of self-efficacy on joining business incubator programs. Specifically, compared with female, male entrepreneurs with high self-efficacy are less likely to join an incubator program. In addition, the result from TMF (gender roles) predicted in H3b was insignificant. As shown in table 1, most of the companies surveyed in our study were lifestyle businesses. We infer it means, given the sample of our subjects, nascent entrepreneurs who were mainly in lifestyle industries felt the business incubation programs were not conducive to growing their businesses.

Implications and Contributions

The aim of this study is to open the conversation to a richer and deeper understanding of the beliefs and attitudes affecting nascent entrepreneurs' intentions to use a business incubation programs. The study identifies influences affecting women's intention to incubate. The literature already explicitly recognizes the importance and the need to understand if women feel these programs support their entrepreneurial goals (Carter, et al., 2007).

The article brings several contributions into the business incubation literature. First, it extends Ajzen's (1988) generalized theory of planned behavior and the Venkatesh & Davis (2000) technology acceptance model into the entrepreneurship discipline in general and more specifically into the field of business incubation. This study adds further support to the logic of the theory of planned behavior in entrepreneurship research (Carr & Sequeira, 2007; Kautonen, van Gelderen, & Fink, 2015a; Krueger, Reilly, & Carsrud, 2000) to expand the knowledge base into business incubation. Using parallel intention theories help support the understanding of nascent entrepreneurs' reactions during the pre-incubation period.

Second, the research presents multiple variables to offer a better measure of intention (usefulness, ease of use and self-efficacy) using a unique multidimensional model. We assess their joint impact on intention to incubate. The study also integrated a reflective and formative model into the framework to assess the structural portion of the research model (Chin, 1998).

Third, this study looks beyond programmatic fixes for encouraging women into these environments (McAdam and Marlow 2008; 2012) and encourages other researchers in future studies to do the same. The literature asserts the necessity to find strategies to encourage women into business incubation programs (Scharff, 2011). As a practical implication of this study, incubation managers should take action to look deeper into the public perception and inclusivity of their programs. The Global Entrepreneurship Monitor identified there are about 252 million women entrepreneurs in the world (Elan et al, 2019). Being intentional about increasing the

amount of women in the incubation applicant pool through government regulation may need to be assessed (Hechavarria and Ingram, 2019).

Limitations and Future Research

This research leaves out other socio-cultural factors that have been studied by previous scholars as likely determinants to participation in business incubation programs. We recognize the exploratory nature of this study based on a sample of early-stage life-style industry entrepreneurs. These limitations open up avenues for future research. Subsequent studies can be devoted to assessing the model's validity with a sample of entrepreneurs from high growth sectors. In addition, this study does not take into account other demographic, ethnic, or cultural influences that could also affect individuals' intentions to participate in a business incubation programs. Future streams of research may examine the impact of various contextual factors and certain social-psychological aspects that increase nascent women to participate in business incubation programs. Future research could identify additional important variables for increasing use of business incubation programs.

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Table 1: Sample Characteristics

Description	N	
Gender		
Male	180	
Female	164	
Total	346	
Age		
18 - 24	41	
25 -34	80	
35 -44	73	
45 - 54	70	
55 - 64	55	
65 or older	27	
Ethnicity	Female	Male
American Indian/Alaskan Native	7	4
Asian	12	11
African American/Black	48	34
Hispanic/Latino	16	22
Hawaiian/Pacific Islander	1	2
White/Caucasian	82	86

Other	1	0
I prefer not to state	1	1
Two or more races	12	4
Education Level		
Completed some high school	11	
High school diploma/GED	46	
Completed some college	90	
Associate's degree (2-year degree)	50	
Bachelor's degree (4-year degree)	88	
Completed some post-graduate	12	
Master's degree	37	
Professional degree (JD, MD)	6	
Previously Owned a Business		
	Yes	98
	No	248
Industry Sector	Female	Male
Wholesale	4	5
Finance and Insurance	0	4
Construction	5	13
Professional Services	13	19
Real Estate & Rental & Leasing	4	5
Transportation	2	3
Manufacturing	3	5
Health Care and Social Assistance	8	5
Arts, Entertainment and Recreation	37	31
Accommodation and Food Service	7	7
Other	42	34
Education	8	4

Table 2: Confirmatory Factor Analysis

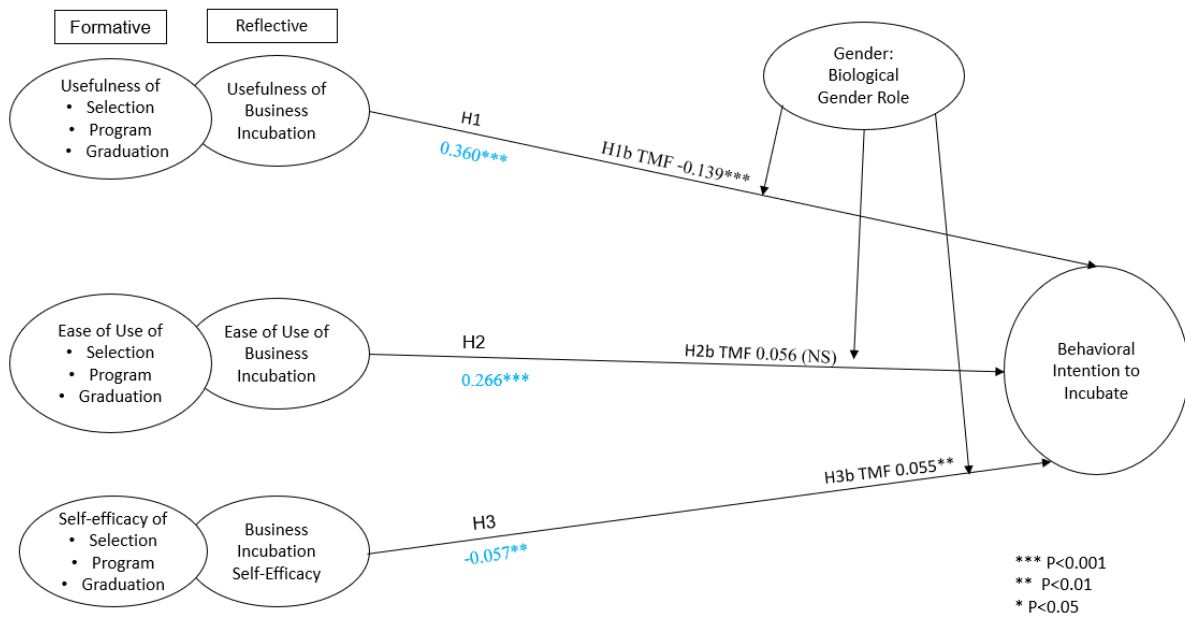
Significant Usefulness Items				
Latent Variable	Indicator	Level of Significance	Path Coefficient	R ²
Selection	Projecting the number of jobs my business will create over the next 5 years would be a helpful exercise for my business.	0.071*	.787	59.7%
	Articulating the market opportunity or business opportunity for my business during the selection process would be a useful exercise for my business.	.001***		
	Creating a business plan and having it evaluated by the selection committee would enhance my skills and knowledge needed to effectively grow my business.	0.012**		
Program	Getting assistance with access to financing or capital during the incubation phase will improve the financial viability of my business.	0.090*		
	Getting access to business training sessions (like social media, managing people, creating an advisory board) during the incubation phase would improve my ability to enhance the skills and knowledge needed to effectively grow my business.	0.001***		
Graduation	Graduating from a business incubation program would enable me to increase my business profitability.	0.012**		
	Graduating from a business incubation program would make it easier to grow my business	0.056*		
Significant Ease of Use Items				
Latent Variable	Indicator	Level of Significance	Path Coefficient	R ²
Selection	As a part of the selection expectations, I would find it easy for me to discuss the scalability or growth potential for my business.	.084*	0.690	44.2%
Program	Learning how to access and use the amenities of the business incubation facility (such as the maker lab, social media lab, conference rooms, and private offices) would be easy for me.	.013**		
	Learning the concepts in the business incubation training sessions, such as digital marketing, tax planning, advisory board selection, and understanding legal risks, will be easy for me to master.	.043**		
	I would find the on-site experts in the business incubator easy to access when I need their services.	.000***		

Graduation	It is easy for me to complete the business incubation program and graduate as a growing business.	.001***		
	I would find it easy to fail and restart my business in a different direction with minimal business losses after graduating from a business incubation program.	.095*		
Significant Self-Efficacy Items				
Latent Variable	Indicator	Level of Significance	Path Coefficient	R ²
Selection	Q28_1: Register your business with the city or state you reside.	.083*	.756	53.8%
	Q28_2: Commercialize the product or service within two years.	.015**		
	Q28_3: Create a business plan.	.037**		
	Q28_4: Create a 5 year financial forecast.	.094*		
	Q28_5: Demonstrate a strong market demand for your product or service.	.018**		
Program	Q31_1: Locate your main business office in the business incubator.	.051*		
	Q31_3: Oversee the managerial aspects of the business.	.000***		
	Q31_6: Attend monthly meetings to give the incubator manager progress updates on your business.	.072*		
Graduation	Q34_2: Create a company with rapid growth.	.034**		

Table 3: Correlation Matrix for Latent Constructs

	General Perceived Ease of Use	General Self-Efficacy	General Perceived Usefulness	Intention to Incubate	TMF	Cronbach's alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
General Ease of Use	0.760					.758	0.844	0.575
General Self-Efficacy	0.410	0.757				.917	0.933	0.582
General Usefulness	0.548	0.413	0.781			.854	0.903	0.614
Intention to Incubate	0.538	0.290	0.592	0.828		.914		
TMF	-0.105	-0.092	-0.038	-0.122	0.904	.955		

Figure 1: Results of the Path Analysis



INDIVIDUAL DIFFERENCES AND THE MODERATED LINK BETWEEN CULTURAL EXPERIENCE AND CULTURAL INTELLIGENCE

Rimi Zakania

Abstract

Cross-culturally effective leaders are necessary for organizations to navigate the increasingly globalized economic landscape. Cultural intelligence (CQ) has been widely recognized as one promising avenue to address the challenging issue of the paucity of globally qualified leaders. This study was conducted to expand CQ's nomological network. We explore the direct and moderating roles of individual differences. Specifically, we examine the importance of self-construal and GSD (GSD) in individuals, and examine how these behavioral differences influence the cultural experience-CQ relationship in the context of leadership. We help to identify individual-level factors that can help develop cross-culturally effective leaders. Theoretically, the study advances our understanding of CQ by drawing on self-determination theory. Practically, it provides organizations with evidence-based tools to identify and develop cross-culturally effective leaders.

Key words: *Cultural Intelligence; Generalized Self-Determination; Self-Construal; Cultural Experience*

Globalization has necessitated that companies and organizations to demonstrate how to navigate complex and dynamic challenges (Biener, Eling, & Jia, 2021; Bird & Mendenhall, 2016; Mäkelä et al., 2020). Such organizational capability includes culturally relevant leadership, as the leaders must be able to function in cross-cultural situations (Caligiuri, Mencia, Jayne, & Traylor, 2019; Rockstuhl, Seiler, Ang, Van Dyne, & Annen, 2011). For years global leadership problems have been observed and lamented by organizations and those who lead them. Marr (2022) asserts that cultural intelligence and the ability to work with diverse team-members is an essential part of leadership. Similarly, Ndletyana (2022) points out that cultural intelligence helps women attain leadership positions in organizations, which in turn helps their organization be successful. Shangkuan (2022) also contends that with increasing globalization and diversity, leaders need to embrace cultural intelligence. studies have shown that many leaders underperform when operating in a global context (e.g., Manning 2003; Tung, 2016), yet over the years many organizations continue to be unaware of how to develop competencies to address this issue (Conger, 2014). While development programs have increased in number only 36% of organizations said their programs provide more than a limited value (Wakefield, Agarwal, Pastakia, & van Berkel, 2016).

Far from going away, these global leadership issues have become a perennial problem with a study of Human Resources and Training and Development professionals conducted by the University of North Carolina (UNC) Kenan-Flagler Business School (2015) finding that

developing globally-competent leaders was an urgent need for 63% of the companies, a separate survey showing 89% of organizations surveyed believed global leadership was an important issue for them (Wakefield, Agarwal, Pastakia, & van Berkel, 2016), and a third study showing the number of organizations saying they have a strong group of people to fill leadership roles continually falling from 18% in 2011, to 15% in 2014, to 14% in 2017, and down to 11% in 2020 (Development Dimensions International).

Cultural competence is highlighted as an important field of study for selecting and developing cross-cultural leaders (; Gelfand, Imai, & Fehr, 2008; Li, 2020; Ott & Ishakova, 2019; Ott & Michailova, 2018). At the center of our research is a popular construct capturing cultural competence: Cultural Intelligence (to be henceforth referred to as CQ in this paper). Building on the well-developed literature on CQ, the main purpose of this paper is to expand the nomological network of CQ (Ang and Van Dyne, 2008). These expanded frameworks for developing CQ in leaders have promise both in advancing the scholarly theories in leadership development and in managing multinational business in cross-national settings. As such, a secondary purpose to this paper is to provide managers with tools to: 1) Identify potentially successful candidates for cross-cultural leadership, and 2) Develop managerial interventions for current and future cross-cultural leaders to further develop their CQ. These managerial implications are highly relevant to closing the global leadership gap by improving the effectiveness of current and future cross-cultural leaders.

Building on extant literature on the relationship between CQ and cultural experience, the main purpose of this research is to examine the nomological network of CQ (Ang & Van Dyne, 2008, 2015). We contribute to this body of research in three ways. First, we put forth an individual-level behavioral antecedent to CQ (i.e., in addition to experience): interdependent self-construal. Second, building on the explanations of self-determination theory, we identify generalized self-determination (GSD) as another behavioral antecedent to CQ. Third, we explore the impact of these individual differences beyond their direct effects, with GSD and self-construal serving as potential moderators impacting the direct relationship between individual experience and CQ.

Literature Review: Importance of CQ

Cultural Intelligence

Culture and cultural understanding have been the subject of research inquiry in a range of business, industry, and cross-national contexts (e.g. Bogatyreva et al., 2019; Gaganis et al., 2019). CQ is conceptualized as a person's cross-cultural ability where "an outsider's seemingly natural ability to interpret someone's unfamiliar and ambiguous gestures the way that person's compatriots would." (Earley & Mosakowski, 2004). More specifically, it is an individual's ability to function effectively in situations characterized by cultural diversity (Ang & Van Dyne, 2015). The importance of CQ research is manifested by the abundant studies drawing on multi-

disciplinary approaches (e.g., Dorfman et al., 2012; Hofstede, 2010; Stephen & Pathak, 2016; Testa, 2007). This also includes numerous studies in a leadership context underscoring the CQ of business leaders (Dorfman et al., 2012; Kwantes & Boglarsky, 2007; Stephan & Pathak, 2016; Testa, 2009).

The continuing importance of CQ can be seen in recent studies examining additional CQ antecedents like social intelligence and emotional intelligence (Jyoti & Kour, 2017) and self-monitoring and promotion perceptions (Moon, Choi, & Jung, 2012), and cross-cultural training and foreign language skills (Lee, Crawford, Weber, & Dennison, 2018). The consequences of CQ in the contexts of expatriate career intentions (Presbitero & Quita, 2017) have been studied. CQ has also been studied in the context of tourism related consequences, including perceived destination value (Frías-Jamilena, Sabiote-Ortiz, Martín-Santana, & Beerli-Palacio, 2018) CQ has also been studied in the context of cross-cultural adjustment (Koo Moon, Kwon Choi, & Shik Jung, 2012) and expatriate performance (Lee & Sukoco, 2010).

Cultural Experience

Cultural experience has been widely acknowledged as an important antecedent to CQ (Ott & Ishakova, 2019; Engle & Crowne, 2014; Li, 2020; Richter et al., 2020). Cultural experiences, e.g., study abroad programs are regarded as an important determinant of an individual's cross-cultural adaptation (Varela & Gatlin-Watts, 2014). However, not every individual who gains similar cross-cultural experience raises their CQ equally. Some studies show that multicultural experiences do not autonomously increase CQ (Eisenberg et al. 2013). Crowne (2008) found a negative relationship between experience abroad and the behavioral dimension of CQ. These fragmented results indicate that an individual's ability to derive a benefit from cultural experience depends on other individual and social factors (Holtbrügge & Engelhard, 2016; Moon, et al 2012; Harrison, 2012). While previous research has proposed individual characteristics such as personality dimensions, need for closure, and demographics as antecedents to CQ (Ang & Van Dyne, 2008; Ott & Michailova, 2018; Şahin, Gurbuz, & Köksal, 2014), behavioral individual differences are still understudied. We aim to expand this research by considering individual difference variables as moderators of the cultural experience-CQ relationship.

Engle and Crowne (2014) specifically showed that cultural experience impacted all four sub-factors of CQ in addition to overall CQ. Although, the overall evidence suggests there is a positive relationship between cultural experience and CQ, there is still more to explore as several studies have failed to find a significant relationship between cultural experience and CQ or only found a significant relationship with certain sub-factors of CQ (Ott and Michailova, 2018). This has been further explored in length by several scholars in different fields (e.g, Crowne, 2013; Frias-Jamilena et al., 2018; Lee et al., 2018), and the relationship is fairly well established.

Culture and Leadership

Cultural competence is highlighted as an important field of study for selecting and developing cross-cultural leaders (Gelfand, Imai, & Fehr, 2008). At the center of our research is a widely explored scholarly construct capturing cultural competence: the four-factor model of CQ. In our paper, we focus on overall CQ and not the four subparts of CQ. This approach has been used by several studies that have dealt with CQ (e.g. Imai & Gelfand, 2010; Rockstuhl et al., 2011; Thomas et al., 2015).

Leaders require CQ, which is considered a person's capability to function effectively in intercultural environments (Ang, Van Dyne, & Rockstuhl, 2015; Earley & Ang, 2003; Rockstuhl et al., 2011;). The other types of intelligences (cognitive, emotional, social) do not account for the variation in social interactions from one domain to another (e.g., from one country to another). Therefore, organizational leaders lack an important piece in adjusting successfully for cross-cultural interactions (Ang & Van Dyne, 2008.) Research has found that CQ plays an important part in successful expatriate assignments (Guang & Charoensukmongkol, 2020; Huff, Song, & Gresch, 2014; Lee & Sukoco, 2010; Ren, Chadee, & Presbitero, 2020; Wu & Ang, 2011). Understanding culture, for instance, provides a basis for collaboration leading to improved and creative job performance in expatriates (Lee, 2010; Wu & Ang, 2011; Xu & Chen, 2017).

CQ is important to the development of global leaders because it facilitates experiential learning from cultural experiences (Alexandra, 2018; Ng, Van Dyne, & Ang, 2009) and is an important predictor of leadership effectiveness in cross-cultural situations (Deng & Gibson, 2009; Guang & Charoensukmongkol, 2020; Rockstuhl et al., 2011). In addition to the benefits of having high CQ, Alon and Higgins (2005) found that a lack of CQ causes problems including conflict, delays, and leadership failure. Johnson, Lenartowicz, and Apud (2006) also found that a lack of cross-cultural competence led to international business failures – this and other evidence suggests that CQ is indeed a very important attribute for global leadership success. Examining the antecedents and consequences of CQ will help in identifying and developing individuals with CQ and cross-cultural leadership potential. Indeed, it is a necessity for closing the global leadership gap that organizations are facing today. We are using self-determination theory to choose both of our individual difference variables. Essentially, self-determination theory is a theory of motivation, and includes three major components including relatedness, autonomy, and competence (Gagne & Deci, 2005). We are choosing two individual difference variables as moderators in our model, and one variable is from the relatedness component of self-determination theory, while the other is from the competence component of self-determination theory.

Hypotheses

Cultural Experience and CQ: Cultural experience of individuals has been identified as

an antecedent to CQ (Crowne, 2008; Shannon and Begley, 2008; Moon et al., 2012; Şahin et al. 2014). Cultural experience can accumulate in many different ways including time spent learning or working abroad, and visiting other countries on vacations (Ott and Michailova, 2018). As a learned intelligence, it makes sense that being exposed to other cultures would increase the opportunities for individuals to develop culturally relevant knowledge and skills. It only stands to reason that greater exposure and experience to inter-cultural situations will improve one's CQ.

While this relationship has been previously tested, our model and subsequent hypotheses expect the replication of this positive relationship in our sample as a foundational prediction. More specifically, we focus on exploring some boundary conditions of cultural experience (e.g., individual differences) that may help explain some of these inconsistencies, as we still expect to see the positive relationship between cultural experience and CQ. Therefore, we propose:

Hypothesis 1: Cultural experience will be directly and positively related to CQ.

Interdependent Self-construal and CQ: *Self-construal* refers to how one defines and makes meaning of oneself in relation to others (Cross, Hardin, & Gercek-Swing, 2010; Han & Humphreys, 2016; Singelis, 1994). This has to do with the degree of relatedness (e.g., independence from, interdependence with) others given the self-determination theory perspective. Two types of self-construal were initially identified by Markus and Kitayama (1991): independent and interdependent. . Individuals who place importance on internal traits and define themselves as separate from others are considered to have *independent self-construal* while those who place importance on their relationships and define themselves as connected with others are considered to have *interdependent self-construal* (Cross et al., 2010). A newer form of self-construal has been proposed in recent years, and termed as constructivist self-construal (Ge et al., 2022). However, in this paper, we are focusing on the more established form of self-construal namely interdependent self-construal. An interdependent self-construal, in other words, is a form of self-awareness in relation to the socio-cultural context.

Individuals with interdependent self-construal are likely to have more knowledge about and think about others more, have a higher context-sensitivity, and place more effort on being received positively by others (Cross et al., 2010; Utz, 2014). We predict that individuals with higher self-awareness, social-resilience (i.e., self-construal) will likely be more open to learning and be more effective in culturally distant situations. We argue that self-construal is a core individual difference that helps one be more sensitive to context is especially pertinent in terms of the link between self-construal and CQ (e.g. Cross et al., 2010).

CQ requires individuals to identify, interpret, and appropriately behave in response to nationally unfamiliar context (Caputo et al., 2019; Earley & Mosakowski, 2004). Given the need for cognitive, physical, and emotional response underlying the behavioral sense-making

process, an awareness beyond self becomes necessary. Earley and Mosakowski (2004) described this phenomenon as being “detached from their own culture.” An individual’s ability to view themselves and respond to unfamiliar contextual stimuli, therefore, involves interpersonal and social consciousness (i.e., interdependent self-construal). Consistent with the notion of interdependent self-construal, this form of self-knowledge culturally distant settings demands greater awareness in view of the otherness.

In addition, CQ requires distinguishing between idiosyncratic vis-à-vis group behavior. Such alertness, motivation, and poise will also likely prepare individuals to adapt to collectivistic and social goals. For instance, Utz (2014) found that individuals primed with interdependent self-construal were more likely to be cooperative with others. Similarly, Downie, Koestner, Hoberg, and Haga (2006) found that individuals with interdependent self-construal orientation were more likely to prioritize group-goals. CQ by its very definition has an assumption of cooperation, which suggests that individuals with interdependent self-construal will have positive levels of CQ. Therefore, we propose that:

Hypothesis 2a: Interdependent self-construal will be directly and positively related to CQ.

Generalized Self-Determination and CQ: Generalized Self-Determination (henceforth to be referred as GSD) refers to an individual’s ability, driven by their motivation, to behave. An individual’s self-determination has been observed to correlate with their abilities and behavioral outcomes. This includes a person’s openness toward difficult or threatening situations (Hodgins & Knee, 2002; Malinowska & Tokarz, 2020), desire to escape as a response to failure (Hodgins, Yacko, & Gottlieb, 2006), and their emotional intelligence and their development of emotional intelligence (Perreault, Mask, Morgan, & Blanchard, 2014). This particular variable was chosen from the competence perspective of self-determination theory.

Educational psychology literature widely used self-determination by analyzing whether individuals seek to learn because of their own (i.e., self-motivation) or external reasons (Gagne & Deci, 2005). Prior research generally supports the idea that more autonomous forms of motivation, such as, self-determination, are associated with greater learning. These learning outcomes are evident in greater academic performance, creativity, persistence, and learner wellness (Ryan & Weinstein, 2009). Higher GSD and intrinsic motivation is positively related to greater persistence (Deci & Ryan, 1985; Ryan, & Connell, 1989; Vallerand, Blais, Briere, & Pelletier, 1989; Vallerand & Bissonnette, 1992), conceptual learning (Grolnick, & Ryan, 1987), learning outcomes (Ciani, Sheldon, Hilpert, & Easter, 2011; Van Nuland, Dusseldorp, Martens, & Boekaerts, 2010).

As a learned intelligence (Earley, Ang, & Tan, 2006), CQ is likely to be positively related to one’s self-determination. Perreault et al. (2014) found self-determination to be correlated with other forms of intelligence (e.g., emotional intelligence). Moon (2010) found

many similarities between emotional intelligence and CQ, including that both are intelligences that can be learned (Earley et al., 2006), and that they both require suspending judgment and thinking before acting (Earley and Mosakowski, 2004). High scoring CQ individuals were successful in managing and displaying emotions (Earley et al., 2006). They had higher abilities to understand and adapt their own thought processes as well as to empathize with others (Ang et al., 2007; Earley & Peterson 2004). The relationship between self-determination and another learned intelligence that is similar to CQ lends support for the idea that GSD will be positively related to CQ. As such, we propose that:

Hypothesis 2b: GSD will be directly and positively related to CQ.

Moderating Effects: In addition to the main effects hypothesized previously, we expect that these individual differences will moderate how beneficial cultural experience is towards developing CQ. We expect that individuals who are more motivated to learn from their cultural experience will get more out of the experience in terms of gains in CQ. GSD, by definition, is a measure of motivation. Therefore, we expect individuals higher on GSD to gain more from their cultural experience due to their self-deterministic motivation. After all, if an individual has higher levels of self-determination, he or she will be able to expose themselves to deep and diverse cultural experiences longer, thus increasing the probability of impacting his or her CQ.

We expect that individuals with interdependent self-construal would have increased levels of valence from learning in the cultural experience context. Their higher valence would lead them to be intrinsically interested in gaining more from their cultural experience. As such, they will be more motivated to learn from and experience the cultural experience, thus engendering higher levels of learning. Therefore, we propose the following moderated hypotheses:

Hypothesis 3: Interdependent self-construal and GSD will moderate the relationship between cultural experience and CQ such that the positive relationship between cultural experience and CQ will be stronger at higher levels of: (a) interdependent self-construal and (b) GSD.

Methods

Participants and Procedure

We surveyed undergraduate students in an introductory management course at a large public university in Midwestern USA of which approximately 8% of the student population is international. The sample consisted of 546 participants who ranged in age from 18 to 30 years ($M = 20.08$, $SD = 1.36$), and 61% were male. We collected data in three surveys administered throughout one semester: the first, sixth, and eighth week of classes. This temporal separation was used in combination with different scale properties, as procedural remedies to potential concerns of common method bias (Podsakoff, MacKenzie, & Podsakoff, 2012).

All surveys were administered and taken in English. Internal consistency reliabilities for all scales were adequate (Cronbach's alphas ranged from .78 to .93. Table 1 provides the means, standard deviations, correlations, and reliabilities for all study variables.

Measures

Cultural Intelligence. *CQ* is a person's capability to function effectively in intercultural environments (Ang, Van Dyne, & Rockstuhl, 2015; Earley & Ang, 2003). The 20-item, Cultural Intelligence Scale (Van Dyne, Ang, & Koh, 2008) was used to assess CQ. Sample items include "I am confident that I can socialize with locals in a culture that is unfamiliar to me" and "I change my non-verbal behavior when a cross-cultural situation requires it". Participants were asked to select the answer that best describes them as they really are, with items being rated on a 7-point scale (1=strongly disagree; 7=strongly agree). The Cronbach's Alpha for this measure was 0.90.

Cultural Experience. *Cultural experience* refers to the cumulative experience one has had over their lifetime in intercultural environments. Prior studies examining cultural experience (e.g. Lee & Sukoco, 2010) have drawn from the conceptualization put forth by Takeuchi, Tesluk, Yun, and Lepak (2005) of international experience being twofold: travel experiences and work experiences. As we were examining cultural experience in a context where work experience was less relevant, living outside of one's home country was used to capture broader cultural experience in place of work experience. Cultural experience was thus assessed by two questions which asked how many countries the individual had visited, as well as whether they had lived outside of their home country. .

Self-construal. *Self-construal* refers to how one defines and makes meaning of oneself in relation to others (Cross, Hardin, & Gerceck-Swing, 2010). 15 items (Singelis, 1994) were used to assess interdependent self-construal. Sample items include "I will sacrifice my self interest for the benefit of the group I am in" and "I feel my fate is intertwined with the fate of those around me". Participants were asked to indicate their agreement with the statements as they referred to themselves, with items being rated on a 7-point scale (1=strongly disagree; 7=strongly agree). The Cronbach's Alpha for this measure was 0.93.

Generalized Self-Determination. *GSD* refers to what motivates people behave the way they do in general in their life as a whole. 24 items from the Global Motivation Scale (Guay, Mageau, & Vallerand, 2003), made up of subscales representing a continuum, were used to assess GSD. To the far left is non-self-determined behavior, which is characterized by non-regulation. To the far right is self-determined behavior, which is characterized by intrinsic motivation and intrinsic regulation. In between is a range of semi self-determined behavior characterized by three separate regulatory styles (external regulation, introjected, and identified) all considered to be under the umbrella of extrinsic motivation (Ryan et al., 1997). Sample items include "In general, I do things... in order to help myself become the person I

aim to be”, “In general, I do things... because I like making interesting discoveries”, and “In general, I do things... because I want to be viewed more positively by certain people”. Participants were asked to indicate how well the statements corresponded generally to why the individual does different things, with items being rated on a 7-point scale (1=does not correspond accordingly; 7=corresponds completely). A general index was calculated using the subscale scores and the following formula: $[(2*(\text{intrinsic motivation knowledge} + \text{intrinsic motivation accomplishment} + \text{intrinsic motivation stimulation})/3 + 1*\text{identified regulation}) - (1*(\text{external regulation} + \text{introjected regulation})/2)]$. The Cronbach’s Alpha for this measure was 0.78.

Covariates. We included participants’ *gender* as a covariate consistent with prior research findings showing differential relationships with self-determined motivational profiles (Vallerand & Bissonnette, 1992), self-construal (Cross et al., 2010), and CQ (Kodwani, 2012). *Age* was also included as a covariate following the example of Ang, Van Dyne, and Koh (2006).

Results

Moderated hierarchical regressions were used to test the direct relationships as well as the moderating roles. Initially we entered age and gender to control for their effects, then in step two we entered the mean-centered independent variables (cultural experience, interdependent self-construal, and GSD) to test the direct relationships with CQ (the dependent variable), and in step three we entered the interaction terms between mean-centered cultural experience and the other mean-centered independent variables to detect the hypothesized moderation effects. The variables were mean-centered to render interpretation of the coefficients meaningful in the absence of meaningful zero points (Hayes, 2017).

Results are presented in Table 2. Model 1 (Table 2) includes only the covariates of age and gender. Model 2 (Table 2), with the direct effects added, was significantly improved (Change in $R^2 = .18$, $p < .001$) indicating the predictive validity of the independent variables above and beyond age and gender. In Model 2 (Table 2), direct effects for cultural experience ($\beta = .05$, $p < .001$), interdependent self-construal ($\beta = .26$, $p < .001$), and GSD ($\beta = .09$, $p < .001$) were all significantly related to CQ and in the hypothesized direction supporting Hypothesis 1, Hypothesis 2a, and Hypothesis 2b.

Model 3 (Table 2), with the interaction effects added, was significantly improved (Change in $R^2 = .03$, $p < .01$) indicating added predictive validity of the interactions. As can be seen in Model 3 (Table 2), the two hypothesized interactions (interdependent self-construal x cultural experience: $\beta = -0.06$, $p < .01$; and GSD x cultural experience: $\beta = 0.02$, $p < .01$) were significant. Simple slopes analysis was conducted to further examine the significant interactions (Aiken & West, 1991).

Results indicated a significant increase in positive association between cultural experience and CQ at low levels of interdependent self-construal ($\beta = .09$, $p < .001$) but not at

high levels of interdependent self-construal ($\beta = .02, p > .05$). As can be seen in Figure 2 interdependent self-construal has a substituting effect (Gardner, Harris, Li, Kirkman, & Mathieu, 2017). In other words, a high interdependent self-construal can make up for low levels of cultural experience, and high levels of cultural experience can make up for low levels of interdependent self-construal. While the moderating effect was significant the specific relationship was not the same as hypothesized offering partial support for Hypothesis 3a. This finding suggests that either high levels of interdependent self-construal or high levels of cultural experience are sufficient for increasing CQ. However, if both are at high levels then it does not affect CQ at all. Thus our hypothesis was only partially supported, and only at interaction levels when one level was low, and the other high.

Results also indicated a non-significant increase in positive association between cultural experience and CQ at low ($\beta = .02, p > .05$) levels of GSD and a stronger significant increase in positive association at high levels of GSD ($\beta = .09, p < .001$). As can be seen in Figure 3 GSD has an accentuating effect (Gardner et al., 2017). In other words, the relationship between cultural experience and CQ becomes stronger as GSD increases. Therefore, Hypothesis 3b was fully supported. This finding was in accordance with our hypothesis, and shows that GSD has a positive moderating effect on the overall relationship.

Discussion

Our study yielded two sets of important insights. First, we expanded the nomological network of CQ by providing evidence that GSD and self-construal, as individual differences, are antecedents to CQ. The results, empirically testing the nomological network of CQ highlight some major findings. First, individuals who were high on GSD, indicating they generally do things for more intrinsic reasons, will develop a higher CQ. Second, individuals high on interdependent self-construal, denoting they place importance on their relationships and define themselves as connected with others, were also positively associated with developing their CQs. Also, consistent with reviews of prior findings (Ott & Michailova, 2018; Solomon & Steyn, 2017), we found that cultural experience was positively associated with CQ.

Second, we also provide additional evidence supporting extant research conclusions regarding cultural experience's moderating role as an antecedent to CQ. We go beyond just providing additional antecedents to the nomological network of CQ by exploring how these three antecedents (cultural experience, GSD, and self-construal) interact in relation to CQ. We find that both GSD and self-construal moderate the relationship between cultural experience and CQ. These empirical results help to highlight the importance of examining the individual-level antecedents of CQ, particularly cultural experience, in conjunction with behavioral differences which are also part of the CQ nomological network.

Beyond the aforementioned direct relationships, GSD and interdependent self-construal played a moderating role on the cultural experience to CQ relationship. These findings

complement prior research (Shannon & Begley, 2008; Ott & Michailova, 2018) examining individual differences as antecedents of CQ without regards to the potential interaction effects. The secondary set of our main findings, the moderation of the cultural experience to CQ relationship, helps move the conversation beyond direct antecedents of CQ. Our results indicate that individuals who are high on interdependent self-construal are able to make up for what they may lack in cultural experience, whereas having high levels of GSD enhances the already positive association between cultural experience and CQ. This provides initial evidence towards understanding why individuals, due to their differing abilities and motivations, may benefit from cultural experiences to different extents.

Theoretical and Practical Implications

Extending the nomological network of CQ has been emphasized as an important step for both CQ and leadership research yet remains not entirely developed (Ang & Van Dyne, 2008; Jyoti & Kour, 2017; Bernardo & Presbitero, 2017; Presbitero & Quita, 2017; Young, Haffejee, & Corsun, 2017). Our research adds to this development by theoretically integrating self-construal, and GSD with CQ. In addition to providing new direct antecedents, and lending more evidence to previously discovered antecedents, we expand the nomological network by testing interactions between antecedents. Our results add to current literature that has shown a positive relationship between individual cultural experience and CQ (Crowne, 2008; Shannon & Begley, 2008; and Engle & Crowne, 2014) by proposing and finding moderating effects of interdependent self-construal and GSD on the cultural experience to CQ relationship.

By doing so, this research also has important practical implications for individual cross-cultural leadership selection and development of both leaders and employees in non-leadership positions. For example, the positive relationship between GSD and CQ, as well as GSD's enhancing effect of the positive relationship between cultural experience and CQ can help identify an individual with high GSD as a stronger candidate for a cross-cultural leadership position, as well as a good candidate for development through providing additional cultural experience. Perhaps, organizations and HR departments can identify employees with GSD and self-construal, as such individuals are likely to have better CQ. This could also potentially ameliorate the issue of lack of leaders with CQ skills. This helps to address the shortage of qualified leaders and development of cross-cultural leadership issues by providing tools for identification of leadership potential, and specific areas to focus on during training. We believe that our research findings have the potential to be applicable across national and cultural boundaries, and can play an important role in addressing the globally competent leadership shortage.

Future Research

Due to the cross-sectional nature of our data, and because we were examining cumulative cultural experience over a lifetime rather than a specific cultural experience event,

we chose constructs that were more general in nature (e.g. GSD rather than self-determination in a specific situation/time). Examining the nature of these relationships in specific situations/times provides an opportunity for future research and will be discussed further in our future research section.

Future research could be conducted where cultural experience included a specified timeframe during which more situationally specific measures could be used. Longitudinal data collection could also be considered in future studies in order to more completely consider the effects of cultural experience. Another additional issue caused by the cross-sectional nature of our data is that we cannot make claims about the change of CQ over time. Future research could explore this using a design in which CQ is measured before and after a cultural experience (e.g. a study abroad semester or an expatriate assignment). Doing so would expand the results that we found and help to explain just how much CQ improvement can be attributed to the predictors and the interactions of those predictors with the cultural experience.

While our research adds to the growing knowledge of the nomological network of CQ, additional research should continue to find more antecedents as well as explore other potential interactions beyond those which we found in our study. Rockstuhl and Van Dyne (2018), for instance, conducted a meta-analysis which found differential relationships between the four factors and outcomes of intercultural effectiveness. Future research should also explore how antecedents, and their interactions, may have differential effects on the four factors, and through those factors, differential effects on outcomes of intercultural effectiveness. These advances will allow researchers and organizations alike to accurately identify and develop cross-cultural leaders.

Conclusion

The global leadership gap is a pressing concern in the current business environment. Examining the nomological network of CQ is a step in the right direction towards addressing the gap through leadership, and expatriate, selection and development. By studying the direct and indirect effects that cultural experience, interdependent self-construal, and GSD have on CQ we give researchers a better framework for future research while also giving practitioners tools for selection and development.

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Table 1

Means, Standard, Deviations, Intercorrelations, and Reliabilities of Study Variables

Variable	n	M	SD	1	2	3	4	5	6
(1) CQ	411	4.56	.78	(.90)					
(2) Age	546	20.08	1.36	.12*	—				
(3) Gender	546	.61	.49	.11*	.04	—			
(4) Cultural Experience	542	2.46	3.33	.21**	.21**	-.10*	—		
(5) Interdependent Self-Constraint	507	5.03	.64	.26**	-.05	.03	.02	(.78)	
(6) GSD	410	11.07	2.29	.29**	-.05	.02	-.08	.16**	(.93)

Note. Reliabilities are on the diagonal. CQ = cultural intelligence; GSD = GSD. As the variables were collected at three time points some respondents did not respond to all the surveys, and the differences in n's for variables reflect this. These n's are reported to clarify (for any future meta-analytical studies) the correct n for each correlation.

* $p > .05$. ** $p > .01$.

Table 2: *Moderated hierarchical regression analyses*

	Model 1	Model 2	Model 3
Predictors	β	β	β
Constant	3.12***	3.36***	3.10***
Age	.07*	.05	.07*
Gender	.16	.18*	.17*
C Exp		.05***	.05***
ISC		.26***	.27***
GSD		.09***	.10***
ISC x C Exp			-.06**
GSD x C Exp			.02**
R ²	0.025	0.206	0.237
Change in R ²	0.025	0.181	0.031
F for Change in R ²	4.280*	25.418***	6.703**

Note. Dependent Variable is CQ (cultural intelligence); C Exp = cultural experience, ISC = interdependent self-construal, GSD = GSD.

* $p < .05$. ** $p < .01$ *** $p < .001$.

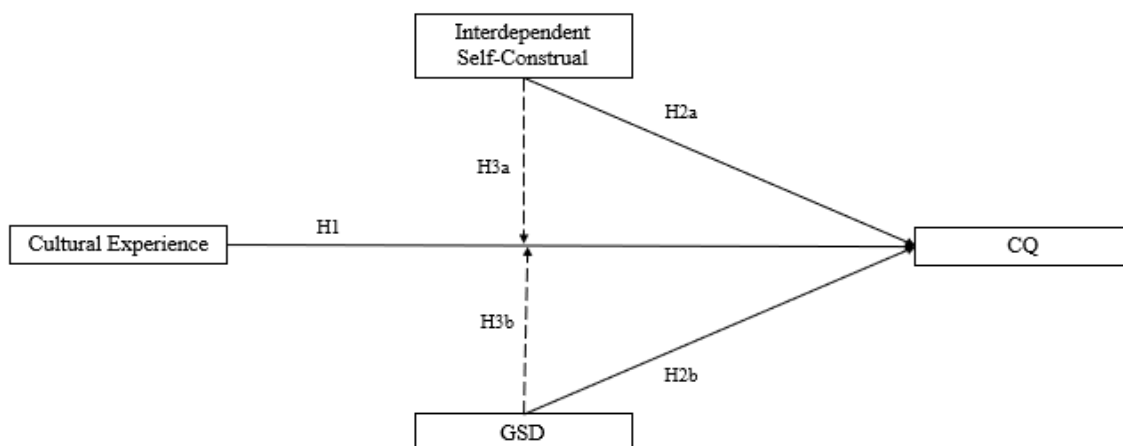


Figure 1. Hypothesized model linking cultural experience, interdependent self-construal, GSD, and cultural intelligence.

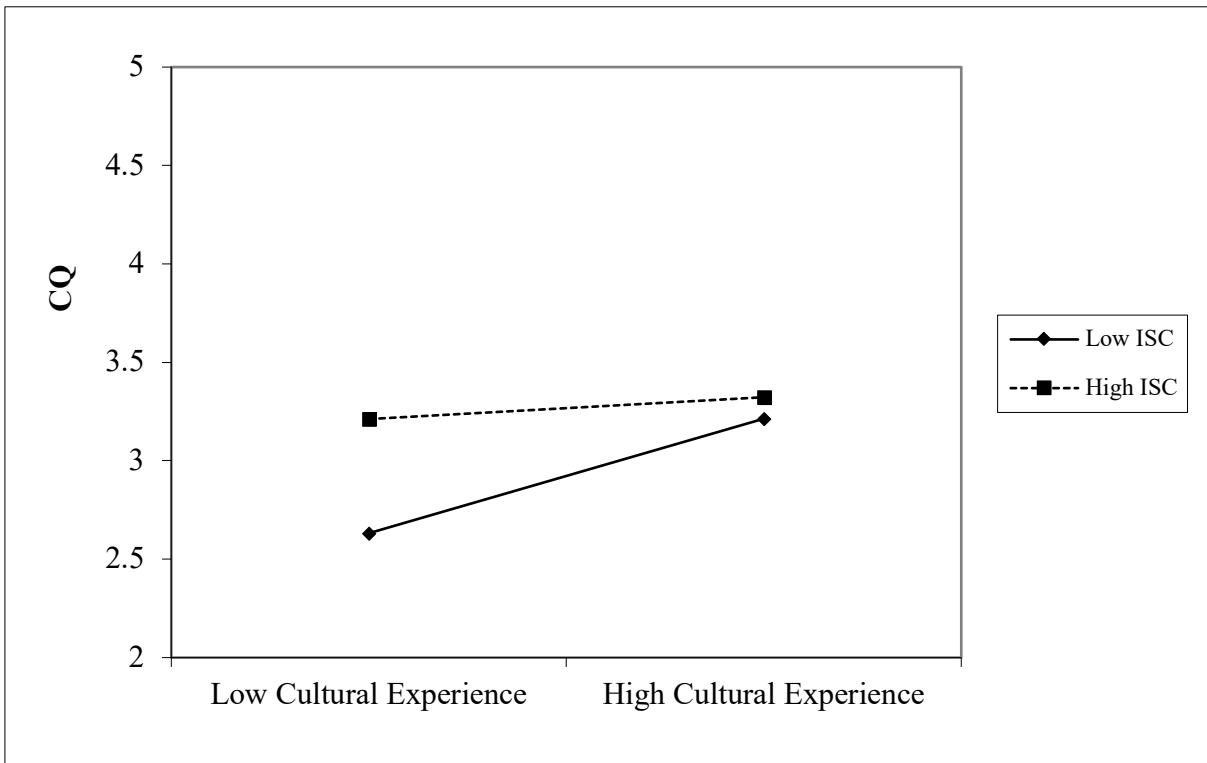


Figure 2. Moderation effects of interdependent self-construal (ISC) on the cultural experience-cultural intelligence (CQ) relationship.

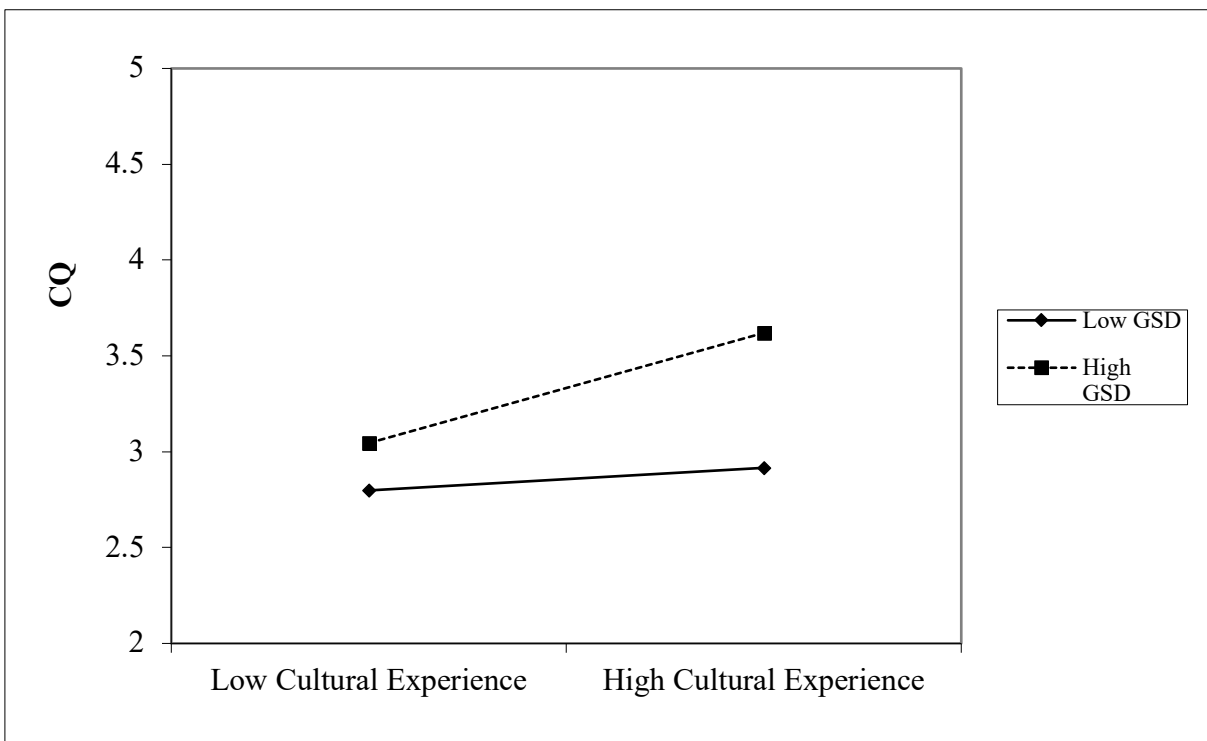


Figure 3. Moderation effects of GSD (GSD) on the cultural experience-cultural intelligence (CQ) relationship.

IMPACTS OF ETHICAL MARKETING PRACTICES ON CUSTOMER SATISFACTION AND LOYALTY ON COSMETICS PRODUCTS OF GENZ

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Abstract.

This paper examines ethical marketing practices on GenZ's customer loyalty and customer satisfaction of cosmetic products.

There has been an increasing demand for ethical marketing research in beauty business in recent years all over the world and especially in Vietnamese market. Because of this potential development chances for businesses in the beauty industry, as how to attract young customers. Yet this potential opportunities entail challenges in not only having appealing products but also keeping customers to re-purchase in the future. Our research aims is to identify the impacts of ethical marketing practices in GenZ customers loyalty of cosmetics products. We employed the theory of planned behaviour (TPB) for further analysis. A questionnaire survey was distributed to 250 GenZ people living in Vietnam for data collection. After 4 months, 250 valid responses were received. The research results showed the relationship between the employment of ethical marketing practices in the beauty industry has positive impacts on GenZ satisfaction in their products, as well as in maintaining their product loyalty.

Keywords: *ethical marketing practices, GenZ, customer loyalty, cosmetics products*

1. INTRODUCTION

Ethical consideration of environmental and social issues has become a trend in company strategy (O berseder, Schlegelmilch, Murphy, & Grubman, 2014).

Companies are increasingly using sustainable marketing strategies to represent themselves as socially responsible businesses (Ramasamy, Yeung, & Au, 2010). However, social responsibility for businesses cannot be realized without the ethical attitudes and actions of customers (Lee, 2016; Vitell, 2015). Although some scholars began working on consumer ethics about thirty years ago (e.g. Muncy & Vitell, 1992), consumer ethics research remains an emerging field of study.

2. LITERATURE

2.1 Customer satisfaction

Several scholars have emphasized customer happiness as a major aspect of a company's

marketing strategy throughout the previous two decades. In a fiercely competitive market, any company may advance to a higher degree of competitive advantage by obtaining customer satisfaction. Numerous researchers have demonstrated the existence of a positive correlation between customer satisfaction and customer loyalty (Anderson, Fornell, and Lehmann, 1994; Taylor and Baker, 1994; Rust, Zahorik, and Keiningham, 1995; Fornell, Johnson, Anderson, Cha, and Bryant, 1996), and they have emphasized the importance of customer satisfaction in the studies of customer loyalty.

Fornell (1992) describes customer satisfaction as a disposition formed by a client's experience after acquiring a product or service and paying for it. Similar to this, Ningsih and Segoro (2014) described customer satisfaction as an attitude, evaluation, and emotional reaction after the purchase process. It indicates satisfaction with a certain product or service. According to Yap, Ramayah, and Shahidan (2012), customer satisfaction is a general attitude toward a service provider.

Typically, customer pleasure is seen as a crucial precursor to client loyalty. In other words, consumer loyalty is directly proportional to customer satisfaction (Heskett, Sasser, and Schlesinger, 1997). Consuegra et al. (2007) and Wong and Zhou (2006) noted that customer happiness is one of the most powerful variables in enhancing client loyalty. In addition, according to Wong and Sohal (2003), a company's likelihood of repurchase increases when it satisfies more customer expectations throughout a service. (Blodgett & Anderson, 2000; Maxham & Nethemeyer, 2002) The majority of research have shown that pleased customers are more likely to repurchase and comment favorably about a company. Though some researchers (Oliver, 1999; Seiders et al., 2005; Jones and Sasser 1995; Reichheld, 1996) acknowledged that high customer satisfaction does not always correlate with high loyalty, the majority of researchers (Anderson 1996; Anderson et al. 1994; Fornell 1992; Fornell et al., 1996; Ping, 1993; Rust and Zahorik, 1993; Rust, Zahorik, and Keiningham 1995).

2.2 Customer loyalty

In a dynamic and challenging economy, customer loyalty has been deemed a crucial aspect in gaining a competitive edge over rival businesses. It is a multidimensional construct composed of two components, attitude and conduct. Oliver (1999) defined customer loyalty as the commitment of buyers to purchase certain goods, services, and brands of an institution over an extended period of time, regardless of competitor's new products and advancements, and without being pushed to switch. Loyal consumers regard the company favorably, recommend it to others, and would repurchase from it (Dimitriades, 2006). In a similar vein, Lam et al. (2004) define customer loyalty as the continued use of a service provider and the referral of that service provider to other consumers. In addition, it is assumed that the purchasers want to make repeat purchases in order to establish a continuing connection with the organization (Dick and Basu, 1994; Fornell, 1992).

2.3 Generation cohorts

In general, the generational cohorts can be described as Baby Boomers (who were born between 1946 and 1964), Generation X (between 1965 and 1979; henceforth referred to as Gen X), Generation Y (also known as / Millennials, between 1980 and 1995; henceforth Gen Y), and Generation Z (also known as iGen or Centennials, between 1996 and 2010; henceforth Gen Z) (Freestone & Mitchell, 2004). Demographers and marketers have stated that certain life patterns may characterize a group of people (Littrell, Ma, & Halepete, 2005; Martin & Gentry, 2011), notwithstanding the possibility of generational variation. Among generations, Gen Z is largely regarded as the subsequent consumer powerhouse, necessitating study.

By 2020, the eldest members of Generation Z will have started to enter the workforce, with their incomes rising and their economic independence from their family increasing. According to a survey conducted by McKinsey & Company in Brazil, Gen Z customers are more inclined to base their purchasing decisions on ethical considerations than previous generations.

2.4 Ethical marketing

It is acknowledged that ethical marketing practices have the ability to diminish customers' mistrust of marketers. However, it is difficult for marketers to obtain a ready-made list of their moral obligations, as new issues continue to generate new duties and responsibilities. In essence, attitudes are succinct assessments of things or situations based on information originating from emotive, cognitive, or behavioral dimensions (Gupta, Pirsch, and Girard, 2010; Petty, Wegener, and Fabrigar, 1997) In consumer studies, perceived risk resulting from consumers' perceptions of uncertainty associated with purchasing and consuming a product is also considered an important factor. This sense of unpredictability may exacerbate consumer anxiety and negatively impact their purchasing decisions (Bhatnagar & Ghose, 2004). Forsythe, Liu, Shannon, and Gardner (2006) note that the attitudes that consumers form based on their perceptions of benefits and risks are important indicators for predicting their purchase intentions, given that they are primarily concerned with minimizing risks and maximizing benefits, which is crucial to comprehend when marketers' actions are evaluated based on ethical parameters.

In addition, it has been witnessed that unfair marketing tactics eventually damage a company's positive reputation, and as a result, consumers are less likely to choose the products of these companies when making purchasing decisions (Ozbek, Alniacik & Koc, 2012). Taking into account the aforementioned issues, and in accordance with Kumar, Mokhtar, and Al-Swidi (2014) and Viriyavidhayavongs and Yothmontree (2002), it is apparent that few studies have examined the effects of the ethicality of businesses on the perceptions and sensibilities of consumers. Anxiety and a lack of trust may prevent consumers from purchasing a product, despite the product's advantages. According to Lamsa et al. (2008), female customers often

demonstrate higher favorable sentiments toward companies they perceive as ethical. In addition, Eze, Tan, and Yeo (2012) discovered that brand awareness and brand image have a significant impact on consumers' purchasing intentions for cosmetics. Despite their awareness of ethically produced goods, studies reveal that customers are not always willing to pay a higher price. In some situations, though, customers may be ready to pay slightly extra for such products, and this has been a worry of marketers for a long time (Stanforth & Hauck, 2010). Moreover, as consumers may lack the knowledge and time to compare prices, businesses may resort to unfair pricing for quick profits, which may ultimately have a negative impact on their long-term viability (Khandelwal & Bajpai, 2012). Table 1 gives valuable information in this respect. Specifically, it identifies the major ethical issues associated with consumer marketing that can be used to evaluate the marketing practices of businesses, as identified by Smith (1995).

Additionally, a well-known source may have a greater impact on a person than lesser-known ones (Ajzen & Fishbein, 1980). Due to such societal pressure, even a favorable view among consumers about the fairness of cosmetic firms' marketing methods may not be reflected in their actual purchasing behavior (Hashim & Musa, 2013), underscoring the importance of subjective standards in consumer decision-making. Also, from an ethical perspective, perceived behavioral control (PBC) – as a parameter in the theory of planned behavior (TPB) – refers to the perceived difficulty or ease felt by consumers in contemplating about ethical aspects and gathering sufficient information about them while deciding whether to purchase cosmetics products (Pavlou & Fygenson, 2006); which increases the importance of marketers' understanding of consumers' PBC aspects.

Multiple ethics-based consumer research (e.g. Carrington, Neville, & Whitwell, 2010; Ozcaglar Toulouse, Shiu, & Shaw, 2006) have used the TPB as a foundation for their models.

Also, self-confidence and health awareness were included in accordance with the consumer choice process model (Blackwell, Miniard, & Engel, 2001), which indicates that lifestyle attributes have the capacity to influence different stages of consumer decision-making. The following theories were thus offered in this study:

H1: The stronger the amount of product fairness the company has, the more favorable consumers are towards that company.

H2: The stronger the amount of price fairness the company has, the more favourable consumers are towards that company.

H3: Consumer health consciousness is a moderating factor to consumers' attitudes
H4: Consumers' differing education levels have a moderating influence on the extent of attitude
H5: Consumers' attitudes positively influence their satisfaction towards the product
H6: Consumers' satisfaction positively influence their loyalty towards the product

Price fairness
Product
fairness
Health
consciousness
Attitude
Expertise (consumer
education) – moderating factor
Customer satisfaction
Customer loyalty

Figure 2: Proposed research model

3. RESEARCH METHODS

3.1 Data collection

Using a Google Forms-based, self-completed questionnaire, data was gathered. Invitations to participate in a survey were distributed on Facebook, LinkedIn, and other social media platforms. The researchers encouraged their friends, colleagues, and members of social media groups (university fan sites) to assist spread the offer to participate through social media. In less than three weeks, 270 replies were gathered. Following quality screening, 250 replies were suitable for data analysis.

Both the qualitative and quantitative methods were utilized in this study because these approaches as regarded by Mackey and Gass (p68, 2005) as “complementary means of investigating the complex phenomena at work in second language”. It includes questionnaires, and interviews as the instruments to collect data. These two instruments are chosen by the researcher to seek answers to the research questions, and supplement each other in collecting data.

The researcher employs interview as the main tool to collect information as well as the source for compiling questionnaires. It is carefully chosen as valuable research instrumentation to supply the input for the questionnaire. Vaus (p151, 2002) reveals that “in-depth interviewing can give the researcher insight into the meaning of behavior and attitudes expressed in questionnaires. This can help made more intelligent interpretations of the patterns discovered in the analysis of questionnaire data”. Also, due to the interactivenss of interviews, the researcher can possible elicit additional data in case the previous questions are ambiguous, incomplete or irrelevant thus increasing the proficiency of both quantity and quality of data

provided.

Semi-structured interviews are also conducted in this research in order to elaborate information hence bringing a wide range of responses from the interviewees (Hancock, 1998).

3.2 Measures

Scale items were adapted from existing literature and were measured on a 5-point Likert scale ranging from “1 = Totally disagree” to “5 = Totally agree”. The survey instruments include TPB variables which are health consciousness (HC), price-related issues (PRI), product-related (PR2), consumer attitude (CA), and customer loyalty were adopted and modified from the studies of

Leninkumar (2017), Kumar (2016) and Tanveer (2021). In terms of customer satisfaction, the scale item was measured based on 2-point Likert scale from 0 = Disagree to 1= Agree, which also adapted from the study from Chao (2015).

3.3 Sampling and participants

To gather data, we used a web-based questionnaire. The respondents ranging in 03 big cities in Vietnam which are Hanoi, Da Nang and Ho Chi Minh City. The reason for choosing the aforementioned cities was that, Vietnam's cosmetics business has quickly become one of Southeast Asia's most competitive. Consumers in Vietnam are growing more interested in items that do more than just meet their most basic requirements, such as those that promote health and wellness or enhance their appearance. (Vietnambriefing.com).

There were two types of sampling used: the snowball and the convenient. We opted for the snowball technique since this method is useful in research in the social sciences: a discipline that depends on recruiting as many people as possible so that researchers may learn as much as possible about their study's population of interest.

4. DATA ANALYSIS

To test the first hypothesis, the semi-structured interview and questionnaires were given out to respondents. On being asked about health consciousness, there are three questions were raised related to the following:

HC1 I am more health conscious than most of my friends

HC2 I prefer to use facial care products regularly for maintaining a healthy and glowing face
HC3 I frequently purchase “health improving cosmetics products”

HEALTH CONSCIOUSNESS

HC3

HC2

HC1

0 20 40 60 80 100 120 140 160 180 200 STRONGLY DISAGREE DISAGREE
NEUTRAL AGREE STRONGLY AGREE

It's typical for individuals to brag about how much they value their health, or how much more they value it than others. However, people's levels of health awareness may range widely, depending on variables including their beliefs, habits, and access to information and services. It's possible that some individuals won't feel the need to utilize health products or make major adjustments to their lifestyle because they believe their health is already in good enough shape without them. Having a healthy lifestyle is a vital part of being health-conscious, but so are preventive actions to head off any issues in the future.

Respondents should know that using cosmetics could make their skin seem better, but it doesn't mean they're good for your health. Most skin care products are intended to temporarily improve the skin's look by doing things like hydrating it, smoothing its texture, or minimizing the visibility of fine lines and wrinkles. A balanced diet, regular exercise, and sufficient sleep are all vital for general health and will have a positive effect on the skin's health as a byproduct. Wearing sunscreen and limiting time spent outside in direct sunlight are also important for skin health and longevity. It's crucial to remember that cosmetics aren't a replacement for a healthy lifestyle or preventive maintenance when it comes to their skin's look. Meanwhile, It is easy to see why some individuals would put a higher priority on acquiring cosmetic items that aid in the removal of dirt and filth from the surroundings as well as from their own skin. These are the kinds of items that may assist in keeping the skin clean and in warding off breakouts as well as other sorts of skin irritation. However, it is also crucial to examine the possible long-term implications of using certain cosmetic items, particularly those that may include harsh chemicals or other components that might be detrimental to the health of the skin or the body as a whole. It is essential to give labels a thorough read and to pay attention to the kinds of components that are present in the items that you put in your body. In addition, despite the fact that certain cosmetic products have a higher price tag than others, there are often less costly alternatives that may still provide positive results for the skin. It is essential to do study in order to locate items that are suitable for both your skin type and your financial constraints. In general, although utilizing cosmetic items may be beneficial for the skin, it is essential to also focus overall healthy behaviors and preventive maintenance in order to keep the skin healthy over the course of a longer period of time. This includes things like maintaining a healthy diet, engaging in regular physical activity, and obtaining an adequate amount of sleep.

Price fairness

PF1 All extra costs and added features should be identified clearly in a facial care product
PF2 A facial care product should offer me the full value that I expect from using it
PF3 The full price associated with any purchase of facial care products should be disclosed

PRICE FAIRNESS

PF3

PF2

PF1

0 20 40 60 80 100 120 140 STRONGLY DISAGREE DISAGREE NEUTRAL AGREE
STRONGLY AGREE

They stated that there should be pricing justice, and that openness should play a significant role in attaining price fairness. The customer has the right to know what they are paying for and the reasoning behind the price that they are paying for it. For this reason, it is very necessary that every component that is connected to the price be presented in an understandable manner so that consumers may make judgments that are appropriate for them. In addition, the price of the product or service shouldn't be out of proportion with the level of quality it offers. Customers have an expectation that the money they spend will be worth something, and if the price is excessive in relation to the quality of the product or service being offered, it may result in customer discontent and a loss of confidence. On the other side, if the price is much lower than competitors', it may cause customers to wonder about the product's or service's overall quality.

In order for pricing to be fair, there must not be any additional unmentioned fees or levies. It is important that all of the prices be laid out clearly up front, and any extra fees should be revealed in their entirety. The perception that a customer is being taken advantage of or deceived in any manner should never be allowed to exist. Pricing that is both honest and open to the public is very necessary for gaining the patronage of new consumers and retaining the loyalty of existing ones. It is evidence that a company appreciates its consumers and is dedicated to providing them with an experience that is honest and fair.

PRF1 The facial care products should be safe and fit for their intended uses

PRF2 Information regarding all substantial risks associated with the facial care product should be disclosed

PRF3 Any product component substitution that might materially change the product or impact on the buyer's purchase decision should be disclosed

PRODUCT FAIRNESS

PRF3

PRF2

PRF1

0 50 100 150 200 250 STRONGLY DISAGREE DISAGREE NEUTRAL AGREE

STRONGLY AGREE

While it is true that many customers place a premium on safety and appropriateness when selecting face care products, it is crucial to remember that this may not be the case for all consumers. Some customers may place a higher value on efficacy or price than on safety and suitability. However, the safety and suitability of face care products are crucial factors for many customers. Inappropriately made or containing potentially toxic chemicals face care products may cause skin irritation, allergic reactions, and other undesirable consequences. To address these concerns, some consumers explained that numerous regulatory agencies around the world, such as the Food and Drug Administration (FDA) of the United States and the Cosmetics Regulation of the European Union, have established guidelines and regulations for cosmetic product safety and labeling. Manufacturers of cosmetics are required by these laws to guarantee that their products are safe for use and properly labeled with ingredient lists and warnings. In addition, many customers choose face care products that are formulated for their specific skin type and skin issues, such as anti aging or acne-prone skin. This may include choosing products with particular components, avoiding compounds that may irritate their skin, or searching out goods suggested by dermatologists and other skincare specialists. Although not all customers may prioritize safety and appropriateness when selecting face care products, many do, and regulatory authorities and industry standards are designed to guarantee that these products are safe and suitable for their intended purpose.

They assert that any information about risks or allergies should be prominently displayed on goods. As previously stated, this is a mandate of several regulatory authorities throughout the globe, including the US Food and Drug Administration (FDA) and the European Union's Cosmetics Regulation. The laws require cosmetic items to be labeled with a list of components, including any possible allergies, in decreasing order of concentration. This enables customers to identify components to which they may be allergic or prefer to avoid exposure. In addition, if a cosmetic product has unique hazards or has specific use instructions or cautions, this information must be prominently placed on the product's label. This may contain instructions such as "for external use only," "avoid contact with eyes," or "do not apply to injured skin." It is crucial for customers to notify the manufacturer and/or regulatory bodies if a cosmetic product creates an unpleasant response, such as an allergic reaction or irritation. This may result in a product recall or regulatory action to resolve any safety issues. Overall, clear and precise labeling is essential for guaranteeing the safety and proper use of cosmetics. It enables customers to make educated judgments and take the necessary safeguards while using these items.

CONSUMER ATTITUDE

CA5

CA4

CA3

CA2

CA1

0 50 100 150 200 250 300 STRONGLY DISAGREE DISAGREE NEUTRAL AGREE
STRONGLY AGREE

CA1 I am afraid that I might be overcharged when buying a facial care product CA2 I can't examine the actual facial care product prior to buying it

CA3 I prefer to buy a facial care product which seems to contain less harmful contents
CA4 Over the past several years, the quality of most cosmetics products has not improved

CA5 I hesitate to buy a facial care product if there is limited or little information available about it

The customers assert that they are overcharged while purchasing face cosmetics and express a preference for items that include less risk-related components. They continued by saying that they would search up reviews of the items and read about the experiences of other clients who had previously utilized the product. This may be useful in determining whether or not the product lives up to its claims of efficacy and whether or not the cost is justified. They look for items that could have less risk-related components and might be less likely to produce irritation or allergic responses than others might be. There is a chance that customers would feel that the standard of most cosmetics has not increased over the previous few years. Nonetheless, remember that quality judgments are sometimes subjective and affected by variables such as individual tastes and expectations. The respondents elicited their answers through semi-structured interview. cosmetics are a dynamic sector, with firms consistently seeking for new methods to enhance their offerings. Natural and organic materials, eco-friendly packaging, and cutting-edge technology like 3D printing and augmented reality are just some of the more recent developments in the business world. It's also important to note that consumers are increasingly looking for genuine products from the cosmetics sector. Many businesses are catering to consumers' growing interest in product transparency by disclosing more information about their goods' ingredients and manufacturing procedures. In the end, the efficacy of a cosmetic item is determined by a wide range of elements, such as its constituents, its formulation, its production procedures, and the individual's skin type and preferences.

YES NO On being asked about their experience with the products, 73% of consumers agreed that they are satisfied with the personal care products they purchased. If a large proportion of clients are happy with a cosmetic product, it is probable that the product has a number of advantageous qualities. When selecting items, many buyers increasingly consider ethical and environmental activities. This may appeal to consumers and add to their pleasure if a firm is upfront about its ethical practices and makes an attempt to lessen its environmental

effect. Customers anticipate that cosmetic items would be successful and live up to their claims. Customers are more likely to be happy if a product has high-quality components and has been extensively tested to confirm its efficacy. Outstanding customer service is a crucial component of client satisfaction. A company's responsiveness, helpfulness, and efficacy in handling customer issues may significantly improve the customer experience. Customers want to believe they are receiving a fair return on their investment. Customers are more likely to be happy with a product if it is priced competitively and provides excellent value. Some consumers may be worried about possible hazards posed by cosmetic components, such as allergies or skin irritation. This may appeal to consumers and add to their pleasure if a product has fewer or no dangerous substances and is manufactured with natural or mild ingredients.

CONSUMER LOYALTY

CL4

CL3

CL2

CL1

0 20 40 60 80 100 120 140 160 180 STRONGLY DISAGREE DISAGREE NEUTRAL
AGREE STRONGLY AGREE

CL1 I say positive things about the product to other people

CL2 I recommend the product to someone who seeks my advice

CL3 I encourage friends and relatives to buy the products

CL4 I consider the product as first choice

As can be seen from the chart that customer loyalty is quite high. If a large proportion of clients are happy with a cosmetic product, it is probable that the product has a number of advantageous qualities. When selecting items, many buyers increasingly consider ethical and environmental activities. This may appeal to consumers and add to their pleasure if a firm is upfront about its ethical practices and makes an attempt to lessen its environmental effect. Customers anticipate that cosmetic items would be successful and live up to their claims. Customers are more likely to be happy if a product has high-quality components and has been extensively tested to confirm its efficacy. Outstanding customer service is a crucial component of client satisfaction. A company's responsiveness, helpfulness, and efficacy in handling customer issues may significantly improve the customer experience. Customers want to believe they are receiving a fair return on their investment. Customers are more likely to be happy with a product if it is priced competitively and provides excellent value. Some consumers may be worried about possible hazards posed by cosmetic components, such as allergies or skin irritation. This may appeal to consumers and add to their pleasure if a product has fewer or no

dangerous substances and is manufactured with natural or mild ingredients.

5. FINDINGS

Consistent with the findings of Shehryar and Hunt (2005) and berseder, Schlegelmilch, and Gruber (2001), the results of this study support the null hypothesis H1: that the presence of adequate safety factors and the prevention of all kinds of dishonesty in a product has a direct impact on the formation of stronger consumer attitudes (2011). Subsequently, it was determined that H2 was also correct. Following the arguments of Uusitalo and Oksanen (2004) and Khandelwal and Bajpai (2012), this demonstrates the favorable effect of adopting a fair pricing strategy and avoiding unfair pricing practices on the creation of customers' attitudes.

Additionally, support was found for Hypothesis H3, which is consistent with the findings of Shehryar and Hunt (2005), who found that consumers had more positive attitudes toward ethically minded businesses. This research provides more evidence that customers in Malaysia are highly motivated to think about ethical issues while making purchase decisions, which should serve as a red flag to marketers. Consequently, H4 was confirmed, demonstrating that customers' degrees of excitement and incentive to purchase from such businesses are developed to reflect their different levels of difficulty or comfort in the examination of ethical concerns, as proposed by Yoon (2011).

Additionally, H5 was disproved by the data. This conclusion contradicts the findings of Chiou (1998) and Hunt and Vitell (2006), suggesting that consumers place equal significance on thinking about a company's ethical marketing practices regardless of their level of optimism or confidence in their own talents. While surveys have shown that confidence levels vary widely across men and women, it's possible that women are more likely to err on the side of caution because of the importance of family to them. As with H5, H6 was disproved. Of the contrary to Chen (2011) and Ko, Lee, Kim, and Burns (2010), this research demonstrates that consumers with varying degrees of health awareness tend to have comparable patterns and levels of motivation and inclination to examine the ethicality of marketers. Although women in different cultures may have varying degrees of access to and interest in holistic health, fitness, nutrition, etc., they all share a common tendency to avoid putting their families in harm's way and to refrain from engaging in reckless spending. This may be due to the fundamental nature of traditional societies and the ways in which women were raised within them.

6. LIMITATIONS AND SUGGESTIONS FOR FUTURE STUDIES

There is a dearth of literature on marketing ethics as it pertains to economies in transition. Therefore, this study has made an effort to bring up the topic of educating consumers on the ethical behavior of firms. Moreover, this study's findings suggest that urban female buyers in Malaysia are significantly impacted by concerns of product and pricing justice. This is a contribution to the marketing ethics literature that makes use of the notion of planned

behavior. This research intends to back up assertions made by other studies (e.g. Lämsä et al., 2008; berseder et al., 2011) that customers have favorable views of businesses that take their social and ethical responsibilities seriously. In addition, the study's findings demonstrated that urban female consumers are concerned with the ethical practices of businesses regardless of their socioeconomic status or degree of education. In addition, this research made an important addition to the marketing literature by include significant ethical considerations from consumer marketing in its measurement of the variables, as stated in the marketing ethics continuum (Smith, 1995). Finally, regarding the topics of future research, we suggest studying consumers' carefulness in various contexts, especially in developing countries, in relation to counterfeits and unfair activities. We also recommend that researchers use qualitative research methodologies, such in-depth interviews with marketing experts, academics, government officials, and consumers, to undertake studies based on ethics. This would be especially helpful in cases when the aforementioned area of study is just being started.

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ASSESSING THE IMPACT OF GREEN MARKETING AND CORPORATE IMAGE ON CONSUMERS' PURCHASE INTENTION FOR COSMETICS SKIN CARE

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Abstract

The present study has proposed a model with 5 scales to investigate the impact of green marketing on consumers' intention to buy skin care cosmetics by considering business image profession as an intermediary. Three variables of social responsibility, product image and corporate reputation are studied as factors of corporate image. A total of 403 valid questionnaires from consumers were analyzed using Smart PLS to check the measurement and model structure shape. The research results confirm that the measured corporate image includes three factors: social responsibility, product image and corporate reputation. Green marketing factors have a direct influence on social responsibility and product image and purchase intention. In particular, the social responsibility factor plays an important mediating role in the impact of green marketing on the reputation of the business. Among the three factors of corporate image, product image and business reputation have a direct influence on purchase intention, while social responsibility has an indirect influence on purchase intention through reputation enterprise. The study discusses the significance of management for green marketing activities through building corporate image. This is also a suggestion for businesses to create their own image in the market. Enterprises need to be more active in implementing social responsibility and emphasize more environmentally compatible products to facilitate the development of green consumption. It should be noted that in order for a green marketing strategy to be successfully implemented, a prerequisite is that businesses must choose the right and appropriate target market to ensure a sustainable competitive advantage

Keyword: *Corporate image, Green marketing; Purchase intention*

1. Introduction

Asia-Pacific is the region using the largest parts of the global cosmetics market with a scale of up to 127 Billion USD by 2020. In which, Vietnam is also gradually becoming a full consumption market potential for the big cosmetic label in the world. The Vietnamese cosmetics market is worth \$2.3 billion at the end of 2018 (Q &Me, 2020). A potential market, when the Vietnamese middle class in 2020 is about 33 million people. The revenue of the cosmetics market has increased continuously over the past two decades, making Vietnam an attractive destination for many cosmetic brands. Cosmetics & Personal Care industry achieved impressive revenue with US\$2,290 million in 2021, the market is expected to grow 6.2% annually during 2021-2025. Among them, skin care products are the most popular, with more

than 60% of consumers using them every day. Vietnamese users increasingly attach importance to the quality factor. Origin and raw materials are the two factors they care about most, the price factor is no longer as important as before. The new trend in the cosmetic industry is the naturalization of cosmetics. Vietnamese people gradually become more aware of production facilities, which do not have animal origin, safe and healthy beauty.

On the side of businesses, if they only care about profits without paying attention to environmental issues, they will not bring sustainable economic development but also lead to many social problems. This is absolutely true of the makeup cosmetics market in general and the care and cleaning cosmetics market in particular in Vietnam. Nowadays, skin care products are chosen carefully by consumers because it has a great impact on the health of users. The market size of care and cleaning cosmetics has steadily increased over the years. The more potential the market, the higher the level of competition. In addition, the change in consumer behavior towards increasing the intention to buy environmentally friendly products has created opportunities for businesses as well as requires more research on this issue. Against this background, green marketing has become popular globally and is a long-term direction to bring operational efficiency to enterprises (Maziriri, 2020).

Green marketing is not only a solution to limit the impact on the natural environment, but also a way for businesses to show their responsibility towards society, especially when environmental issues, climate and diseases are becoming more and more important should be painful (Chung, 2020). Enterprises pay more attention to Green Marketing with the desire to improve the environmental status, and at the same time improve the business reputation and product image. An effective green marketing strategy can help consumers strongly believe in the business as well as enhance the product image. Good product images increase the reputation of the business, thereby increasing the purchase intention of consumers. Green marketing also has a strong impact on the shopping behavior of customers, thereby helping businesses access new markets (Amoako et al, 2020). A business, when following the Green Marketing orientation, will make customers feel that the business has a responsible outlook and awareness for the community. This creates a beautiful image of the brand in the eyes of consumers now and in the future.

Researches on green marketing in the world have been around for a long time and need to be further studied in the context of sustainable development and environmental protection, which is one of the top goals of businesses in the world (Amoako et al, 2020). However, studies on this topic have not been interested in research in Vietnam. Research on corporate image as measured by product image, corporate reputation and corporate social responsibility in Vietnam is still a gap for researchers to continue. The above studies show that there have been approaches to green marketing or corporate image, but when placing the relationship between the pair of concepts (green marketing, corporate image, purchase intention) in the correlation, it is very rare, especially research for a developing country in general and Vietnam in particular. At the

same time, realizing that the practical context of skin care cosmetics in Vietnam is essential for research, the authors chose to study this topic.

This study explores the relationships and effects of green marketing on corporate image and purchase intention. To be able to assess that internal relationship, the study applied the linear structural model (SEM), which is widely used in many studies with different fields (Hair et al, 2011). The results of the study are a reference for businesses and researchers to confirm the theories of green marketing, helping to bring success to businesses in the current environmental era.

2. Literature review

2.1. Background theories

2.1.1. Green Marketing theory

According to Charter (2017) green marketing is an integral and responsible management process that includes identifying, anticipating, meeting and fulfilling stakeholder needs in order to achieve no adverse human impact and natural environment. According to Armstrong et al (2014), green marketing is a way to meet the current needs of customers and businesses while preserving and increasing the ability to meet the needs of future generations. Green marketing is not a completely separate form of marketing but still has some similarities with other forms of marketing. The difference of green marketing lies in its own content and is associated with the human values behind when businesses choose to use this marketing direction. Today's environmental crisis is the most appropriate time to re-evaluate the 4Ps of traditional marketing policy. Marketers need to take stock of these new issues and reevaluate the marketing mix in a greener direction. Green Marketing from the perspective of 4Ps means activities applied to develop and improve the pricing, promotion and distribution of products that do not harm the environment (Pride & Ferrell, 1997), this is also the pattern that can be implemented in consumer goods and industrial goods (Polonsky, 2001).

2.1.2. Corporate image theory

Corporate image is a topic that continues to be of interest among researchers and business executives. Corporate image refers to the result of knowledge, beliefs, ideas, feelings or impressions about an organization (Furman, 2010; Wan & Schell, 2007). Corporate image is inherently a collection of various elements that reflect and communicate an organization's identity (Moon, 2007). Corporate image often substitutes for corporate reputation and corporate identity when customers perceive all aspects of the business (Kang & Yang, 2010; Keh & Xie, 2009). In the context of green marketing, corporate image is also related to business associations, in which socially responsible programs of enterprises have a strong influence on perception, customers' evaluation of the company's image, and the company's business results (Berens et al., 2005). Therefore, an important mission of green marketing is to establish a

favorable corporate image structure defined by consumers.

Corporate image is a multidimensional structure and no single structure can express a desired corporate image, the construction of a scale to measure corporate image also shows many different points of view (Feldman et al, 2014). Based on the synthesis of measurement perspectives and associated with the green marketing research context, the study deals with the corporate image from the point of view of Haery et al (2013); Ko et al (2013) this is a comprehensive approach, whereby corporate image including social responsibility, product image and corporate reputation have a direct influence on consumers' purchase products in a retail environment

2.2. Conceptual model and research hypothesis

2.2.1. Green marketing and purchase intention

Purchase intention indicates the emotional response due to the consumer's overall evaluation of the product and also indicates the likelihood of the consumer wanting to purchase the product (Grewal et al, 1998). Purchase intention is the most accurate predictor of buying behavior (Morwitz & Schmittlein, 1992). Balderjahn (1988) found that consumers with a positive attitude about environmental protection will buy and use more green products, green marketing activities improve the purchase intention of consumers. Consumers believe that advertisements associated with the environment and eco-packaging are more effective in increasing knowledge about green products and are positively related to purchase intention (Ansar, 2013). According to Hartmann and Ibanez (2006) consumers are more likely to buy a green product if they are affordable, consumers who believe in green marketing are willing to spend more money to buy green products. Porter and Van der Linde (1995) argue that by implementing green marketing will bring better product image to businesses, socially responsible consumers will support businesses. Vaccaro (2009) believes that green marketing will help businesses increase the image of their products and brands. Based on the above observations, the author proposes the following hypothesis:

H1: Green marketing has a positive impact on product image

H2: Green marketing has a positive effect on consumer purchase intention

2.2.2. Corporate social responsibility

Carroll (1979) believes that social responsibility is what society expects of businesses at specific times. Mohr et al, (2001) defined social responsibility as the commitment of a business to minimize or eliminate any harmful effects and to maximize its long-term beneficial impact on society. Brahme et al (2009) said that Social Responsibility is the commitment of businesses to continue to implement ethical standards, contribute to economic development, as well as improve the quality of life for employees, members, their families, the local community and society at large. Many authors consider the perception of stakeholders that the pressure on

managers to make commitments to protect the environment (Henriques & Sadorsky, 1999; Buysse and Verbeke, 2003), therefore exists a link relationship between managers' awareness of green marketing and the level of social responsibility performance. Roberts and King (1989), Polonsky (1996) also said that stakeholders have an influence on the orientation and strategy formulation of the enterprise. Lindgreen et al, (2009) said that when performing marketing activities, it is related to social responsibility. Studies show that consumers who perceive a company's CSR activities are more likely to have a positive attitude towards that business (Sen et al, 2006). Perception can cause consumers to form a more favorable image with the business which then leads to the consumer being more likely to purchase. In addition, the study of Mohr et al, (2001); Sen and Bhattacharya (2001) showed the influence of Social Responsibility on the purchase intention of consumers. Based on the above observations, the author proposes the following hypothesis:

H3: Green marketing has a positive impact on corporate social responsibility

H4: Corporate social responsibility has a positive effect on purchase intention

2.2.3. Company Reputation

Wei (2002) explains corporate reputation as the collective description of a company known to informants, built up through mass media activities. Fombrun (2005) reputation is a perception derived from the past actions and future prospects of a business, which indicates the overall performance of the business and against which to compare with other companies other opponents. Corporate reputation will help shape consumers' attitudes and perceptions about that business (Fombrun & Shanley, 1990), which in turn will promote consumer buying motivation (Neville et al, 2005). In marketing, reputation is seen as the power to attract customers. Business reputation increases customers' trust in products and services, businesses retain customers better, achieve higher purchase rates. Companies with strong reputations have better access to capital markets, which helps reduce costs and increase acquisition rates, and grow profits better. Reputation also creates a barrier to market entry, reinforcing a firm's position in the competition even when the products are nearly identical (Khojastehpour & Johns, 2014). Research by Bertels and Pelozo (2008); Lii and Lee (2012); Taghian et al, (2015) also show that corporate social responsibility behavior will help improve their reputation. Based on the above observations, the author proposes the following hypothesis:

H5: Corporate social responsibility has a positive impact on corporate reputation

H6: Company reputation has a positive effect on consumer purchase intention

2.2.4. Product image

Product image is generally defined as the perception of a product that is kept in the consumer's memory. The more favorable the product image, the more positive the attitude towards the branded product and its attributes increases and positively affects purchase

intention (Keller, 1993). Product image, closely related to the uniqueness of a particular product or service, is an important predictor of purchase intention in that it can reduce the difficulty of making a purchase decision (Bearden & Etzel, 1982).

A company's efforts towards social responsibility will lead consumers to rate its products more favorably than products from other organizations (Brown & Dacin, 1997). Park et al, (1986) confirmed that a company or product or service that continuously holds a positive image in the minds of its customers is sure to gain a better position in the market sustainable competitive advantage and increase market share. Research by Ko et al (2013); Haery et al (2013) also show the relationship between product image and company reputation. Based on the above observations, the author proposes the following hypothesis:

H7: Product image has a positive impact on company reputation

H8: Product image has a positive effect on consumers' purchase intention

Table 1: Literature Matrix

Author(s)	Findings
Aghekyan (2012)	The role of product images and online store images on perceived risk and online purchase intention in America. The results show that product image affects consumers' purchase intention both directly and indirectly
Huang et al (2014)	The relationship between corporate social responsibility, service quality, company image and purchase intention, studied people who used products or services at convenience stores in Taiwan. This study obtained 331 valid questionnaires and the results showed that corporate social responsibility has a positive meaning on company image, service quality and purchase intention.
Ali (2011)	Impact of Corporate Social Responsibility on the Link between Green Marketing Perception and Consumer Purchase Intent. Research in Malaysia. PLS results show that corporate social responsibility is the mediating variable between green marketing and product purchase intention.
Wu & Chen (2014)	The influence of corporate social responsibility on the development of corporate reputation and customer purchase intention. Research in Pakistan. Research shows a significant positive effect of CSR on building a company's reputation for good deeds and developing customer purchase intentions.
Imran et al (2010)	The influence of corporate social responsibility on consumers remains in Pakistan's mobile industry. The study did not find a relationship between the perception of corporate social responsibility activities and the purchase intention of consumers. Furthermore, the study found no relationship between consumer satisfaction and purchase intention and consumer retention in Pakistan's mobile industry.
Wang et al (2016)	Empirical study on the influence of green marketing on research purchase intention for green restaurants. The results of this study indicate that green marketing has both direct and indirect effects (through green perception) on

	brand image. In addition, green marketing has a direct and indirect influence (through brand image) on purchase intention.
Haery et al (2013)	The influence of green marketing on customer buying behavior with the medium variable is company image, the case study of consumer of Naghshe Jahan sugar company in Iran. Survey of 284 consumers who are citizens over 20 years old in Isfahan province. The results indicate that green marketing has a significant influence on social responsibility and product image. The effect of green marketing on corporate reputation is negligible and the three corporate image factors have a direct influence on purchase intention. Due to the indirect effect between the variables, green marketing has a significant effect on purchase intention.
Saleem et al (2015)	Research on green purchase intention: Evidence from customers purchasing electronic products from Multan, Pakistan. The results show that Green trust, green satisfaction and green company image appear as important predictors of green purchase intention, however, green product image does not receive significant support. The study has useful managerial implications for mall managers and marketers of electronic product manufacturers.
Sanny et al (2020)	The study proposes a model showing the effectiveness of social media skincare marketing strategies among male millennials. Data samples were collected from 203 millennials male respondents. The results were analyzed by Smart-PLS's PLS-SEM method, showing that brand image has a significant influence on purchase intention.
Al Mamun et al, (2020)	Research on purchase intention and buying behavior towards green skin care products of Malaysian consumers. In a study of 300 respondents, the results of a multi-group MGA analysis revealed that the influence of environmental concerns on the purchase intention of respondents with a bachelor's degree or equivalent was significantly higher.

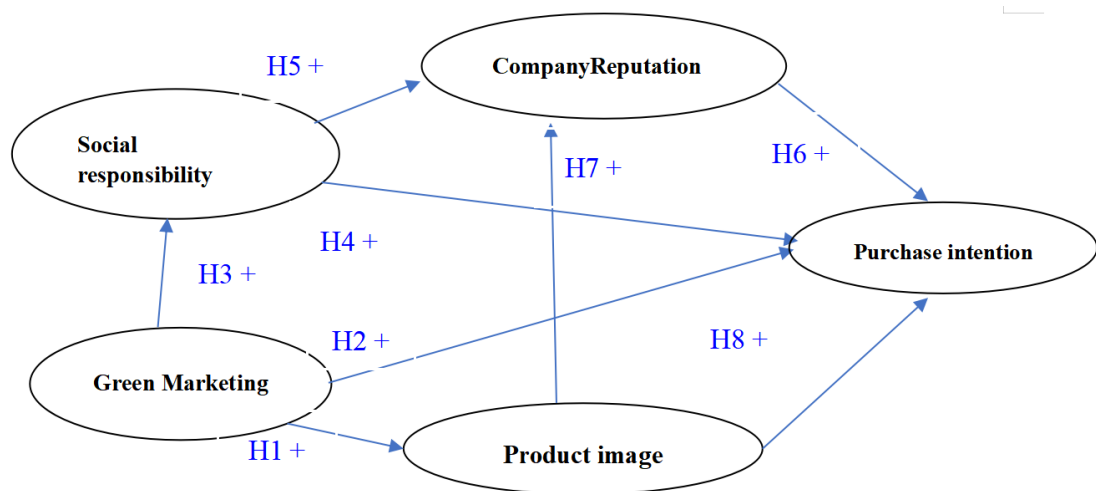


Figure 1. Conceptual framework

3. Methodology

3.1 Measures

During the construction of the literature review, the variables necessary for idea formulation were discovered, and they were quantified using scales that had been discovered, confirmed, and utilized in comparable earlier investigations: Green marketing, social responsibility, company reputation, product image and purchase intention. A review of recent literature on the issue led to the discovery and selection of these. Participants were asked to rank 27 items related to their chosen criteria on a five-point Likert scale (1 = "strongly disagree," 2 = "disagree," 3 = "neutral," 4 = "agree," and 5 = "strongly agree").

3.2 Questionnaire development & Pre-test

50 individuals were given a 27 question test version of the questionnaire to provide input on the questionnaire's general structure, the usefulness of the questions, and the questionnaire's applicability to the hypothesis. After obtaining enough samples for testing and getting various suggestions for improvement and correction, the poll was separated into six sections: (1) demographic characteristics, (2) Green marketing, (3) social responsibility, (4) company reputation, (5) product image and (6) repurchase intention. According to each element of the aforementioned factor, respondents can only select one level of agreement or disagreement for each question, and they are compelled to answer every question in the survey.

3.3 Sampling procedure

Respondents are people who have been using skin care cosmetics of brands Cocoon, Thorakao, Maybelline, Nivea, Pond's, The Face Shop, The body shop and Innisfree in Ho Chi Minh City area. These are brands that are used heavily by consumers so conducting research will make research results more representative. The questionnaire is sent through social networking sites such as Facebook, Zalo to share the link to the questionnaire. In addition, the authors also sent survey links to community groups of brands on social networks. There was an online survey made, and 433 people participated in it altogether. However, only 403 responses are deemed appropriate and used for further analysis in this study due to the validity, reliability, and generalizability of the research.

4. Results and discussion

Of the 403 usable surveys, 247 (61.3%) were female and 156 (38.7%) were male. Most of the participants (63.7%) are under the age of 32. In terms of education level, the number of respondents with a college/university degree makes up a significant proportion of the sample (78.4%). The majority of respondents with low monthly income accounted for 56.6% from 10 million VND or less as shown in Table 2 detailing demographics of the sample. Table 2. Descriptive statistics of respondents

Table 2. Descriptive statistics of respondents

Measure	Value	Quantity	Percentage (%)
Giới tính	Female	247	61.3
	Male	156	38.7
Age	Under 22 years	106	26.3
	22 to 27 years	80	19.9
	27 to 32 years	70	17.4
	32 to 37 years	82	20.3
	above 37 years	65	16.1
Education	University	194	48.1
	College	122	30.3
	Graduate school	69	17.1
	High school	18	4.5
Occupation	Government	75	18.6
	Non-Government	108	26.8
	Self-employed	67	16.6
	Student	122	30.3
	Others	31	7.6
Income	Less than 5 million VND	110	27.3
	5–10 million VND	118	29.3
	10 - 15 million VND	73	18.1
	15 - 20 million VND	38	9.4
	20 - 25 million VND	34	8.4
	Above 25million VND	30	7.4
Total		403	100%

Measurement Model Assessment

Table 3. Outer loadings, AVE, CR, and Cronbach's Alpha.

	Cronbach's Alpha	CR	AVE
CR	0.862	0.896	0.590
GM	0.842	0.905	0.760
PI	0.842	0.884	0.563
SR	0.900	0.921	0.625
IP	0.895	0.923	0.707

Factor loading index is used to measure the reliability of the scale. The test results show that all factors have intrinsic consistency (Cronbach's Alpha is greater than 0.700 and the combined reliability of the scales is greater than 0.700). To evaluate the convergence value, the researchers used the average extracted variance (AVE). AVE values of 0.500 or more show that the scale has convergent validity (Hair et al., 2011).

Recent research has shown the weakness of the Fornell-Larcker index (Fornell & Larcker, 1981) in assessing discriminant validity. Henseler et al (2015) proposed the index of distinctive features - unique features (heterotrait - monotrait - HTMT). HTMT ratio less than 0.900 indicates that the scale has discriminant value

Table 4: HTMT Ratio

	CR	PI	GM	SR
CR				
PI	0.605			
GM	0.588	0.516		
SR	0.430	0.541	0.777	
IP	0.561	0.592	0.609	0.472

To measure the goodness of fit of the model, the SRMR index $< 0,100$ is acceptable, with $SRMR = 0.076 (<0.080)$ is very good, proving that the model fits the actual data. The results of the SEM model presented in Table 4 show that the model has a Chi-squared statistical value of 1383,971 with $p\text{-value} = 0.000 < 0.005$.

Table 5. Goodness-of fit indicators

	Saturated Model	Estimated Model
SRMR	0.076	0.086
d_ ULS	2.180	2.811
d_ G	0.612	0.639
Chi-Square	1383.971	1398.301
NFI	0.796	0.794

Structural Model Assessment

Hair et al (2017) claim that because the VIFs are smaller than 5, the model does not exhibit multicollinearity. The model needs to be reliability verified in order to generalize the research findings to the entire field. The study employed the bootstrapping method with a 1000 observation repeated sample size.

Table 6: R², Q² value

	R Square	R Square Adjusted	Q ² (=1-SSE/SSO)
CR	0.409	0.405	0.421
PI	0.305	0.303	0.501
SR	0.573	0.572	0.497
IP	0.523	0.517	0.552

According to Geisser (1974) besides assessing the value of R² of the dependent variables, the change of the value of R² when an independent variable is removed from the research model is also used to evaluate the effect of a independent variable to the dependent variable. In the structural model, a value of Q² of the dependent variable greater than 0.000 indicates the

predictive relevance of the research model to the dependent variable. Q² value (table 6) shows that goodness of fit predicts well for the intention to purchase cosmetics skin care

According to Cohen (1988), f² value = 0.020; 0.150 and 0.350 are considered small, medium and significant. If the value of f² is less than 0.020, it is considered that the independent variable has no effect on the dependent variable. According to Tables 7, social responsibility do not affect purchase intention.

In order to generalize the research results to the whole, the model needs to be tested for reliability. The study used bootstrapping technique with a repeated sample size of 1000 observations

Table 7. Summary of hypothesis tests

Hypothesis	Original Sample (O)	P Values	f ² value	Support
CR -> IP	0.219	0.000	0.252	Accepted
PI -> CR	0.439	0.000	0.217	Accepted
PI -> IP	0.255	0.000	0.272	Accepted
GM-> PI	0.453	0.000	0.257	Accepted
GM -> SR	0.688	0.000	0.697	Accepted
GM -> IP	0.624	0.000	0.283	Accepted
SR -> CR	0.192	0.000	0.142	Accepted
SR -> IP	-0.001	0.985	0.000	Rejected

Tables 7 show that 7 relationships H1, H2, H3, H5, H6, H7, H8 are supported, the relationship H4 is rejected. The results from H1, H2 and H3 indicate that green marketing has an influence on product image ($\gamma = 0.453$), social responsibility ($\gamma = 0.688$) and purchase intention ($\gamma = 0.324$). This has been mentioned in many previous studies such as Berens et al (2005); Ansar (2013). Enterprises implementing green marketing will increase the company's image related to product quality and socially responsible image in a favorable way. Building a socially responsible corporate image through green marketing is very important to improve the company's product image. Among the factors affecting purchase intention, the perception of green marketing implementation has a greater impact on purchase intention than other factors. Among business image factors, product image ($\gamma = 0.255$) and company reputation ($\gamma = 0.219$) positively affect purchase intention, this result supports previous studies (Brown & Dacin, 1997; Fombrun & Shaley, 1990; Maignan & Ferrell, 2004; Sen & Bhattacharya, 2001). Research also shows that company reputation has a positive influence on purchasing behavior for the company, but social responsibility factors and product image are important factors to raise awareness of company reputation. Social responsibility has an indirect influence on purchase intention through a company's reputation. The direct effect of social responsibility on purchase intention has been disproved, which is contrary to many previous studies, but it supports the study of Imran et al (2010).

Successful implementation of social responsibility is an important prerequisite for the success of a business because it brings great benefits. However, the perception of corporate social responsibility has a big difference between developed and developing countries, it depends on

the level of population development, the awareness of people in each country, the income and purchasing power of consumers as well as the level of development of that country. Corporate social responsibility in developing countries is generally lax. In fact, consumers are not fully aware of their important role in guiding businesses to perform their social responsibilities well.

Research by author Danh (2015) shows that consumers have not paid much attention to the implementation of corporate social responsibility. Moreover, they still pay attention to the price when deciding to buy products and services, rather than whether the business performs well on social responsibility or not. Especially in a recessionary economic situation, consumers will ignore green products and corporate social responsibility when they intend to buy due to the high price and switch to cheaper options. As the level of education increases, consumers are more aware of their behavior towards businesses that perform well on social responsibility. In addition, according to a study by Q&me (2020), 73% of cosmetic users have used online shopping, of which 79% in the last 6 months of 2020, the shopping behavior of young people is influenced by the similarity of interests and personalities by sellers and are influenced more by celebrities than by concern about corporate social responsibility

5. Conclusions and managerial implications

The study provides insight for executives in formulating marketing strategies by understanding corporate image. This is also a suggestion for businesses to create their own image in the market. The analysis results show that all the relationships between the variables are significant except the social responsibility factor which has no direct impact on purchase intention. Even so, corporate social responsibility is seen as an important part of business strategy and has an impact on a company's reputation. In particular, administrators can promote promotional campaigns or events to promote green consumption behavior associated with green products and corporate social responsibility image to increase sales. Businesses need to demonstrate that their business practices are in line with the rules and regulations of environmental standards by government and other relevant bodies (Perks & Smith, 2012). Enterprises should focus on focusing on developing green marketing from the needs of the public and attach to the core position of the company. If too focused on environmental factors that forget the goal of satisfying customer needs is the cause of failure of the green marketing strategy. The implementation of a green marketing strategy is complex, this is also a concept that changes over time. Enterprises implementing green marketing strategies need to choose the right target market in order to gain a sustainable competitive advantage. Businesses should also try to stay current in reducing risk-related costs. Green marketing is a strategy to help marketers achieve business goals, create environmental advantages based on customer expectations while resources are limited. Therefore, the change in consumer buying patterns towards increasing the intention to buy environmentally friendly products has created new opportunities for businesses. Taking advantage of such opportunities also requires more research on this issue.

6. Limitations of the study

Due to the limitation of the research topic is to collect samples by convenient method, there are a large number of young people whose income is not very high. The topic recommends that future studies can expand the target audience study more. In addition, the content of this

research can be considered in the service sector because this is a field with unique characteristics and in-depth research on green marketing in the service sector is still limited.

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Research variable	Code and measurement items	Author (s)
Social responsibility	SR1: Company X is committed to sharing responsibilities and benefits with the community SR2: Company X focuses on protecting the health and safety of the community SR3: Company X listens to customer feedback SR4: Company X complies with local government laws and regulations SR5: Company X contributes to the development of the community. SR6: Company X can fulfill its responsibility in protecting the environment. SR7: Company X is conducting business ethically.	Haery et al, (2013) Taghian et al, (2015)
Green marketing	GR1: Company X provides environmentally friendly products. GR2: Company X tends to add environmental costs to product prices. GR3: Company X considers environmental aspects when choosing distribution channels GR4: Company X uses eco-friendly messages in its communication campaign GR5: Company X sponsors or sponsors organizations or events related to the environment GR6: Company X strives to combine environmental friendliness with other philosophies throughout its product offering	Kim (2009) Haery et al, (2013);
Company Reputation	CR1: Company X offers unique products CR2: Company X is the leading enterprise in this industry CR3: Company X has a well-known history and tradition. CR4: Company X has high competitiveness. CR5: Company X is well-intentioned and trustworthy. CR6: I think company X has a good overall image	Ko et al, (2008) Haery et al, (2013)
Product image	PI1: The quality of company X's products is excellent. . PI2: Company X's product is reliable.	Haery et al, (2013)

	PI3: Company X products do not contain harmful ingredients	Taghian et al, (2015);
Purchase intention	<p>IP1: I like to buy products from company X</p> <p>IP2: If there is a need for cosmetics, I will most likely buy it at X. Company</p> <p>IP3: I am willing to buy products of company X if the quality and price are higher than other companies.</p> <p>IP4: I would recommend company X's products to others.</p> <p>IP5: I would rather shop at company X than other companies.</p>	<p>Alalwan et al, (2018)</p> <p>Venkatesh et al, (2012)</p>

MULTINATIONAL ENTERPRISES AND LOCAL FIRMS' EXPORT MARKET ENTRY: A PANEL DATA ANALYSIS OF VIETNAM'S FOOD PROCESSING INDUSTRY

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Abstract:

This paper develops new insights into the spillover effects of multinational enterprises (MNEs) on local firms' export market entry, using the case of Vietnam – a notable global manufacturing hub located in Southeast Asia. The empirical analysis is based on a disaggregated firm-level panel dataset for the food processing industry. Food processing is an essential part of Vietnam's thriving manufacturing sector, with enormous potential for exports. The random-effects Probit estimation results reveal that the presence of MNEs significantly raises the likelihood that private local firms become exporters and thereby start integrating into global value chains. Further regression analysis also suggests that measurement of foreign presence and local firms' export experience matter for evaluating MNE-linked spillovers. The findings highlight the considerable potential for MNEs to influence local firms' export prospects and validate the policy efforts to attract FDI inflows to the food processing industry.

Keywords: *Multinational enterprises; Spillovers; Export market entry; Food processing industry; Vietnam*

JEL codes: F14, F23, L66

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1. Introduction

In small open economies, it is vital that a large share of firms can find their way to the export market and progressively integrate into global value chains (Broocks & Van Biesebroeck, 2017). There is a growing body of literature exploring the determinants of export behaviour at the firm level, which highlights the importance of firms' innate characteristics for export success (Bernard & Jensen, 2004; Haddoud *et al.*, 2021). Firm-level variables tend to

capture the proven capabilities and inherent competitiveness of individual firms that enable them to overcome the significant entry barriers in foreign markets. Although the literature on the firm specific characteristics that explain exports is relatively extensive (Aitken *et al.*, 1997; Bernard *et al.*, 2007; Ha, Holmes, & Le, 2020), we know surprisingly little about the impact of external forces, including the rising presence of foreign multinational enterprises (MNEs) in most economies. MNEs have played an increasingly important role in international trade and global value chains (Giroud & Mirza, 2015; Scoppola, 2021), and their expertise and international networks may contribute to the internationalization of local firms in many ways. Goods and services produced by local firms will reach foreign markets when they are engaged as suppliers and subcontractors to foreign MNEs, and the presence of foreign firms might also result in spillover effects, raising the likelihood that foreign firms become direct exporters.

MNEs are widely perceived to possess superior competitive advantages and perform better than their local counterparts, particularly in transition economies and developing countries where local firms have limited links to the global economy. The skills and capabilities that MNEs bring to their host countries (e.g., technological know-how, managerial and human resource expertise, marketing techniques and export experience) can sometimes spill over to local firms and affect their behaviour and performance (Anwar & Sun, 2014; Javorcik, 2004; Nguyen, 2021). Such spillovers can be related to contacts and interactions between firms through industrial linkages, interpersonal contacts, labour mobility, and co-location, but may also be generated in the market, in the form of competition effects, information diffusion, and demonstration and imitation effects (for a detailed discussion, see Balsvik (2011); Villar *et al.* (2020); Blomström and Kokko (1998)). While the MNEs' impacts on local firms' productivity have been carefully examined in the literature, less evidence has been marshalled so far on their effects on local firms' export behaviour (or so-called export spillovers), particularly for the case of Vietnam.

This study contributes new insights into the role of MNEs as a determinant of local firms' export market entry, using data from the food processing industry in Vietnam. Since the launch of an economic reform program known as *Doi moi* in 1986, Vietnam's economic performance has been remarkable, and it has been identified as one of the world's fastest-growing economies over the past three decades (Nguyen, 2020; WB, 2021). Accelerating the integration into the regional and global economy has had a prominent position in the country's policy agenda, and has resulted in a series of agreements on trade and investment liberalization (ADB, 2021). With strong economic fundamentals and a favourable investment environment, Vietnam has become a notable global manufacturing hub and a preferred destination for MNEs. Foreign direct investment (FDI) inflows have gradually increased from a few hundred million USD per year in the early 1990s to USD 31 billion in 2020 (GSO, 2021). Despite the adverse impacts of the Covid-19 pandemic, foreign investment in 2021 maintained strong growth momentum, with a 9.2 percent increase in registered capital compared to the previous year.

Vietnam has strong comparative advantages in the food processing sector thanks to a favourable climate and a diverse range of products (e.g., rice, vegetables, coffee, pepper, cashew, tropical fruits and seafood). Although exports of agricultural, forestry, and aquatic products have increased over time, the proportion of deeply processed products with higher value added remains modest. Our data show that only 13% of domestic food processing firms were exporting in 2011-2016, while the corresponding share among the foreign MNEs in the industry exceeded 75%. This large difference in export orientation makes it interesting to ask whether spillovers from foreign MNEs could raise the export participation among local firms, helping them to capitalize on the country's competitive advantages in the food processing sector. Hence, our research question is "How does the presence of foreign MNEs impact the export participation of local food processing firms?". To answer this question, we draw on extant literature to formulate an empirical regression model and carry out a set of random-effects Probit estimations on a detailed firm-level data set on the Vietnamese food processing sector. The analysis covers a six-year period (2011-2016), eight three-digit food processing industries, and six Vietnamese regions.

Compared to most previous studies on export spillovers, which have relied on broader data sets covering the entire manufacturing sector or the whole economy, our use of more disaggregated data for an individual sub-sector presents several advantages. First, using firm level data for six Vietnamese regions and eight three-digit industries may provide deeper and more relevant insights into MNE-induced spillover effects in a sector where Vietnam has definite export potential, at the same time as it reduces possible problems related to aggregation bias. Second, unlike most earlier contributions to the export spillover literature, we are able to shed light on the measurement of regional MNE presence in evaluating their impacts on local firms' export market entry. We use a set of four proxies to capture the importance of foreign presence: the output share, employment share, export share and asset share of MNEs across the industry-region-year dimensions. Third, the data allow us to explore the role of domestic firms' export experience in moderating the impact of foreign MNE presence, which is rarely examined in extant literature. A disadvantage of focusing on a relatively narrow subset of industries is that it precludes analysing potential vertical spillover effects related to MNE presence in upstream or downstream sectors (Anwar & Nguyen, 2011; Ha, Holmes, & Hassan, 2020; Kneller & Pisu, 2007). However, vertical spillover effects are likely to be relatively weak in the food processing sector, particularly in comparison with advanced manufacturing sectors with complex value chains where foreign MNEs are prominent as suppliers as well as customers to local firms. The value chains in the food processing sector are relatively short and domestic firms are rarely dependent on inputs from MNEs in other industries, at the same time as most of the output is sold directly to domestic end-users or exported.

The remainder of the paper proceeds as follows. Section 2 reviews the related literature on MNEs and exports by domestic firms. Section 3 describes the data and empirical modelling.

Section 4 presents the estimation results and Section 5 summarizes and provides some concluding remarks.

2. MNEs and exports by local firms: A brief review of the literature

The existing literature on MNEs and local firms' exports is relatively scarce compared to the literature on productivity spillovers. Additionally, previous findings are rather mixed, which to some extent could be attributed to heterogeneity in country settings, data used, and measurement of foreign presence. Aitken *et al.* (1997) provided one of the first quantitative analyses of the role of MNEs as catalysts for domestic firms' exports. They examined the Mexican manufacturing industry, using panel data of 2,104 firms during the period 1986–1990, and found that the probability that domestic firms export was positively correlated with proximity to foreign MNEs. At the same time, they found no correlation between the firms' export decisions and the concentration of exporters in the industry. This led them to suggest that the government should encourage prospective exporters to locate near foreign firms (by creating export processing zones), which was expected to reduce the costs of foreign market entry and raise the export propensity of domestic firms.

Kokko *et al.* (2001) investigated export spillovers from MNEs to domestic Uruguayan manufacturing firms, using a cross-sectional dataset of 1,243 firms in 1998. They found evidence of positive export spillovers from foreign-owned to domestic firms in Probit estimations. Their study also explored the spillover effects by grouping foreign firms based on the period in which they were established in Uruguay. The results suggested that only foreign firms established after 1973 (i.e., the outward-oriented period of Uruguay's policy regime) had a positive effect on the export participation of domestic firms. They also explored whether the geographical destination of exports mattered. They found stronger evidence of export spillovers for destinations outside of Uruguay's neighbouring markets (Brazil and Argentina). The proposed reason was that foreign MNEs did not have any particular information advantages with respect to Uruguay's neighbours, where low transaction costs and preferential institutional arrangements instead contributed to relatively strong export performance among local firms.

Greenaway *et al.* (2004) focused on UK manufacturing firms during the period 1992–1996 and used three measures of foreign presence to capture the impact of foreign MNEs on local firms: the MNEs' expenditure on R&D, their employment share, and their export share. The empirical results suggested that export spillovers were present, with increased competition from MNEs as the most important channel. Furthermore, information externalities were found to affect firms' export participation decisions but not their export intensity. Kneller and Pisu (2007) further explored export spillovers for UK firms by incorporating both horizontal and vertical spillovers. Their findings suggested that domestic firms' export participation decisions were not affected by contacts with MNEs, but that their export intensity appeared to be

influenced by the MNEs' presence in upstream and downstream industries. Several studies have focused on Asia. Ma (2006) explored the role of MNEs in determining Chinese manufacturing exports. Using comprehensive firm-level data for the 1993-2000 period, the analysis suggested that foreign firms from OECD countries had a positive influence on local firms' decisions to export, but the activities of overseas-based Chinese firms did not have any corresponding effects. Sun (2009) also examined the case of China and extended the analysis by including interaction terms between foreign presence and firm-specific characteristics to search for determinants of export spillovers. The findings

indicated positive and significant FDI export spillover effects on the export intensity of local firms. In addition, the scale of spillovers was positively correlated with a geographical location in central China but negatively correlated with firm-level variables such as the ratio of costs to revenue, the ownership structure, and a location in western China.

While a majority of published studies have found signs of positive export spillovers from foreign presence, there are also analyses where no or even negative export spillovers are found. Barrios *et al.* (2001) investigated the export behaviour of Spanish manufacturing firms during the period 1990-1998. Foreign presence was proxied by the export activity and the R&D expenditures of MNEs at the industry level. Results from Probit and Tobit estimations indicated that a firm's own R&D activity was a significant determinant of exports. However, there was no evidence that indigenous firms would have benefited from export spillovers from MNEs.

Similarly, Phillips and Ahmadi-Esfahani (2010) examined export spillovers from MNEs to domestic food manufacturing firms in Australia, using a cross-sectional dataset for the year 2005. Their Probit estimation results did not find any support for the hypothesis that MNE export concentration would raise the probability that domestic firms start exporting. They also concluded that the export decisions of local firms were unaffected by the overall presence of foreign firms at the national level. A possible explanation for the lack of export and competition effects from MNEs was the possibility that foreign firms may have chosen to operate in isolation from domestic firms, thus protecting their firm-specific assets.

Ruane and Sutherland (2005) studied export spillovers from foreign MNEs to domestic manufacturers in Ireland, which could be characterized as a third-country export platform. Their analysis suggested that domestic firms' decisions to enter the export market were positively correlated with the foreign presence in the relevant subsector. However, both export participation decisions and the export intensity of domestic firms were negatively associated with the export intensity of foreign firms. These negative spillovers were believed to be linked to the dominance and extremely high export intensity of US-owned firms in the traditional export sectors.

Regarding the case of Vietnam, there is scant and inconclusive evidence of MNE-linked

spillovers on exports by local firms. Anwar and Nguyen (2011) and Nguyen and Sun (2012) both examined the role of MNEs as a determinant of local manufacturing exports, using data for 2000 and 2003-2004, respectively. While both studies found some positive effects from foreign to domestic firms, the export spillovers were heterogeneous and conditional on firm-

and industry-specific characteristics such as firm age, firm size, ownership structure, labour quality, industry technology and competition levels. A more recent contribution by Ha, Holmes, and Hassan (2020), using a large panel dataset covering both manufacturing and services during the period 2010-2015, found mixed results for different spillover channels. Specifically, the spillovers through backward linkages were found to be positive, but effects through forward linkages were strongly negative, while horizontal export spillovers were insignificant.

3. Data and empirical modelling

3.1 Data

This study utilizes a panel data set of firms in the food processing industry at the three digit level of Vietnam's Standard Industrial Classification (VSIC 2007). The data were obtained from the General Statistics Office (GSO), which commissions nationwide enterprise surveys covering all business entities in the state, private and foreign sectors. This data set is the most comprehensive and reliable firm-level database for empirical studies on the Vietnamese economy. After screening the data for systematic missing values and outliers, the constructed final sample is a six-year unbalanced panel (2011-2016), comprising 25,032 firm year observations. All monetary variables are converted to constant prices using the consumer price index. Statistical software package Stata 17 is employed for data management and analysis.

Table 1 displays the distribution of firms by ownership across the eight three-digit food processing industries covered by the analysis. Looking first at the domestic Vietnamese actors, the private sector was dominant in terms of the number of firms across all industries, accounting for nearly three-quarters of all firms. Industries C107 (Manufacture of other food products), C106 (Manufacture of grain mill products, starches and starch products) and C102 (Processing and preserving of fish, crustaceans and molluscs) accounted for most of both state-owned and private. Together, these three major industries comprised roughly 50% of all domestic firms in the Vietnamese food processing sector. In addition to these three sub-sectors, industry C103 (processing and preserving of fruit and vegetables) and C108 (manufacture of prepared animal, fish, poultry feeds) attracted many foreign enterprises. In terms of relative importance, foreign MNEs held particularly large shares in C108 (prepared animal, fish, and poultry feeds) and C104 (manufacture of vegetable and animal oils and fats), representing 12.3% and 11.2% of all the firms in these two sub-sectors. However, the MNEs' share of output was much larger

across the board, reaching over 70% in C108 and nearly 50% in C104. On average,

MNEs accounted for 31.4% of the total output in the food processing sector as a whole.

Table 1. Firm distribution across ownership types and three-digit industries

VSCI

Three-digit food processing industry Local firms Number

Share

Output

Code

State Private

of

MNEs

of

MNEs

share of MNEs

C101 Processing and preserving of meat 315 880 68 0.054 0.150 C102 Processing and preserving of fish, crustaceans and molluscs 1,265 3,250 175 0.037 0.060 C103 Processing and preserving of fruit and vegetables 716 2,307 179 0.056 0.178 C104 Manufacture of vegetable and animal oils and fats 105 259 46 0.112 0.495 C105 Manufacture of dairy products 212 496 41 0.055 0.411 C106 Manufacture of grain mill products, starches and starch products 1,590 3,343 76 0.015 0.060

C107 Manufacture of other food products* 1,976 5,814 648 0.077 0.454 C108 Manufacture of prepared animal, fish, poultry feeds 682 1,822 350 0.123 0.701 Total 6,861 18,171 1,583 0.059 0.314 * Including bakery products; sugar; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; prepared meals and dishes.

Table 2 shows the distribution of firms by ownership and region. Based on geographical and socio-economic conditions, Vietnam is divided into six regions. Of these, Southeast (including Ho Chi Minh City) is the country's economic hub and the Mekong River Delta is highly productive in agriculture and aquaculture. Hence, it is no surprise that these two regions represented the largest number of food processing firms across all ownership types. Together, they made up around 64% and 60% of domestic state-owned and private firms in the industry, respectively. Likewise, over 55% of all foreign food processing MNEs were concentrated in the Southeast. The Red River Delta and Mekong River Delta also attracted a significant number of MNEs, comprising around 13-15% of the total number of foreign firms. The relative share of MNEs in terms of the number of firms is rather modest, with the highest proportion in

Central Highlands (11.9%).

Table 2. Firm distribution across ownership types and regions

Region	Local firms	Number	Share	Output	State	Private	of	<u>MNEs</u>	of	<u>MNEs</u>	share of	<u>MNEs</u>
Red River Delta	1,286	3,723	210	0.040	0.396	Northern	Midland	and	Mountain	307	987	54
Central Coast	757	2,030	102	0.035	0.221							
Central Highlands	154	560	96	0.119	0.381	Southeast	2,094	5,884	875	0.099	0.324	
Mekong River Delta	2,263	4,987	246	0.033	0.165	<i>Regional average</i>	<i>6,861</i>	<i>18,171</i>	<i>1,583</i>	<i>0.059</i>	<i>0.318</i>	

Table 3 presents descriptive statistics on the share of exporting firms in the eight three digit food processing industries. It can be seen that there are local exporters in all industries, although their share of the total number of firms in the industry varies. Domestic exporters are mainly concentrated in the top three sub-sectors, namely C102, C107 and C103, which jointly account for nearly three-quarters of all domestic exporters in the food processing industry. The share of exporters is much larger among foreign firms: on average, three out of four foreign firms are engaged in exporting.

Table 3. Export participation of local firms and MNEs by three-digit industries

VSCI	Three-digit food processing	Local firms	MNEs	Code	industry	Number of	<u>exporters</u>	Share of	<u>exporters</u>
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Number of exporters

Share of exporters

C101 Processing and preserving of meat 73 0.061 41 0.612 C102 Processing and preserving of fish,

crustaceans and molluscs 1,024 0.227 137 0.787 C103 Processing and preserving of fruit and vegetables 555 0.184 148 0.827 C104 Manufacture of vegetable and animal

oils and fats 54 0.148 39 0.848 ^{C105} Manufacture of dairy products 65 0.092 34 0.850 C106 Manufacture of grain mill products,

starches and starch products 348 0.071 54 0.761 ^{C107} Manufacture of other food products* 853 0.110 460 0.714 C108 Manufacture of prepared animal, fish,

poultry feeds 320 0.128 270 0.778 Total 3,291 0.131 1,183 0.754 * Including bakery products; sugar; cocoa, chocolate and sugar confectionery; macaroni, noodles, couscous and similar farinaceous products; prepared meals and dishes.

3.2 Empirical modelling

Following previous studies, a baseline model is set up in Equation (1) below to examine the determinants of local firms' export market entry, with a focus on the role of foreign MNEs (Aitken *et al.*, 1997; David Greenaway *et al.*, 2004; Kokko *et al.*, 2001; Phillips & Ahmadi-Esfahani, 2010). This general specification takes into account the impact of the presence of

foreign firms (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆) and a set of other variables that can potentially induce local firms to start exporting. It should be noted that the dependent variable is constrained to local firms only.

This separation can help capture the influence of MNEs as well as eliminate possible bias due to higher export participation among MNEs in the industry.

$$EME_{i,j,t} = \Psi(\text{◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆}, \text{◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆}, \text{◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆}, \text{◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆}, \text{◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆}, \text{◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆}) \quad (1)$$

The variable proxying local firms' export market entry (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆) is a dichotomous variable taking the value of 1 if local firm *i* in three-digit industry *j* exports at time *t*, and 0 otherwise. The explanatory variables include foreign presence (*MNE_{kjt}*), domestic firms' innate characteristics (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆), sub-industry-specific features (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆), and other control variables

captured by regional dummies (*RD_j*) and year dummies (*YD_t*), as well as an error term (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆). The subscripts *i*, *k*, *j*, and *t* denote variations across firm, three-digit industry, region and time, respectively.

The presence of foreign firms (MNE_{kjt}) is the focal variable in the model, intended to capture the spillover effects of MNEs on local firms' exports in the examined industry. Based on the GSO's enterprise surveys, MNEs in this data set are defined as foreign affiliates with full foreign ownership or joint venture participation. The importance of MNEs is proxied by the log of their output share in the specific industry-region-year context, as summarized in equation (2) below.

$$MNE_{kjt} = \frac{\sum_{i \in Z} s_{ikt}}{\sum_{i \in Z} s_{ikt} + \sum_{i \in Y} s_{ikt}} \quad (2)$$

where s is the total sales of firm i in three-digit food processing industry k in region j at time t , and Z and Y denote the subsets of MNEs and local firms, respectively. This is a widely adopted measure of MNE presence, intended to capture intra-industry effects in the existing literature (Aitken *et al.*, 1997; Ha, Holmes, & Hassan, 2020; Nguyen & Sun, 2012). The construction of this key variable allows variations in three dimensions (k, j, t) while most previous papers only control for differences across industry (k) and/or time (t). The additional layer of measurement enables us to better capture the heterogeneous impacts of MNEs on local firms. After the first round of estimations, we will introduce three alternative proxies of MNEs, namely their employment share, export share and asset share, to explore the robustness of the MNEs' role in explaining local firms' decision to enter the foreign market.

As underscored by earlier studies, local firms' inherent characteristics are likely to play a crucial part in determining the individual firm's capability and competitiveness to become an exporter, which is captured by EXP_{it} in Equation (1) and further detailed in Equation (3) below

(Aitken *et al.*, 1997; Greenaway *et al.*, 2004; Kokko *et al.*, 2001; Nguyen & Sun, 2012; Phillips & Ahmadi-Esfahani, 2010). These firm-level characteristics can be important indicators of domestic firms' absorptive capacity, which allows them to adapt to, learn from, and compete effectively with the foreign MNEs in the local industry and gain beneficial export spillovers from the latter's presence.

$$EXP_{it} = \{ EXP_{it}^1, EXP_{it}^2, EXP_{it}^3, EXP_{it}^4, EXP_{it}^5, EXP_{it}^6, EXP_{it}^7 \} \quad (3)$$

Export experience (EXP_{it}^1) is a dummy variable, taking the value of 1 if local food processing firm i has already engaged in exporting in the past and 0 otherwise. Firm age (EXP_{it}^2) denotes the number of years in operation in log form. Firm size (EXP_{it}^3) is calculated by total sales in log form. Capital intensity (EXP_{it}^4) is the log of the ratio of fixed assets to total employment. Average wage (EXP_{it}^5) is a proxy of the firm' labour skill and productivity (Aitken *et*

al., 1997; Anwar & Nguyen, 2011; David Greenaway *et al.*, 2004; Nikulin, 2015)

and measured by the cost of labour (including wages, salaries and bonuses) per employee. Industrial zone (INDZONE_{it}) refers to the firm's location, taking the value of 1 if it is in an industrial/economic zone and 0 otherwise. Ownership structure (OWNERSHIP_{it}) takes the value of 1 for privately owned firms and 0 for state ownership.

Existing empirical evidence largely supports the hypothesis that these firm-level underlying attributes will have a significant role in determining the firms' odds to successfully enter the export market (Aitken *et al.*, 1997; Ha, Holmes, & Hassan, 2020; Kneller & Pisu, 2007; Nguyen & Sun, 2012; Phillips & Ahmadi-Esfahani, 2010; Sun, 2009). Notably, firms with prior export experience have already incurred the fixed costs of market entry, and are therefore more likely to continue exporting in the following year. Compared to young, small, labour-intensive and low-paying firms, older, larger, more capital-intensive and higher-paying firms are perceived to be more financially competent, productive and profitable, with a stronger position in the local market. Therefore, the latter group of firms tends to exhibit proven capability, enabling them to compete in the foreign market. Similarly, firms located in an industrial/economic zone generally benefit from export promoting policies instituted by the local government, encouraging them to reach out to serve overseas markets. Finally, compared to privately owned firms, state-owned firms may have better prospects for becoming exporters due to easier access to funding, export

promotion incentives, and the network of diplomatic missions abroad.

Equation (1) also controls for sub-industry-specific features (SUBIND_{it}) such as industry-level exports and industry concentration. Of these, industry exporting (INDEXP_{it}) is measured as the export share of three-digit industry j in the total food processing industry's exports. It proxies the importance of each sub-industry in the export structure of the entire food processing industry and accounts for the possibility that a) firms operating in more export-oriented industries are more likely to export because of the presence of stronger comparative advantages, and b) that MNEs may tend to choose to invest in industries with stronger export competitiveness. If these characteristics are not controlled there is a risk that results will be

biased because of endogeneity problems (Kneller & Pisu, 2007). Industry concentration (INDCON_{it}) captures the competitive pressures within the local industry and is proxied by the Herfindahl index. This is illustrated in Equation (4), where s_{ikt} is the sales of domestic firm i and S_{kt} is the total sales of three-digit food processing industry k at time t . This variable can either boost or dampen local firms' export propensity. On the one hand, an increase in this index reflects a decline in competition, which might discourage domestic firms from exporting. On the other hand, a highly concentrated industry structure would give export

incentives for both the incumbents (given their plausible market power) and the new industry entrants (given their perceived high entry barriers in the local industry).

$$P_{i,j,t} = \sum_{k=1}^K (\beta_k X_{i,j,t,k})^2 \quad (4)$$

To execute the benchmark specification, this study employs a random-effects Probit model as shown in Equation (5). Compared to the alternative pooled Probit, Logit, Poisson, Linear Probability and GMM models, this is a preferred approach for dealing with the fact that the dependent variable, firm export market entry ($EME_{i,j,t}$), is constrained and binary in nature and the examined data is an unbalanced panel. Notably, this method allows us to control for unobserved time-invariant firm-specific factors that are correlated with independent variables (Forte & Salomé Moreira, 2018; Greenaway *et al.*, 2007; Kim & Xin, 2021; Wooldridge, 2019). The model is estimated by the maximum-likelihood technique with robust standard errors computed to address potential arbitrary heteroscedasticity. As Equation (5) consists of a large number of explanatory variables, multicollinearity might arise, causing misleading estimates. We address this issue by using correlation coefficients and collinearity measures of main regressors.

$$P_{i,j,t}(EME_{i,j,t} = 1) = \beta_0 + \beta_1 X_{i,j,t,1} + \beta_2 X_{i,j,t,2} + \beta_3 X_{i,j,t,3} + \beta_4 X_{i,j,t,4} + \beta_5 X_{i,j,t,5} + \beta_6 X_{i,j,t,6} + \beta_7 X_{i,j,t,7} + \beta_8 X_{i,j,t,8} + \beta_9 X_{i,j,t,9} + \beta_{10} X_{i,j,t,10} + \dots + \beta_{11} X_{i,j,t,11} + \beta_{12} X_{i,j,t,12} + \beta_{13} X_{i,j,t,13} \geq 0 \quad (5)$$

4. Estimation results and discussions

4.1 Main estimation results

Table 4 presents the random-effects Probit estimation results on the impacts of MNEs and other factors on Vietnamese food processing firms' export market entry. Given the nonlinearity of the dependent variable ($EME_{i,j,t}$), Table 4 also reports the marginal effects (M.E) calculated at the sample means of the covariates to facilitate the interpretation and comparison of MNEs' impacts. Model [1] covers all local firms and models [2] and [3] provide further insights with

separate estimations for privately owned and state-owned enterprises. The robust standard errors were clustered by firm identity to allow for unspecified serial correlation within firms while assuming independence among them (D. Greenaway *et al.*, 2004; Sun, 2009). Three digit industry, region and year dummies are included to control for industry, region and

2001). It implies that MNEs diffuse valuable export information or generate competitive pressure that

motivates local firms to expand to foreign markets.

This finding is potentially important for Vietnam's food processing industry given the modest share of exporters among local firms. Earlier studies for Vietnam's aggregate manufacturing sector have largely failed to identify any significant intra-industry export spillovers from MNEs to domestic firms' export market entry. It is possible that the differences between earlier findings and our results are explained by the decision to focus on a specific industry, food processing, where the gap between foreign and local technology is smaller than in many other industries, and by the measurement of foreign presence accounting for regional variations. Earlier contributions have shown that the spillover effects are to some extent dependent on the technology gap between foreign and local firms (Imbriani *et al.*, 2014; Kohpaiboon, 2006; Smeets, 2008), and suggested that many types of spillover effects decrease with geographic distance (Aitken & Harrison, 1999; Jaffe *et al.*, 1993; Sun *et al.*, 2011).

Furthermore, the regressions for the sub-samples suggest that the beneficial export spillovers from MNEs only hold for privately owned firms but not the sample of state-owned enterprises. The estimated coefficient of β_2 is positive and significant in model [2] but insignificant in model [3]. The estimated marginal effect indicates that a one percentage point increase in MNE presence is associated with a 2.88 percentage point increase in the likelihood that local privately owned firms start exporting. The finding that foreign presence does not seem to have any impact on state-owned firms might be attributable to the various privileges related to state ownership, which may, to some extent, insulate them from market competition and which could make them less dependent on knowledge flows from MNEs as a source of information about foreign markets. As noted earlier, it is possible that state-owned enterprises have privileged access to funding and support from various public export promotion programs (Anwar & Nguyen, 2011; Nguyen & Sun, 2012; Sun, 2009).

Table 4 also confirms the important role of firm-specific attributes in predicting export decisions. The estimated coefficients and marginal effects of all firm-level variables are positive and significant at either 1% or 5% levels. Notably, compared to new exporters, firms with prior export experience have a

7.38 percentage points higher likelihood to continue exporting in the following year. This is the largest marginal effect estimated in the model. As expected, well-established and larger firms have a better chance to become exporters. A one percentage point increase in firm age and firm size leads to an increase in their probability to engage in exporting by 1.26 and 5.45 percentage points, respectively. Similarly, capital-intensive and high-paying firms are more capable to serve the foreign market. A one percentage point increase in firms' capital intensity and average wage raises the likelihood that they will start exporting by 1.46 and 1.99

percentage points, respectively. Being located in an industrial zone is also beneficial as it raises firms' propensity to enter the export market by 4.38 percentage points. Unexpectedly, compared to state-owned firms, privately owned firms are 2.38 percentage points more likely to participate in global value chains. This highlights the emerging role of private food processing firms in exporting, and suggests that industry dynamics have changed during the past decades: previous studies for Vietnam's manufacturing sector strongly supported the opposite evidence (Anwar & Nguyen, 2011; Ha, Holmes, & Hassan, 2020; Nguyen & Sun, 2012).

Regarding three-digit industry characteristics, Table 4 confirms their considerable influence on firms' export market entry. Unsurprisingly, firms operating in more export-oriented industries are more likely to start exporting as the estimated coefficient of the variable industry exports (β_{11}) is positive and significant at 1% level. Meanwhile, the impact of industry concentration (β_{12}) is relatively sizable and negative: a one percentage point increase in the industry concentration level results in a 2.34 percentage point reduction in domestic firms' propensity to start exporting. This finding for the case of Vietnam's food processing firms is consistent with some earlier studies suggesting that a higher degree of industry concentration reflects a decline in competition, and thus lowers domestic firms' incentives for exporting (Anwar & Nguyen, 2011; Ha, Holmes, & Hassan, 2020; Sun, 2009).

4.2 The role of MNE measurement

The variable of interest in this study is the presence of foreign firms (MNE_{kjt}), which is expected to capture potential spillovers of MNEs on local firms' decisions to become exporters. How this key variable is measured can play a significant role in estimation results. Previous studies on intra-industry spillovers largely rely on one single proxy of MNEs, which is typically their output share in the local industry (Aitken *et al.*, 1997; Ha, Holmes, & Hassan, 2020; Nguyen & Sun, 2012). However, the presence and importance of MNEs can be measured in different ways, which may capture different channels of spillover transmission to local firms (David Greenaway *et al.* (2004). It can be hypothesized that the competition effect is primarily captured by the overall presence of MNEs measured by the output or asset share, while the information or knowledge spillover effect may be better reflected by the export share or export behaviour of foreign firms. Similarly, the employment share of MNEs may be a better proxy for spillover effects related to interpersonal contacts and labour mobility. Therefore, to test the robustness of the findings, we use three additional measures of MNE presence (apart from the sales share of MNEs used in Table 4), namely their export share, employment share and asset share in each three digit food processing industry k in region j at time t .

Table 5 reports the estimation results with the three new proxies for MNE presence. There is high consistency in the signs of the estimated coefficients for all variables, including

foreign presence (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆) across three regressions. This affirms the robustness of the main finding of positive export spillovers from MNEs to local food processing firms, regardless of the measurement approach. In terms of the size of the estimated coefficients and marginal effects, the estimations report notably different findings, implying the high measurement sensitivity of MNE spillovers. Of these, model [3] using the asset share yields the largest estimate with a one percentage point increase in foreign presence boosting local firms' chances to start exporting by 4.62 percentage points. Meanwhile, the estimated impact of MNE presence using the other two proxies is less sizable. Specifically, a one percentage point increase in the export share and employment share leads to a corresponding increase of 1.09 and 1.41 percentage points in domestic firms' propensity to start exporting. Given the largest estimated marginal effects from MNEs' output and asset shares, this analysis suggests a more profound effect of competitive pressure from MNEs, inducing domestic firms to engage in more efficient production techniques and thereby facilitating entry into the foreign market. While MNE export activities and employment are also likely to generate beneficial information and knowledge externalities related to export products and markets, these spillover channels seem less pronounced. It is reasonable that export information and interpersonal contacts by MNEs might not be readily available and accessible to all local food processing firms. Regressor

Table 5. Estimation results – The role of MNE measurement

Dependent variable [Local firms' export market entry]

[1] [2] [3] Coef. M.E Coef. M.E Coef. M.E

Export experience (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Firm age

(◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Firm size

(◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Capital intensity

(◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Average wage

(◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Industrial zone

(◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Ownership structure (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Foreign presence (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Industry exporting (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

Industry concentration (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆)

1.0012*** [0.0452] 0.1976*** [0.0327] 0.7207*** [0.0326] 0.1898*** [0.0237] 0.2716***
[0.0418] 0.5963*** [0.0933] 0.2283

[0.1516] 0.1466*** [0.0242] 0.0006*** [0.0001] -0.2711** [0.1170]

0.0745*** [0.0046] 0.0147*** [0.0024] 0.0536*** [0.0021] 0.0141*** [0.0017] 0.0202***
[0.0031] 0.0443*** [0.0069] 0.0170

[0.0113] 0.0109*** [0.0018] 4E-05***

[6.88E-06] -0.0202** [0.0087]

1.0028*** [0.0438] 0.1775*** [0.0315] 0.7305*** [0.0319] 0.1930*** [0.0229] 0.2636***
[0.0404] 0.5935*** [0.0901] 0.3295** [0.1477] 0.1942*** [0.0326] 0.0005*** [0.0001]

-0.4182*** [0.1168]

0.0730*** [0.0044] 0.0129*** [0.0023] 0.0532*** [0.0019] 0.0141*** [0.0016] 0.0192***
[0.0029] 0.0432*** [0.0065] 0.0240** [0.0108] 0.0141*** [0.0024] 4E-05***

[6.48E-06] -0.0305*** [0.0085]

0.9882*** [0.0438] 0.1690*** [0.0309] 0.7297*** [0.0319] 0.1950*** [0.0230] 0.2666***
[0.0400] 0.5871*** [0.0893] 0.3185** [0.1530] 0.6194*** [0.1981] 0.0006*** [0.0001] -0.4401**
[0.1782]

0.0738*** [0.0045] 0.0126*** [0.0023] 0.0545*** [0.0020] 0.0146*** [0.0016] 0.0199***
[0.0030] 0.0438*** [0.0066] 0.0238** [0.0114] 0.0462*** [0.0149] 4E-05***

[6.56E-06] -0.0329** [0.0133]

*Industry dummies (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆) Yes Yes Yes Regional dummies (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆) Yes Yes
Yes Year dummies (◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆) Yes Yes Yes Wald chi2 1514.7400*** 1593.1400***
1617.2100****

*Log pseudolikelihood -4325.3566 -4507.3745 -4604.9540 Number of observations
25,032 25,032 25,032*

*Notes: Models [1], [2] and [3] adopt the export, employment and asset share of MNEs in each three-digit food processing industry k in region j at time t , respectively; marginal effects (M.E) are evaluated at the sample means of the covariates; ***, **, * denote significance at 1%, 5% and 10% levels, respectively; estimates are efficient for arbitrary heteroscedasticity with computed robust standard errors (R.S.E.) in square brackets. 4.3 The role of prior export experience*

0.1165*** [0.0395] 0.5319*** [0.0325] 0.0964*** [0.0305] 0.2646*** [0.0579] 0.4760***
 [0.1054] 0.4642*** [0.1646] 0.0875
 [0.1063] 0.0003** [0.0001] -0.1309 [0.1726]
 0.0396*** [0.0134] 0.1810*** [0.0089] 0.0328*** [0.0103] 0.0900*** [0.0196] 0.1619***
 [0.0354] 0.1579*** [0.0561] 0.0298
 [0.0361] 1E-04** [0.0000] -0.0445 [0.0587]
 0.1201*** [0.0307] 0.6326*** [0.0327] 0.1872*** [0.0233] 0.2373*** [0.0399] 0.4456***
 [0.0848]
 0.4197* [0.2265] 0.3228*** [0.0841] 0.0005*** [0.0001] -0.3150** [0.1284]
 0.0050*** [0.0013] 0.0261*** [0.0014] 0.0077*** [0.0009] 0.0098*** [0.0017] 0.0184***
 [0.0036] 0.0173*
 [0.0094] 0.0133*** [0.0035] 2E-05***
 [3.90E-06] -0.0130** [0.0053] *Industry dummies* (◆◆◆◆◆◆◆◆◆◆) *Yes Yes Regional*
dummies (◆◆◆◆◆◆◆◆◆◆) *Yes Yes Year dummies* (◆◆◆◆◆◆◆◆◆◆) *Yes Yes Wald chi2* 690.7100***
 628.7500***

Log pseudolikelihood -1382.2215 -2945.3585 *Number of observations* 3,291 21,741

*Notes: Marginal effects (M.E) are evaluated at the sample means of the covariates; ***, ** and * denote significance at 1%, 5% and 10% levels, respectively; estimates are efficient for arbitrary heteroscedasticity with computed robust standard errors (R.S.E.) in square brackets.*

The estimation results reported in Table 6 suggest that the effects of MNE presence on export market entry differ between the two groups of local firms. The estimated coefficient of the output share of foreign firms (◆◆◆◆◆◆◆◆◆◆) is positive but insignificant in the estimation for local firms with prior export experience. Hence, once firms already entered a foreign market, it is likely that they have overcome some of the entry barriers related to the fixed costs of exporting and gained sufficient experience and knowledge to keep exporting the next year. MNE presence does not seem to exert any systematic additional effect on the export decisions of these firms. Meanwhile, local firms without prior export experience are more strongly affected by foreign presence. The estimated marginal effect indicates that a one percentage point increase in the presence of MNEs in the industry raises the probability that firms will start exporting by 1.33 percentage points. This implies that spillovers from MNEs are likely to lower the market entry barriers for local food processing firms that are about to start exporting for the first time. As nearly 87% of local firms in the industry have no prior export experience, the evidence from this sub-sector analysis is potentially important to the prospect of Vietnam's food exports and the opportunity for domestic firms to accelerate the integration into global value chains.

5. Concluding remarks

This paper develops new insights into the spillover effects of MNE presence on local firms' export market entry, using a newer and more disaggregated dataset on Vietnam's food processing industry than what earlier studies have done. Food processing represents an essential part of Vietnam's thriving manufacturing sector, with enormous potential for exports. Following earlier literature, we specify an econometric model which includes a measure of MNE presence plus a set of control variables capturing standard determinants of firms' export decisions. The study adopts a random-effects Probit estimator to deal with the fact that the dependent variable is constrained and binary in nature and the examined data set is an unbalanced panel. To deepen the understanding of MNE-linked effects, extended analyses are conducted to further examine the role of the measurement of MNE presence and local firms' prior export experience in moderating the magnitude of any spillovers from MNEs.

The estimation results show strong evidence that the presence of MNEs in Vietnam's food processing industry raises the chances for local firms to become exporters and start integrating into global value chains. A one percentage point increase in foreign presence leads to a 2.18 percentage point increase in the probability that local firms engage in exporting. Further analysis indicates the existence

of positive export spillovers from MNEs to privately owned firms but not to state-owned firms. Moreover, the empirical results confirm findings from earlier studies regarding firm-level export determinants: firms with prior export experience, older, larger, more capital-intensive and higher-paying firms are more likely to become exporters. Being located in an industrial zone also raises firms' propensity to start exporting. In addition, firms operating in more export-oriented and highly competitive three-digit industries are more likely to reach out to the foreign market.

The key result from this paper highlights the beneficial export information externalities and valuable competitive pressure generated by MNEs as catalysts for local food processing firms' export entry decisions. The findings from this sub-sector analysis are noteworthy as earlier studies for Vietnam's manufacturing sector largely failed to present such evidence. These positive export spillovers from MNEs can be expected to be relatively important in the examined industry, given the low proportion of existing exporters among local firms. Contrary to previous work, this study shows a prominent role for privately owned firms in exports as well as in absorbing positive MNE spillovers. Therefore, to amplify potential spillovers, we suggest that policymakers should focus on promoting stronger linkages between MNEs and this group of local food processing firms. Possible mechanisms are via co-location (e.g., industrial and export zones) where investments in vocational education and training can be concentrated to develop a pool of skilled labour for both foreign and domestic firms, and collaboration in organizing regular professional platforms to share knowledge on export

products, technology and markets (e.g., agro/food export fairs and exhibitions).

Further analysis suggests that in evaluating MNEs-linked export spillovers, measurement of foreign presence and local firms' past experience matter. While the evidence of a positive impact from MNEs is robust across our four proxies of foreign presence, the magnitude varies markedly. The estimated marginal effects imply the relatively stronger importance of demonstration and competitive pressure compared to export information and interpersonal externalities. Additional regressions reveal that the presence of MNEs appears to play an insignificant role for domestic firms with previous export experience. However, MNEs exert a significant and valuable impact on local firms without prior export knowledge, enabling them to overcome market entry barriers to start exporting. These findings imply the considerable potential for MNEs to make a difference in local firms' export prospects and validate the policy efforts to attract FDI inflows to the food processing industry.

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ENERGY CONSUMPTION OF TEXTILE AND APPAREL ENTERPRISES IN VIETNAM

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Abstract.

Textile and apparel industry plays a key role in economic development and export in Vietnam. Sustainable development in textile & apparel industry requires both production growth and economical energy use, especially in a world full of uncertainty and climate changes. Energy consumption exposes to be different among textile & apparel enterprises in terms of efficiency, as shown by the energy intensity index. Using the annual enterprise database surveyed by the General Statistics Office in 2017, the paper is to calculate the energy intensity index for textile & apparel enterprises in Vietnam and analyze the energy use performance among them. It is shown that textile enterprises use energy more efficiently than apparel enterprises. Energy efficiency is higher in foreign-invested enterprises or exporting enterprises compared to domestic ones. Based on economies of scale, large textile enterprises use energy more economically than small and medium ones. Other result reveals that capital use intensity for machinery and equipment is higher in high efficiency-energy used enterprises. This confirms the importance of applying modern technology in energy savings during the production process.

Keywords: *Textile and apparel; energy consumption; efficiency; energy intensity.*

1. INTRODUCTION

With the outstanding development of economic growth and globalization, especially the emergence of the industrial revolution 4.0, Vietnam has shown its increasingly strong and sustainable development so far. In Vietnam, the textile and apparel industry still plays a leading role in the economy. Textile and apparel industry is recorded key export industry with a high export turnover and growth rate, accounting for 12 - 16% of the total export turnover of the country. However, the textile and apparel industry has a volatile market in the face of continuous changes in the world. Fluctuations in input resources, fluctuations in energy, and fluctuations in the world's demand for products require the textile industry to always develop in a sustainable manner.

Following these sustainable trends, the ordering partner of the Vietnamese textile and apparel industry all over the world are shifting their demand prioritizing to green businesses. It means that textile enterprises need to control for little pollution during production and transportation, apply solutions to save energy, natural resources. If not, they are at risk of being

stopped from receiving orders or being refused orders by partners.

We all understand that the world is facing difficulties in recent years with the Covid_19 pandemic and the Russian-Ukrainian war. The international market suddenly "cold" gradually and the world's supply chain is disrupted. Political instability and high inflation make the signs of global economic recession more and more obvious. Therefore, the world demand in general and textile & apparel production in specific continue to decline sharply. Textile and apparel product prices are also falling despite the high inflation in major markets. With such difficulties and uncertainties, the textile industry must create competitive and quality products to survive, and above all, environmentally friendly products need to be achieved as green consumer demand is the tendency in the new era.

Energy is a limited source. Energy depletion is the warning for a near future as the world in recent years has witnessed many risks and disasters happening. Vietnam currently is a country exporting raw energy, but in the future, Vietnam may switch to importing to meet the energy demands of the society. Therefore, effective energy consumption management is one of the top tasks, especially in the textile industry.

Vietnam's national energy strategy has emphasized the element of energy security, providing adequate, stable, high-quality energy at reasonable prices for fast and sustainable socio-economic development. The objective of the strategy is to thoroughly practice saving and using energy efficiently, conduct an energy source transition, and make an important contribution to meet the "zero" net emission target by 2050. To achieve the goal, all economic activities in general and the textile industry, in particular, need a lot of effort to contribute to the goal of energy efficiency of the country.

This paper is to calculate energy intensity as an indicator for analyzing energy consumption efficiency in textile and apparel industry. We found in this paper that natural energy is less used in textile and apparel industry rather than other fuels such as oil or coal. We go in further by analyzing energy consumption related to different types of enterprises. Eventually, the paper aims at the relationship between capital intensity, investment in machinery and equipment, productivity and energy intensity in textile and apparel enterprises.

2. LITERATURE REVIEW

Studies on energy consumption and energy intensity are numerous in general but rather few in textile and apparel industry. Energy efficiency is determined through two indicators: energy intensity, measured by total energy consumption over total sales, and CO₂ emission. In the scope of energy literature, there are many factors impacting these indicators, both at national level and enterprise level.

Technology and exports are two factors that are mainly discussed in energy studies. A research paper in China found that energy intensity is related to energy-saving technologies

usage (Zheng et al. (2011)). Modern technologies can come from the source of international investment or exporting. Countries or industries related to trade can externally benefit energy consumption. However, international trade does not benefit all industries.

Foreign direct investment is also a controversial factor. Adom and Kwakwa (2014) found that in South Africa, some industries attracting high foreign direct investment would receive efficient energy consumption comparing industries having no or low foreign direct investment. Foreign direct investment plays a key role in transferring modern technologies and clean materials. Strategies attracting foreign investment in sustainable energy have been encouraged in Africa to utilize foreign advantage in transferring modern technology and management. However, Polat (2018) demonstrates that FDI only benefits developed countries in reducing energy consumption, the case for developing countries is contrast. Such developing countries may have not yet finished the process of industrialization so that they may not be able to quickly absorb the benefits of FDI.

Enterprise's characteristics affect the way energy is used. Some papers show that types of ownership are significantly correlated with energy consumption. Private-owned enterprises tend to use energy more efficiently compared to state-owned enterprises in China (Fisher-Vanden et al. (2004)). This research also emphasizes the importance of R&D expenditure on energy usage. Private enterprise is more competitive and adaptable to changing international market conditions. Private enterprises are dynamic and oriented to more modern processes and technologies.

Firms various in size behave differently in energy efficiency. Bigger firms are advantageous with economies of scale so that they can have less energy costs to produce a wide range of products. This conclusion can be found in Papadogonas et al. (2007) for the case of Greek manufacturing firms. However, the positive relationship between firm size and energy efficiency is not always the case. Kumar (2003) found an inverse conclusion in the case of Indian manufacturing, or Sahu and Narayanan (2009) presented a non-linear nexus between both variables.

In the case of textile and apparel industry, research papers on energy efficiency are not numerous. Innes and Martinez (2010) analyze the development of energy efficiency in the case of German and Colombian textile industries. The ratio of energy over gross production, specific energy consumption for a specific activity, and carbon emission intensity are three indicators for analysis. They found that capital and energy price can enhance energy savings in production in the case of German, so that the policies related to energy prices can successfully achieve the target of energy savings. In the case of Colombian, policies should concentrate on labor skills and enterprise capacity utilization through R&D and modern technology applications.

A research paper in Bangladesh, by Hasan et al. (2019), concludes that energy management schemes, assistance from energy professionals, capital expenditure, research &

development, and information systems drive energy efficiency in the textile industry. This paper shows that a 3-4% increase in energy efficiency can be achieved with energy management practices.

Research on energy consumption and energy intensity in Vietnam are not far analyzed. The paper of Nguyen Duc Luong (2015) gives a critical view of the Conservation program in Vietnam related to energy efficiency. Improving and substantial progress have been achieved successfully by government strategies and programs. However, lacking close coordination among government and organizations and enterprises or information shortage are the drawbacks.

Another paper related to trade and energy usage has been analyzed in Vietnam is Anwar and Alexander (2016). This research shows a significant long-run relationship between energy consumption and trade openness. The research on circular economy in the textile industry covering the case of Bangladesh, Vietnam and India reveals that the challenges of implementing energy efficiency are financial and human resources shortages (Saha et al. (2021)). In these economies, policies on collaborative efforts, sharing knowledge and government incentives are key actions to boost energy efficiency.

3. ENERGY MEASUREMENT

To analyze the efficiency of energy consumption, we use energy intensity as an indicator, measuring as units of energy used in production over units of output. Energy intensity is a very popular indicator to measure national energy savings and compare energy efficiency across sectors.

The data used in this article is taken from the annual survey data by the Vietnamese General Statistics Office. Vietnamese enterprise survey is one of the national statistical surveys carried out annually to collect information for management, policy making, socio-economic development plans, and economic development. The enterprise survey currently is conducted in 63 provinces for enterprises for collecting information on production and business activities in all industries in the Vietnam Standard Industrial Classification System (VSIC).

In this paper, the author chooses data from 2016 to measure the total energy used by each type of energy and compare the corresponding energy intensity with different factors in textile and apparel industry. The source of energy used is available in the data, but each type of energy is measured in different units. Electricity is measured in KWh, Coal is in Tons, Gasoline and oil is in liter, and natural gas is in cubic meter. To unify in one unit measurement for all energy sources, we convert different unit measurements in KTOE (kiloton of oil equivalent). KTOE is a common unit of energy, showing the amount of energy released by burning an amount of crude oil. The conversion table with energy conversion factor is propagated in Decree 21/2011/NĐ-CP on regulations related to statistics and energy use.

After manipulating the total energy used, we divide total energy over total sales to receive the energy intensity index. Energy is measured in KTOE, sale is in billion VND and is normalized by the production price index to get real revenue.

Table 1: Energy conversion table in Vietnam

Energy source	Unit	TOE/unit
Electricity	KWh	0.0001543
Coal	ton	0.70 -0.75
Diezel oil	ton	1.02
Fuel oil	ton	0.99
LPG	ton	1.09
Natural gas	Million m ³	900
Gasoline	ton	1.05

Source: Decree 21/2011/NĐ-CP.

4. RESULTS

4.1. Source of energy used in the textile and apparel industry

In Vietnam, the textile and apparel industry is one of the industries using a large labor force. This industry constitutes high export value in the economic structure. However, textile and apparel industry also causes pollution and negative impacts the environment. One of the reasons for this fact is that enterprises are engaged with less-efficient energy consumption.

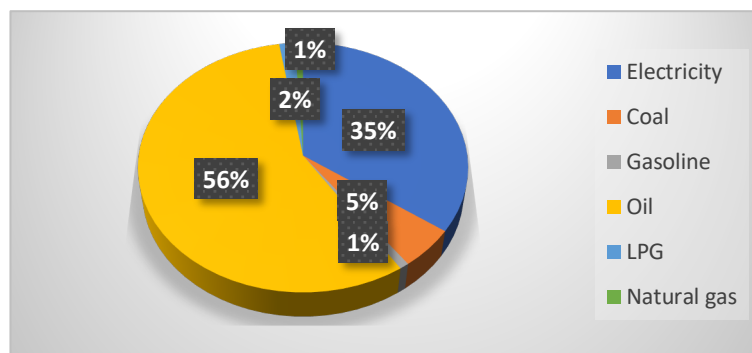
Within textile and apparel industry, energy sources are distributed in different processes: spinning, weaving, knitting, dyeing, and finishing process. Electricity is mostly consumed for machinery operation or in cooling and temperature control systems. Fuels such as oil, coal or gas are used in dyeing or finishing process. Of all processes, spinning and weaving account for the most energy used.

Based on data availability, figure 1 shows that consumption of energy in textile and apparel industry in Vietnam mainly comes from the sources of fuel, especially oil and coal. Natural gas, which is considered an environmentally friendly energy source, is less used. Energy consumption related to natural gas only comprises roughly 1% of the total, this has caused an increase in environmental problems and inhibited the industry's growth. In developed countries, using natural gas for manufacturing and production has been encouraged and is the replacement tendency for sustainable development. German textile industry increases to 7% natural gas consumption from the period 2000-2005. This number for the case of Colombia is 55% which drives less energy intensity and compliance with environmental rules (Innes & Martinez (2010)). In India, 36% of energy source in textile production is natural gas, the second largest source after Petroleum (Sahu, 2014).

Vietnam aims at the National energy development strategy to 2030, vision to 2045

focusing on implementing environmental protection policies in the energy sector associated with green energy sources to promote the circular economy and sustainable development. In this strategy, Vietnam is committed to using clean energy sources, prioritizing efficient use of renewable energy and clean energy. The national strategy goal for textile industry is to reduce the energy consumption of the entire industry by at least 0.4 - 0.7% annually from 2021 to 2030. To achieve that goal, textile industry has to face the requirement of finding sustainable energy sources in the future, increasing the use of natural gas and renewable energy in the structure consumption.

Figure 1: Source of energy consumption in textile and apparel industry in Vietnam



Source: Author's calculation based on Vietnamese enterprises survey in 2016.

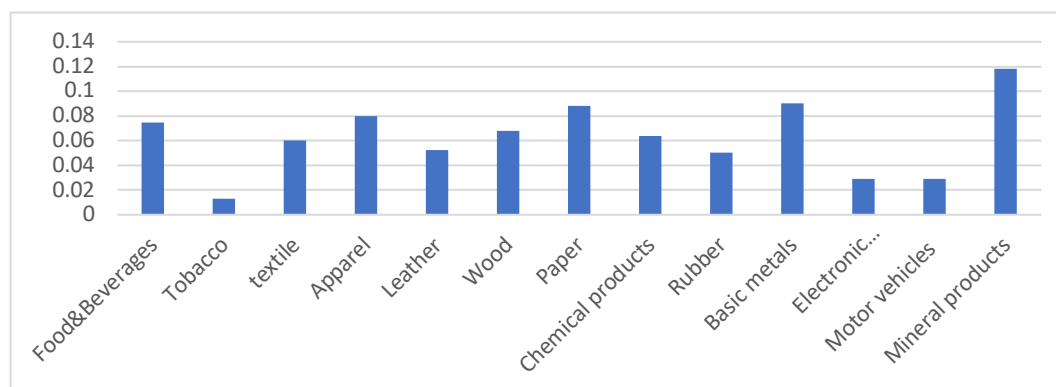
4.2 Energy use efficiency

4.2.1 Textile and apparel in comparison with other industries.

One of the indicators using for analyzing energy consumption efficiency is energy intensity. Figure 2 illustrates energy intensity of the textile and apparel industry in comparison with other industries in Vietnam. Textile and apparel industry yields high energy usage rather than tobacco, leather, wood, rubber, motor vehicles industries. Some industries consuming the most energy are paper, basic metals and mineral products. Although the textile and apparel industry is not the most energy-intensive sector, Vietnam's textile and apparel industry is still an industry with high energy consumption and low efficiency.

Figure 2: Energy intensity of some industries in Vietnam.

Unit: KTOE/billion VND



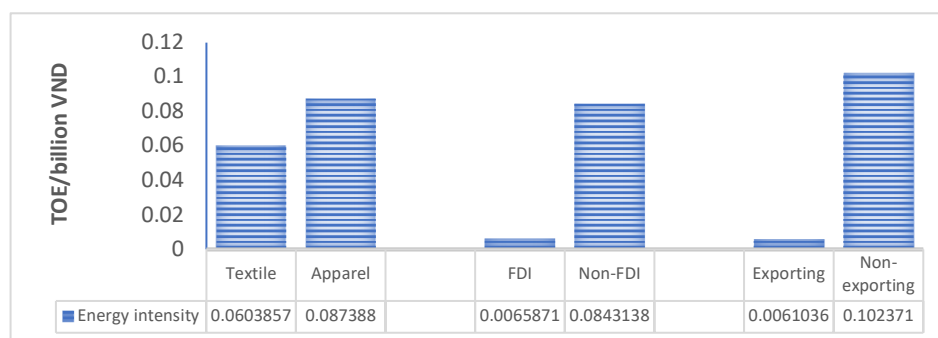
Source: Author's calculation based on Vietnamese enterprises survey in 2016.

4.2.2 Energy intensity in textile & apparel industry with different classifications.

Within the textile and apparel industry, textile has lower energy intensity compared to apparel industry, so that textile enterprises, in general, use energy more efficiently than apparel ones. Figure 3 shows a closer look at different classifications in terms of foreign investment and exporting. FDI textile enterprises reveal strengths in modern technology, high-qualified machinery, and effective energy sources. Increasing foreign investment in renewable energy and clean energy for manufacturing industries is the tendency of the government policies and becomes the optimal solutions for Vietnam to achieve green growth goals. It is difficult for domestic enterprises to catch up with foreign enterprises in terms of management efficiency and environmental compliance.

Moreover, exporting textile enterprises demonstrate competitive advantages over non-exporting enterprises through efficient energy consumption. Product quality and other strict requirements of foreign importers require exporting-oriented enterprises to have ways to consume energy more efficiently.

Figure 3: Energy intensity in textile and apparel industries with different classifications.

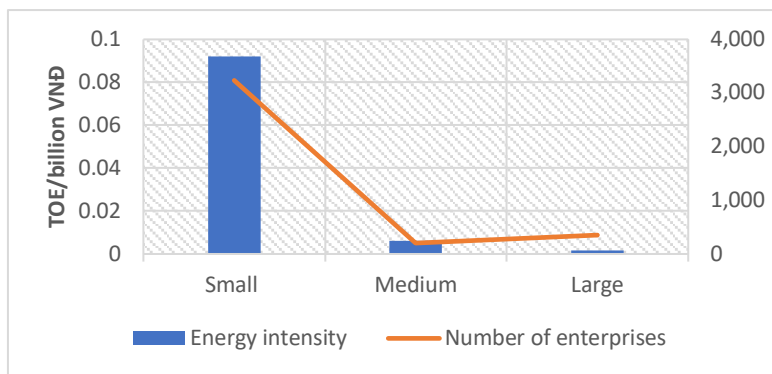


Source: Author's calculation based on Vietnamese enterprises survey in 2016.

Figure 4 provides information on the differences in energy intensity by size classification.⁸ Almost textile enterprises are small and there are quite a few large enterprises in Vietnam. Due to the author's calculation results, higher energy intensity is recorded in smaller textile enterprises. The consumption of energy across the size of firms demonstrates quite clearly economies of scale. Large enterprises have the advantage of cost savings when producing a large volume of products, which helps large enterprises to manage energy use more efficiently.

On the other hand, large enterprises are more closely managed by the State. Large enterprises and corporations often attract more attention from the government and the public, thus ensuring the image of sustainable production, production with environmental quality and limiting emissions into the environment, is also focused on by business managers.

Figure 4: Energy intensity in textile and apparel industries, classified by size.



Source: Author's calculation based on Vietnamese enterprises survey in 2016.

4.3 Energy efficiency factors

Energy efficiency depends on many different factors, both from a business perspective and a macro perspective. Barriers to energy efficiency come from enterprise-level problems such as inadequate capital, poor research and development or lack of staff consciousness. To a macro level, low energy efficiency may be due to insufficient attention from the government, inadequate financial policies and incentives, poor connection from the government to enterprises.

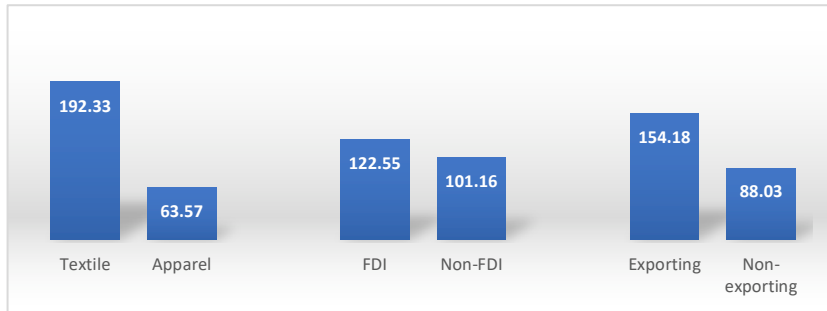
The level of communication and propagation on sustainable development and energy efficiency is not high. Businesses have not yet seen the long-term benefits outweigh the short-term benefits. Efficient use of energy coupled with investment in machinery and equipment

⁸ The author classifies the size of textile enterprises based on Decree No.56-2009-ND-CP.

systems, clean energy can cause businesses to increase current costs and reduce profits.

Figure 5: Capital intensity in the textile and apparel industry.

Unit: billion VND/worker



Source: Author's calculation based on Vietnamese enterprises survey in 2016.

Figure 5 shows the intensity of capital use in textile enterprises in Vietnam by different classifications. Capital intensity is measured by total fixed production capital over the total number of employees. The results show that within the textile and apparel industry, textile has higher capital intensity. Similarly, FDI textile enterprises and exporting enterprises have higher capital intensity than domestic enterprises and non-exporting enterprises respectively. Connecting the results of figure 3 and figure 5, we can clearly confirm the relationship between energy efficiency and the intensity of capital use. FDI and export firms are more capital intensive, and they are also energy efficient.

Figure 6a: Energy intensity in relation to machinery investment per worker

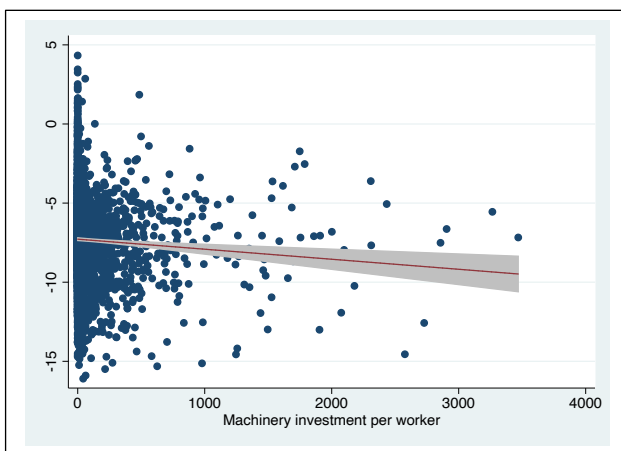
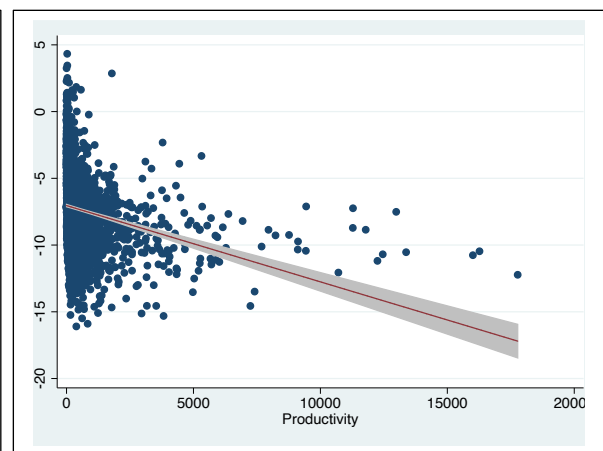


Figure 6b: Energy intensity in relation to productivity



Source: Author's calculation based on Vietnamese enterprises survey in 2016.

It is understandable that modern technology has an intensively impact on energy savings. Therefore, one of the most important goals of Vietnamese energy strategy is to aim at advanced innovation and technologies, meeting the requirements of consuming less electricity and less greenhouse gas emissions while still ensuring operating capacity.

Figure 6a shows the relationship between energy efficiency and capital investment for machinery and equipment per worker in textile and apparel enterprises. The results show a negative relationship. The more efforts enterprises invest in machinery and equipment, the less energy intensity is used, the more efficient the saving and use of energy are.

Productivity also reflects an innovation and technology of an enterprise. Figure 6b represents a correlation between energy intensity and productivity. We measure productivity as total revenue over total labor. The result also shows a negative sign which can confirm the importance of high productivity and competition competence in energy usage.

5. CONCLUSION

This paper is to analyze energy consumption and energy intensity in the Vietnamese textile and apparel industry. We first manipulate the data from the annual enterprise survey in 2016 to calculate energy intensity, collecting from all types of energy sources used and converting it into one common energy unit, KTOE. We come to conclusion that the proportion of natural gas and biofuels source consumed in textile and apparel industry is small, have not yet currently forming a green consumption-based economy. The paper also reveals that foreign-invested enterprises or exporting enterprises have numerous advantages and commitments related to energy savings, yielding low energy intensity.

Small and medium enterprises account for a large proportion of the textile and apparel industry, and they are the ones that pay little attention to environmental requirements and energy consumption efficiency. These will be the barriers for the government to come up with policies geared towards these small businesses.

The policy of energy efficiency should go hand in hand with supporting technology and innovation during the production process in textile and apparel industry. We had seen that businesses with high investment in machinery and equipment, businesses with high labor productivity both use energy better, save more production costs and promote value creation. Productivity is the competitive factor of enterprises to exist in the market.

At present, access to the science and technology market for textile industry is still difficult as Vietnam has not yet developed its own intermediary organization of the science and technology market for the textile industry. The promotion of the science and technology market is one of the necessary policies to be implemented in the coming time.

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JAPANESE FDI BUSINESSES' TRADE COMPLIANCE PRACTICES IN A DEVELOPING NATION: AN EMPIRICAL STUDY OF VIETNAM

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Abstract:

Japan is one of the biggest foreign investors of Vietnam since “Doi Moi”. The Japanese FDI businesses are offered the most cross-border trade facilitating measures in Vietnam due to their organizational value of highly recognized trade compliance and legal corporate responsibility. However, the biggest concerns and obstacles of these actors are Vietnam’s specialized laws and regulations in cross-border trade of goods. This study aims to describe the trade compliance behaviors of Japanese FDI firms in Vietnam with a deep analysis about similarities and differences with the overall business community. The study is based on a national survey of 399 respondents from Vietnamese import and export enterprises in 2019. The study figures out that the Japanese FDI firms in Vietnam are gaining higher status and better practice of trade compliance as well as acknowledge about the importance of public-private partnership and legal capacity of human force. Lastly, it delivers some policy implications to enhance trade compliance for Vietnamese enterprises in general and Japanese FDI firms in particular.

Keywords: *Authorized Economic Operator Program, Trade Facilitation, Vietnam.*

Introduction

The term “compliance” probably firstly appeared to describe certain corporate activities in 1991 when the U.S. Sentence Commission amended the U.S. Federal Sentencing Guidelines for Organizations¹⁰ that assessed compliance programs of organizations for lighter sentences (Ayako Aizawa, 2018).

The World Customs Organization (WCO) (2018) published a comprehensive package on the implementation of the WCO SAFE Framework of Standards to Secure and Facilitate Global Trade (SAFE Framework) with the WCO’s flagship Customs-Business partnership program with two pillars of compliance and facilitation. In this, trade compliance records provide a primary input database for risk management, customs controls and partnerships between Customs and stakeholders. The WCO (2014) introduced fundamentals of compliance management including theories and principles, operational and technical frameworks, methods of data recording and compilation, best practices, factors affecting compliance management and recommendations on enhancing the effectiveness of compliance management.

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¹⁰ <https://www.uscc.gov/guidelines>

According to the Vietnam Customs Law 2014: *Vietnam Customs shall inspect and supervise goods and vehicle; tackle smuggling and illegal cross-border trafficking of goods; implement laws on taxation applied to imported and exported goods; release statistics on imported and exported goods in conformity with this Law and other corresponding laws; propose policies and administrative measures for customs applicable to import, export, exit, entry and transit operation and tax policies applicable to imported and exported goods.* In principle, performance of trade-related regulatory compliance is known as the substantial responsibility and benefits of the Vietnamese exporters and importers that those who are recognized as good trade compliance status from the GDVC shall gain many priorities and privileges of trade facilitation in doing customs clearance for exports and imports in Vietnam. Aiming to apply risk-management methodology in doing customs clearance for exports and imports, Vietnam Customs assesses and classifies Vietnamese enterprises into five groups in terms of trade compliance that are the first degree of Authorized Economic Operators (AEOs), the second degree of the highly compliant, the third degree of the moderately compliant, the fourth degree of poorly compliant and the fifth degree of non-compliant.

In Japan, the term “compliance” was initially introduced in the first Charter of Corporate Behavior in 1991 by the Japan Business Federation, and followed by the Implementation Guidance. In line with the actions of the Japan Business Federation, the Japanese government takes the leading mission on compliance, with the announcement of Guidelines for Voluntary Codes of Conduct by the Quality of Life Policy Council (Ayako Aizawa, 2018). Almost simultaneously, the Japan Business Federation and Japanese government began to increase pressure on corporations to set up compliance systems. From the perspectives of the firms, Japanese companies’ compliance activities have become so easy to understand that they could all be used as models with numerous norms and standards. In general, there are three dominant ideologies in terms of compliance namely *coercive, mimetic and normative*. Forms of these ideologies as shown in the Table 1:

Table 1: Regulatory compliance codes of Japanese firms

SEQ	Institutional Framework of Compliance	Core Principles
1	Coercive	Pressure from dependent organizations, cultural expectations in society ex. legal regulations of the Government and Japan Business Federation.
2	Mimetic	Organizations will apply compliance models and frameworks of other organizations that are more legitimate or perceived to be more successful, uncertainty promotes mimetic.
3	Normative	Mainly attributed to professionalization, that are (1) formal education and legitimization by university experts, (2) growth and refinement of professional networks, and (3) comprehensive mechanism of personnel recruitment.

Source: Ayako AIZAWA, 2018

Yasuda and Takahashi (2007) summarized that in the case of compliance activities of Japanese enterprises, specialized compliance departments were created within companies, which soon gave rise to compliance professionals. These professionals exchanged information with their peers at other companies belonging to the Japan Business Federation, studied the manuals provided to them, and then institutionalized compliance activities in accordance with those manuals. In the foreign markets, the business strategy of Japanese corporations is to deliver high quality and low-price products and to dominate as much market share as possible abiding to laws and regulations. In terms of local adaptation, Japanese corporations highly abide to laws and regulations in foreign markets and less concerned about the need to follow the customs within Japanese business society (Kat Yamamoto et al. 2019).

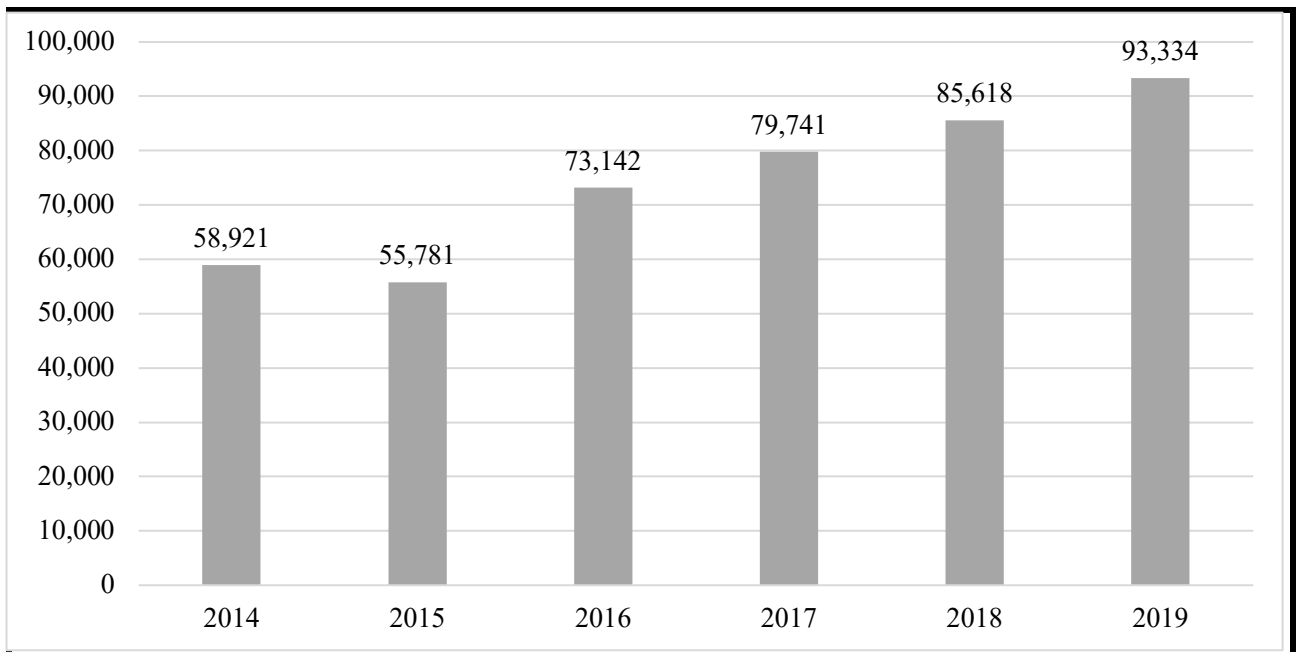
This study aims to answer the questions about trade compliance of the Japanese FDI firms in Vietnam, mainly: (1) *How do the Japanese FDI firms implement compliance activities in a foreign country like Vietnam? And (2) What are challenges and barriers to hinder compliance activities in line with its original framework in Japan?* It is noteworthy that, in this study, the author applies the qualitative research method with basic means of statistical technique aims to explain the factual trade compliance of Japanese FDI firms in comparing with other Vietnamese businesses in order to find out that whether the Japanese FDI firms owning well-known organizational culture and legal corporate responsibility perform better than Vietnamese business community in terms of trade compliance or not. In other words, this study tries to find out the top concerns and difficulties of Japanese FDI firms in terms of trade compliance. Data on Vietnam's Japanese FDI firms and trade compliance of Vietnamese businesses has been collected through a national survey in 2019 with the participation of Vietnamese exporters and importers.

The structure of this study is organized as follows. Following the Introduction, the research provides an overview of the Japanese FDI firms in Vietnam and their performance in cross-border trade of goods. After the survey description, the subsequent section presents the results of the survey about trade compliance behaviors of the Japanese FDI firms and Vietnamese businesses in connection with public-private partnership. The last section of the study is wrapped up with the conclusion and provides some policy implications.

1. Overview of Japanese FDI firms in Vietnam

In 2019, there are over 93,000 registered enterprises that frequently do exports, imports and customs clearance through the Vietnam Automated Customs Clearance System/Vietnam Customs Intelligence System (VNACCS/VCIS) operated by the General Department of Vietnam Customs (GDVC, 2020) (see Figure 1).

Figure 1: Number of Vietnamese exporters and importers in 2014-2019



Source: GDVC (2020).

Trade and investment cooperation between Vietnam and Japan has advanced significantly in recent years. Nowadays, up to \$64.3 billion in investment money from Japan has been invested in 4,793 projects in Vietnam (Vietnam General Statistics Office, 2020).

In recent years, Japanese FDI companies have highly appreciated Vietnam's transparent and supportive legal and administrative framework. However, according to JETRO, the score of this subject dropped sharply in 2020 and 2021, probably due to the impacts of strict anti-epidemic measures.

Table 2: Management matters of Japanese FDI firms in Vietnam

All sectors		2021	2020
1	Increased wages (497)	73.4	65.8
2	Complicated customs clearance procedures (304)	45.9	39.8
3	Growing market shares of competitors (cost-wise competition) (280)	44.9	31.6
4	Difficulty in developing new clients (274)	43.9	40.9
5	Tax burden (corporate tax, transfer pricing tax, etc.) (273)	40.9	31.2
Manufacturing sectors		2021	2020
1	Increased wages (497)	79.3	75.0
2	Increased cost in procurement of raw materials and parts (221)*	66.8	22.3
3	Difficulties in local procurement of raw	57.1	56.4

	materials and parts (189)*		
4	Complicated customs clearance procedures (182)	54.3	47.7
5	Growing market shares of competitors (cost-wise competition) (146)	44.1	32.5

(Source: JETRO - Japan External Trade Organization 's Survey)

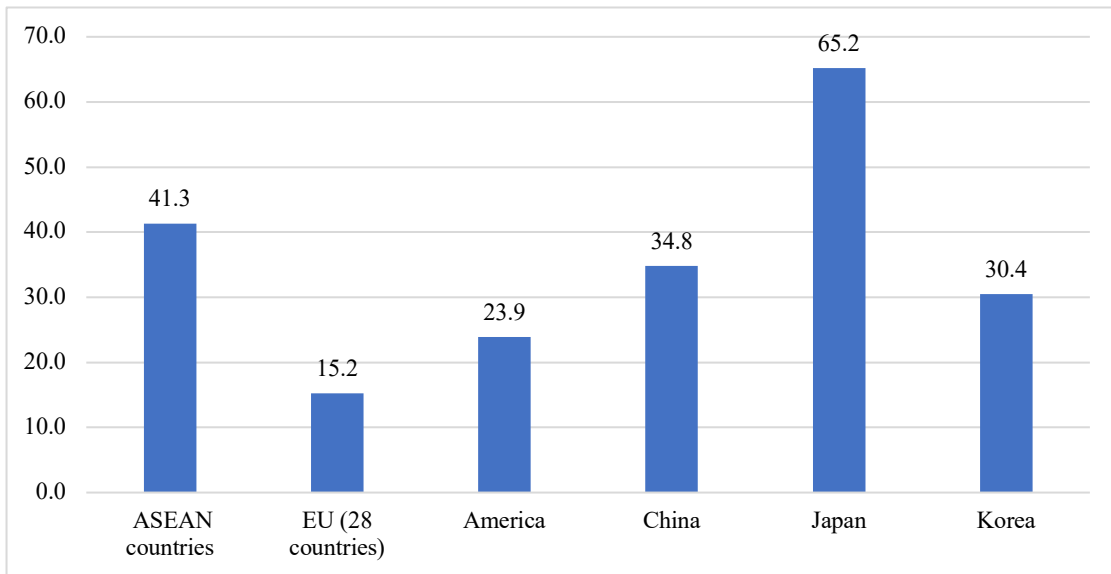
In general, it can be seen that due to the breakout of Covid 19, Japanese firms experienced more difficulties in the management process in 2021 in comparison to 2020 as shown in Table 2. In terms of regulatory compliance, we can see that “Complicated customs clearance procedures was the second most common management matter for all industries at 45.9% in 2021 and 6.1% higher than the previous year. Besides, tax burden was also in top five most common matters at 40.9% in 2021 while it was only 31.2% in 2020. In the manufacturing sectors, Japanese FDI firms in Vietnam also put “Complicated customs clearance procedure” rank 4 in the list of matters in management, with 54.3% and 47.7 % in 2021 and 2020 respectively.

2. Survey description

Data about trade compliance of Vietnamese businesses including the Japanese FDI firms had been collected through a survey conducted in 2019, from March to December. This survey aimed at surveying trade compliance behaviors of Vietnamese exporters and importers. It was carried out by sending questionnaires to the customs declarants at different customs clearance depots in North, Central and South of Vietnam. All the questionnaires were hard-copy and fully filled by the representatives of responding companies.

The survey was basically designed based on the legislation and practices in doing customs clearance in Vietnam. The questionnaires are measured by a five-point Likert scale ranging from a minimum to a maximum level. There were 399 respondents in different business sectors. Those with 100% domestic ownership accounted for 56%, 100% foreign ownership accounted for 41%, and joint-venture accounted for 3%. As per size, Vietnamese large enterprises accounted for 4% while 96% were SMEs. In this survey, there were 46 Japanese FDI firms accounting for nearly 12% of the total respondents. In detail, Japanese FDI firms are totally 100% foreign owned. The largest group of Japanese FDI respondents (74%) is manufacturing and trading firms; the second-largest group (18%) only consists of trading companies, and the third-largest group (nearly 8%) comprises business service providers. The biggest import and export market (accounted for nearly 65%) of the Japanese FDI respondents is Japan, followed by ASEAN with 41.3% as shown in Figure 2. This reflects a fact that the Japan-originated business culture and organizational behaviors of the parent corporations shall certainly affect the Japanese FDI firms in a foreign market like Vietnam.

Figure 2: Main exporting and importing markets of Japanese FDI firms in Vietnam



Source: Survey's results.

3. Analysis of survey's results

In this study, trade compliance means operating within regulations of cross-border trade and customs. It focuses on the perception, practices and operational manners of Vietnamese exporters and importers in order to comply with the regulations and requirements on cross-border movements of goods.

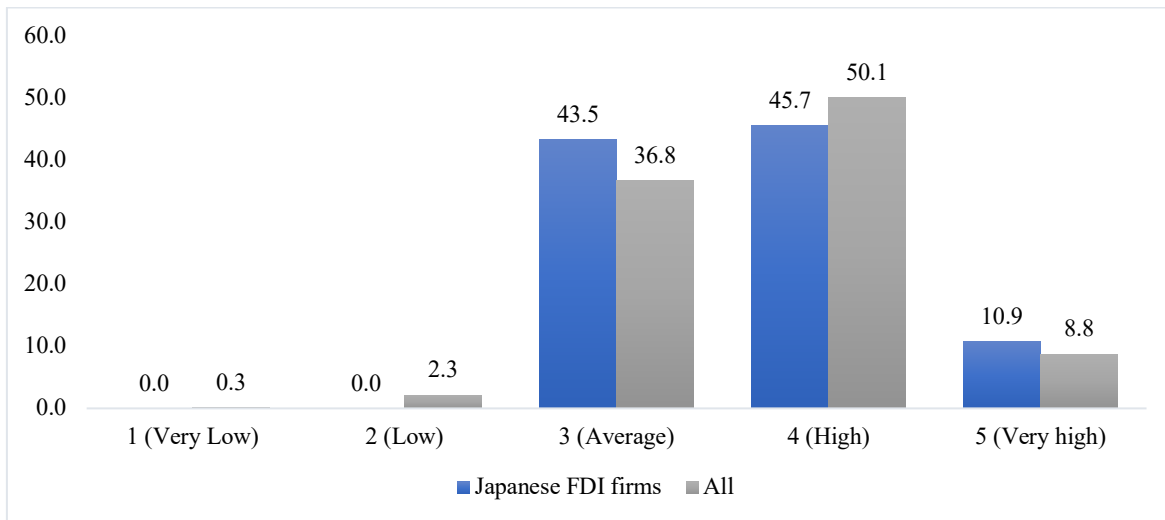
The survey results reveal the factual trade compliance of Vietnamese businesses including perspectives, practices and contributing factors.

3.1 Behaviors of trade compliance in exports and imports

The survey's results show a number of notable characteristics/behaviors of trade compliance. First of all, most of the respondents (more than 50%) have good and very good understandings that trade compliance is a legal responsibility in doing exports and imports (see Figure 3).

Figure 3: Perception about trade compliance in doing exports and imports

Unit: %



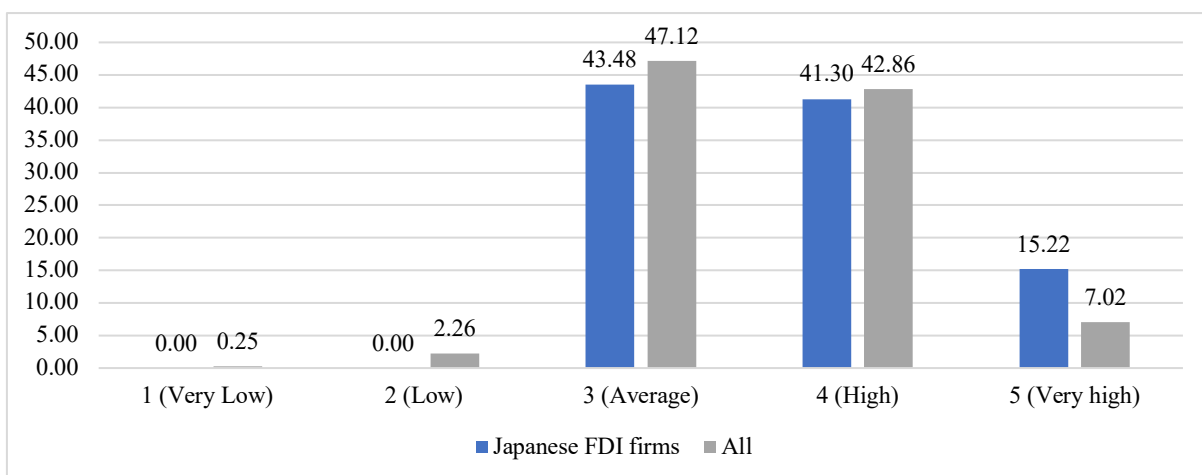
Source: Survey's results.

The above figure reveals that there is very little difference between the Japanese FDI firms and Vietnamese enterprises about their perception of trade compliance in doing exports and imports.

In order to figure out the legal capacity of the Vietnamese enterprises, the survey results about knowledge, practices of cross-border trade regulations and customs formalities are illustrated in the figure below. It is noticeable that 15% of the Japanese FDI respondents acknowledge cross-border trade regulations and customs formalities very well and much higher than that of the total respondents (7%).

Figure 4: Knowledge about cross-border trade regulations and customs formalities

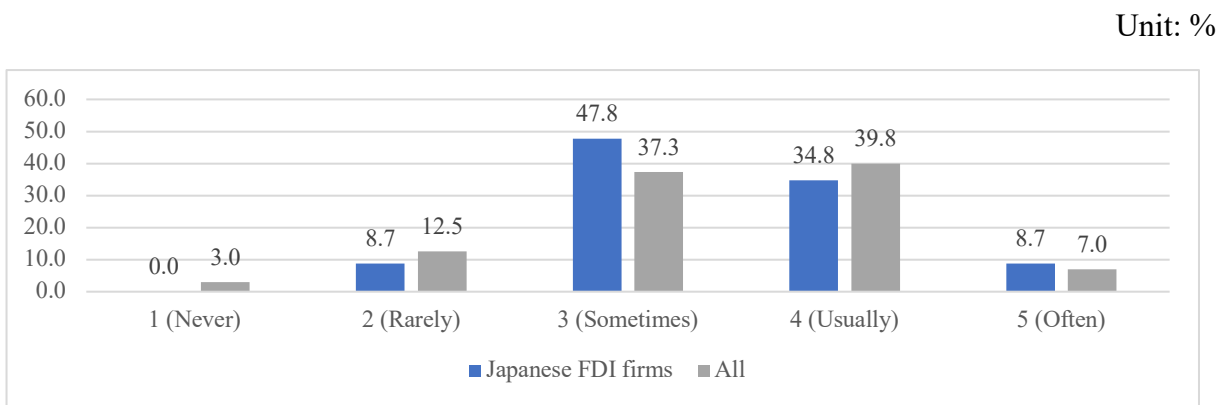
Unit: %



Source: Survey's results.

In order to comply with regulatory requirements for customs clearance, the respondents referred to legal consultancy and technical assistance. In Figure 5, the percentage of Japanese FDI respondents (8.7%) who often usually use legal consultancy is higher than that of the total respondents (only 7%). In addition, all the Japanese FDI respondents understand the complexity of Vietnamese laws and regulations as well as the importance of legal consultancy and usually use this service. This is noticeable evidence that the Japanese FDI firms are well-understood about the importance and responsibility of trade compliance. Therefore, Japanese FDI firms mobilize all the resources to comply with trade regulations while the Vietnamese businesses are old-fashioned doing by them-self as shown in Figure 5.

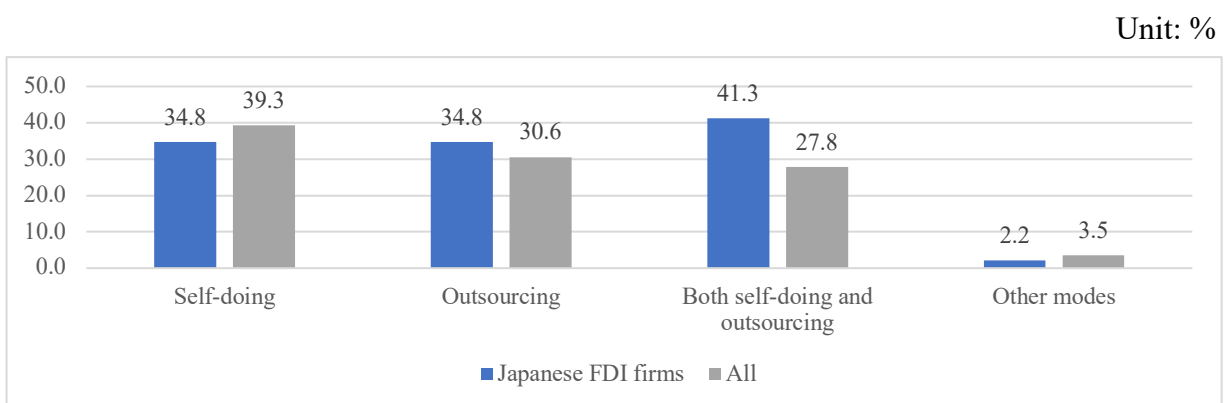
Figure 5: Frequency of use of legal consultancy in doing cross-border trade transactions



Source: Survey's results.

Notably, a lion proportion of the Japanese FDI respondents (34.8%) outsource customs clearance for exports and imports in order to mitigate legal risks in Vietnam is higher than the Vietnamese businesses who prefer doing themselves. Therefore, once again the Japanese FDI firms mobilize all the resources to comply with trade regulations in a foreign country like Vietnam.

Figure 6: Modes of doing customs clearance for exports and imports

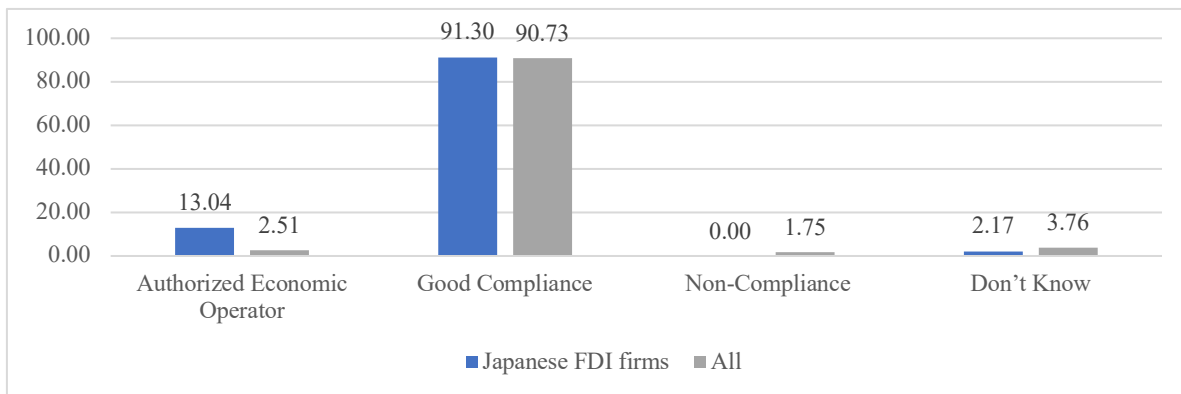


Source: Survey's results.

Inherently, Japanese FDI firms acknowledge many challenges and obstacles to comply with trade-related laws and regulations in Vietnam, also that the higher trade compliance status they get, the more privileges and benefits of trade facilitation they gain when doing exports and imports in Vietnam.

Figure 7: Trade compliance status of Japanese FDI firms

Unit: %



Source: Survey's results.

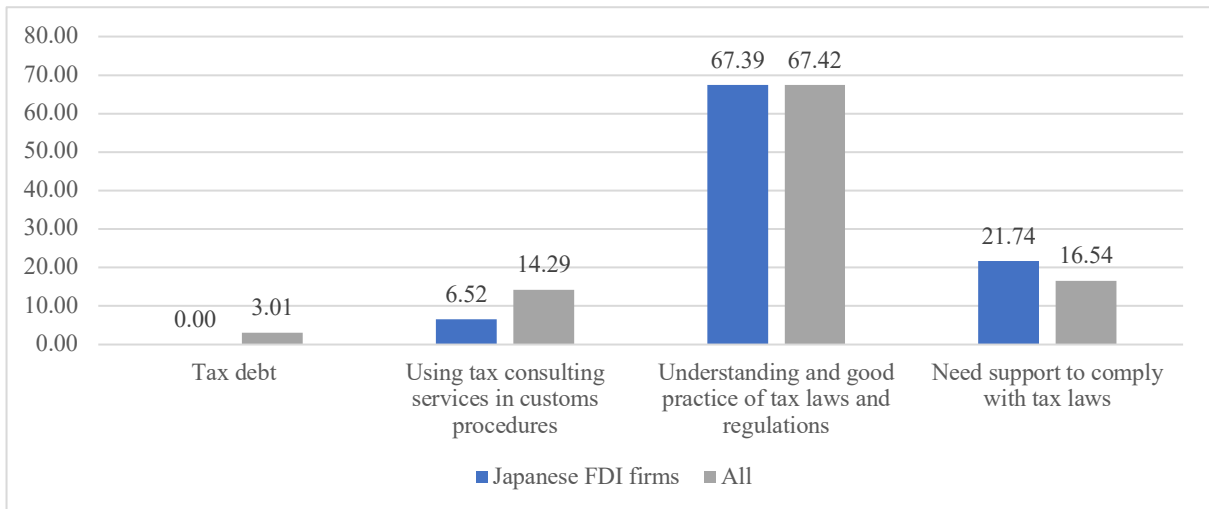
Nevertheless, Figure 7 shows different status of trade compliance between the Japanese FDI firms and Vietnamese businesses. Specifically, a remarkable proportion of the Japanese FDI respondents (13%) are Vietnamese AEOs who are recognized by Vietnam Customs for very good trade compliance and big contributions to exports and imports turn-over of Vietnam. This is much higher than the total respondents (only 2.51%). Also, there is no Japanese FDI respondent in terms of non-compliance while the proportion of the total Vietnamese enterprises respondents is 1.75%.

Emphasizing the trade compliance status of the Japanese FDI respondents in this study, it needs more information about Vietnam's AEO program. That initially was launched in 2011 under the Circular No. 63/2011/TT-BTC of the Ministry of Finance and firstly approved 13 AEOs. This program was officially implemented in 2013 under the Circular No. 86/2013/TT-BTC of the Ministry of Finance with the concept covering only Vietnamese exporters and importers. In 2015, AEO, as an important trade facilitation measure, was fully stipulated under Customs Laws 2014 and Circular No.72/2015/TT-BTC of Ministry of Finance and further expanding beneficiaries to customs brokers whose at least 20,000 customs declarations per year are in their owned names (Phan Thi Thu Hien, 2017). Until 2019, there were 74 Vietnamese biggest exporters and importers that were AEO-verified, accounting for extremely small proportion of the total Vietnamese exporters and importers that nearly 94,000 traders (General Department of Vietnam Customs, 2020). In particular, most of the Japanese FDI respondents and Vietnamese businesses were confident to very well understand Vietnam's tax laws and regulations but they need support from the tax agencies and governmental authorities to comply

as shown in Figure 8. Nevertheless, none of the Japanese FDI respondents were categorized in tax debt, while this proportion of the Vietnamese businesses was about 3%.

Figure 8: Compliance of tax laws and regulations

Unit: %



Source: Survey's results.

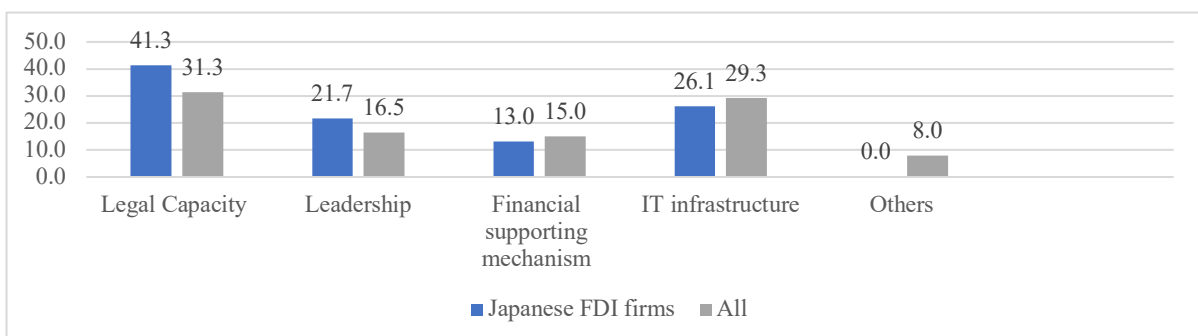
In the next section, the study discusses difficulties and contributing factors of trade compliance of the Vietnam enterprises in general, including the Japanese FDI firms.

3.2 Affecting factors to trade compliance of Vietnam enterprises

Significantly, both the Japanese FDI firms and Vietnamese enterprises likely have similar responses to their difficulties in doing customs clearance for exports and imports in Vietnam.

Figure 9: Difficulties in trade compliance for exports and imports

Unit: %

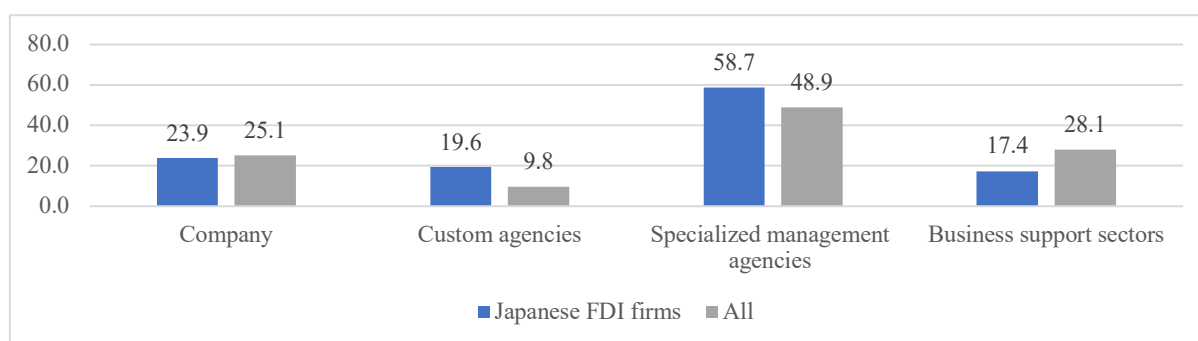


Source: Survey's results.

Figure 9 reveals the biggest concern of the Japanese FDI respondents is legal capacity¹¹ (41.3%) much higher than that of the Vietnamese businesses (31.1%). This reflects the fact that the Japanese FDI firms are better aware of the importance of workforce quality not only for their staff but also the leaders in terms of regulatory compliance. Certainly, the financial supporting mechanism and IT infrastructure of the Japanese FDI firms are stronger than those of the Vietnamese businesses in general. More detail, the survey's respondents were also asked about reasons deterring Vietnamese enterprises from complying with cross-border trade regulations and customs procedures as shown in Figure 10.

Figure 10: Contributing factors of difficulties in trade compliance for exports and imports

Unit: %



Source: Survey's results.

Figure 10 reveals another biggest concern of the Japanese FDI respondents is working with customs and specialized management agencies (19.6% and 58.7% respectively) higher than that of Vietnamese businesses (9.8% and 48.9% respectively). This reflects the fact that the Japanese FDI firms pay more attention to Vietnam's regulatory framework and practices of doing exports and imports, in other words they are aware of the top concerns and barriers of Vietnam's legal environment in terms of regulatory compliance. In other words, the Japanese FDI firms in Vietnam highly focus on Vietnam's legal norms and standards of the local Government and professional organizations as their compliance ideologies at home.

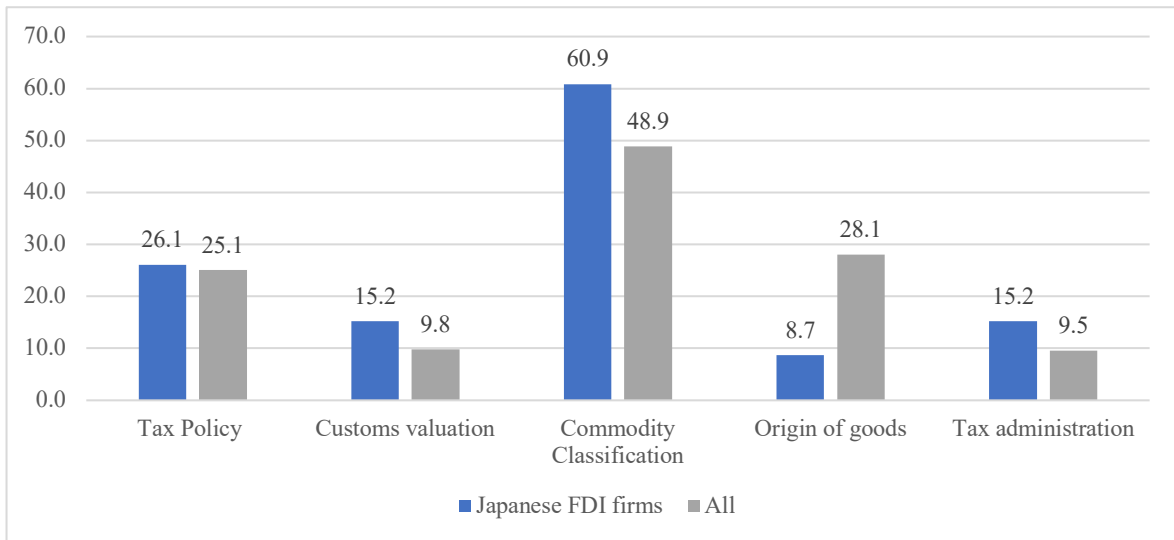
As shown in Figure 10, the highest percentages of Japanese FDI firms (58.7%) and Vietnamese business (48.9%) agreed that other government agencies (excluded Customs offices) are the most problematic factor in trade compliance. Meanwhile, a smaller proportion of the Japanese FDI respondents (nearly 20%) and Vietnamese business respondents (nearly 10%) believed that difficulties come from customs agencies in cross-border clearance. These figures reflect an improvement in procedural customs facilitation from the perspective of

¹¹ In this study, legal capacity of the Vietnamese enterprises means their abilities to comply with regulatory requirements and legal formalities in import and export operations.

Vietnamese businesses. Meanwhile, a remarkable proportion of the Japanese FDI respondents agreed to get stuck in implementing trade policies and tax administration as shown in Figure 11.

Figure 11: Regulatory practices for exports and imports in Vietnam

Unit: %

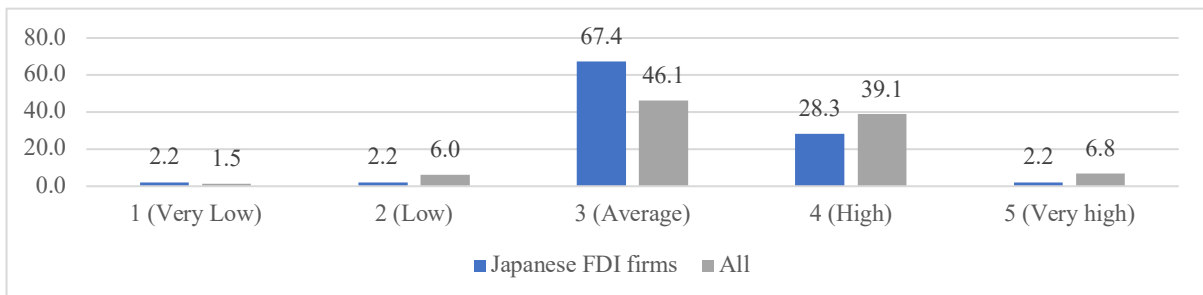


Source: Survey's results.

The figure 11 shows that the largest share of Japanese FDI respondents (60.9%) claimed that there are incumbent regulations on specialized management including various lists of goods and HS codes that are controlled by other governmental agencies (OGAs) but inspected by customs agencies in Vietnam. Similarly, the Japanese FDI respondent expressed their concerns about tax policy and administration that are considerably burdensome their trade compliance (those with 21.1% and 15.2 % respectively) and higher than the Vietnamese businesses in general.

Furthermore, it is more burdening for the Japanese FDI firms and Vietnamese businesses due to the weak links between private and public sector in terms of regulatory implementation and trade compliance as shown in Figure 12.

Figure 12: Legal guidance and supports from the Vietnamese competent authorities



Source: Survey's results.

The figure 12 reveals that there is a similarity between the Japanese FDI and Vietnamese businesses respondents about the support from the Vietnam's governmental and customs agencies to the private sectors in terms of regulatory implementation and enforcement. A very small proportion of the respondents agreed that they received high and very high attention from the Vietnamese competent authorities in terms of trade compliance (those with 28.3% and 39.1 % thought high and 2.2 % and 6.8% thought very high of Japanese FDI and Vietnamese businesses respectively).

In the future, it is estimated that the Vietnamese enterprises will face more challenges when the trade blocks, export controls and protectionism are strongly coming back to the global trade system.

4. Conclusion and policy implications

This study delivers empirical evidence that Vietnam's Japanese FDI firms are doing better than the Vietnamese businesses in terms of trade compliance and regulation. It shows that a large proportion of the Japanese FDI respondents were recognized as the Vietnamese AEOs and the highest status of trade compliance, while none have been categorized in tax debt and non-compliance. Notably, while facing the same challenges and difficulties such as cumbersome inspections and internal controls of many governmental agencies, poor quality of IT infrastructure or workforce, the Japanese FDI firms and Vietnamese enterprises behave differently in trade compliance as they perceive differently about the importance of workforce quality and leadership as well-known Japanese business culture. However, the study indicates that Japanese FDI firms would apply more good practices in trade compliance such as legal consultancy and collaboration with the competent authorities.

This research also reveals the most concerns and challenges of the Japanese FDI firms in terms of trade compliance, that is foreign trade-related laws and regulations, especially the specialized management and tax administration. The Japanese FDI firms looked forward to receiving more support and guidance from the Vietnamese competent authorities for better trade compliance. In order to satisfy the need and desire of the Vietnamese businesses and Japanese FDI firms, some policy measures should be taken. Firstly, it is necessary to improve Vietnam's trade information portals and frequently update the new legislations and changes in the regulatory system that should be operating 24/7 seamlessly and smoothly for all economic operators, importers and exporters. Secondly, Vietnam's trade and tax policy should be predictable, transparent and measurable and totally not distinguish 100% domestic enterprises with the FDI firms. Thirdly, government agencies should reduce burdens of specialized inspections and internal controls for imports and exports as well as effectively improve public – private partnerships in the future.

This research would be more meaningful and comprehensive if it could have further conducted direct surveys and interviews with the Vietnam's Customs officers as well as other

government agencies whose expertise, professional operations and recommendations on trade compliance and facilitation for Vietnamese enterprises are highly needed.

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AN APPLICATION OF THE SMART MODEL TO ASSESS IMPACTS OF THE EVFTA ON VIETNAM'S EXPORT OF CATFISH TO CHINA

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Abstract

The study examines the effects of tariff reduction and removal under the RCEP on China's imports of catfish from Vietnam and makes recommendations for Vietnamese enterprises to fully exploit the RCEP. As the existing literature on the application of the RCEP in Vietnam is limited in terms of number and sectors and has produced mixed results, the study uses the Software for Market Analysis and Restrictions on Trade (SMART) model and the Revealed comparative advantage (RCA) index to provide a quantitative perspective on the impacts of the RCEP on Vietnam's catfish exports. While the SMART model predicts which product categories would profit the most from trade liberalization, the RCA assesses Vietnam's comparative advantages in exporting to determine if the product is ideal for exporting. The findings reveal that RCEP implementation would have a positive trade effect across all product lines evaluated, with HS 030324 (Frozen catfish) having the highest export potential into China. Furthermore, all five ASEAN member countries enjoy comparative advantages in catfish exports, with Vietnam having a greater comparative advantage over Thailand and Malaysia but a considerably lesser comparative advantage over Indonesia and Myanmar. As a result, Vietnam must capitalize on its natural capabilities and seize the opportunities, possibly via RCEP or during the Trade War.

Keywords: *RCEP, Catfish, Vietnam, China, SMART simulation, RCA*

1. Introduction

Fisheries have always been crucial for the residents of Southeast Asia, playing a key role in ensuring food security, promoting the economy and contributing to social development. Thanks to abundant resources, a good climate and favorable terrain, Vietnam has advantages in the fishing industry and has risen to become one of the leading countries in exporting seafood in the region and around the world. In every fishery category, the catfish sector is one of the most potential and brings outstanding contributions to Vietnamese economic growth, especially in terms of exporting units and revenue. According to the Vietnam Association of Seafood Exporters and Producers (VASEP), catfish has a high position in the structure of exported fishery products, accounting for 27% of the export value of the whole industry.

Vietnam currently ranks fifth among countries that export catfish worldwide, with over 839 tons exported in 2021 (ITC, 2022). In the first quarter of 2022, catfish exports were

estimated at 646 million USD, up 88% compared to the same period last year. The markets of the catfish importing countries have also recovered and grown well. The US is the largest catfish export market of Vietnam with the export value in the first 2 months of 2022 reaching 94.6 million USD, up 120% compared to the same period last year; China - Hong Kong reached 85.8 million USD, up 239.6%; CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership) reached 52.5 million USD, up 51.4%; Europe (EU) reached nearly 28 million USD, up nearly 76%. In addition, the export value of catfish to other potential markets such as Brazil, Thailand, the United Arab Emirates - UAE, UK, etc. also grew well compared to the same period last year (thuyduong, 2022).

China is not only Vietnam's leading catfish import market but also an important trading partner of the region, being the neighboring country. On the basis of strengthening and expanding economic, trade and investment cooperation, since May 9, 2013, ASEAN and 6 countries that have FTAs with ASEAN (China, Korea, Japan, India, Australia and New Zealand) have begun negotiating the Regional Comprehensive Economic Partnership (RCEP). On November 15, 2020, 15 RCEP member countries (except India) signed RCEP, and on January 1, 2022, the RCEP Agreement took effect with 6 ASEAN countries (Brunei, Cambodia, Laos, Thailand, Vietnam, and Singapore) and 4 partner countries - China, Japan, Australia, and New Zealand. Under the terms of RCEP, the participant countries commit to actively reducing or eliminating tariffs on goods trade. Accordingly, China's tariffs on Vietnam's fish products in general and catfish in particular are being reduced and committed to being eliminated as late as 2043 (*TTWTO VCCI - (FTA) Văn kiện Hiệp định RCEP*).

On these grounds, by utilizing the SMART model, the paper aims at assessing the impacts of tariff reduction and elimination under the RCEP on China's import of catfish from Vietnam and providing recommendations for Vietnamese businesses to utilize the RCEP to the full extent.

2. Literature review and analytical framework

2.1 Literature review on the impacts of RCEP on Vietnam's economy and trade

Although the RCEP has taken effect since January 1st 2020, businesses still face difficulties and apprehension with RCEP and are prone to other FTAs (Fukunaga and Isono, 2013). A feasible and fundamental reason for such a case is the "Spaghetti bowl" effect, which refers to the complicated situation of RCEP intersecting with other FTAs that RCEP members are involved in (Li and Li, 2022; Fukunaga and Isono, 2013). Moreover, while the economic and trade impacts of Vietnam's earlier free trade agreements (such as TPP and EVFTA) are researched intensively, papers on the trade impacts of the RCEP remain relatively scant.

With regards to the existing literature on the application of the RCEP in Vietnam, some studies examined the overall effects of RCEP on participant countries, which show that the impacts on Vietnam are still debatable: The Peterson Institute for International Economics

(Petri and Plummer, 2020) through the CGE model, found that Vietnam will be the RCEP winner in terms of economic gains; meanwhile, Banga, Gallagher and Sharma, 2021 used the SMART model and suggested that Vietnam's trade balance would lose about 500,000 USD annually as the decrease exportation would outweigh the increase in importation. Other studies discussed the effect of RCEP on specific segments; for example, Xiong (2017) researched Vietnam's tea exports by comparing the TPP with the RCEP using an economic simulation model, whereas Tu, Ngoc and Huong (2017) investigated the automobile industry using the SMART model.

However, many other segments received little attention from researchers, especially the fishing industry - an important segment in the RCEP. In “Cross-Country Potential and Advantages in Trade in Fish and Seafood Products in the RCEP Member States”, Erokhin, Tianming and Ivolga (2021) emphasized the importance of RCEP countries in global fisheries production and exports. The authors, by using a five-stage approach (indicative trade potential ITP, revealed comparative advantage RCA, relative trade advantage RTA, Lafay index LI, and trade potential scale) found that fresh, chilled, and frozen fish of Vietnam can increase exports and further gain from Intra-RCEP trade, especially in trade with China market. Although the results are significant, the paper has its limitations as it only applied indicators, which can not provide meaningful implications at a disaggregated level (‘FTA_Impact_Assessment.pdf’, no date).

In summary, a review of the past literature reveals some important gaps. Firstly, the trade impacts of the RCEP on Vietnam are currently open for discussion. Secondly, no quantitative study has been conducted on the impacts of the RCEP on Vietnam's export of catfish using the SMART model. This paper, therefore, contributes to the past literature by using the SMART model to assess the potential impacts of RCEP on Vietnam's export of catfish to China.

2.2 Overview of Vietnam's catfish export to China

The data for frozen catfish (HS 030324) collected by ITC are used to provide a general understanding of Vietnam's position as an exporter to China. During the 10 years from 2012 to 2021, the position of Vietnam as the main source of catfish imports to China remains unchallenged and with increasing importance, from 77.98% in 2012 to 99.97% in 2021 (Fig. 1) Following Vietnam on the list of catfish exporters to China is Taipei (China), with the value imported to China in 2021 being only 23,000 USD (ITC 2022) – around 0.03% of the value exported from Vietnam.

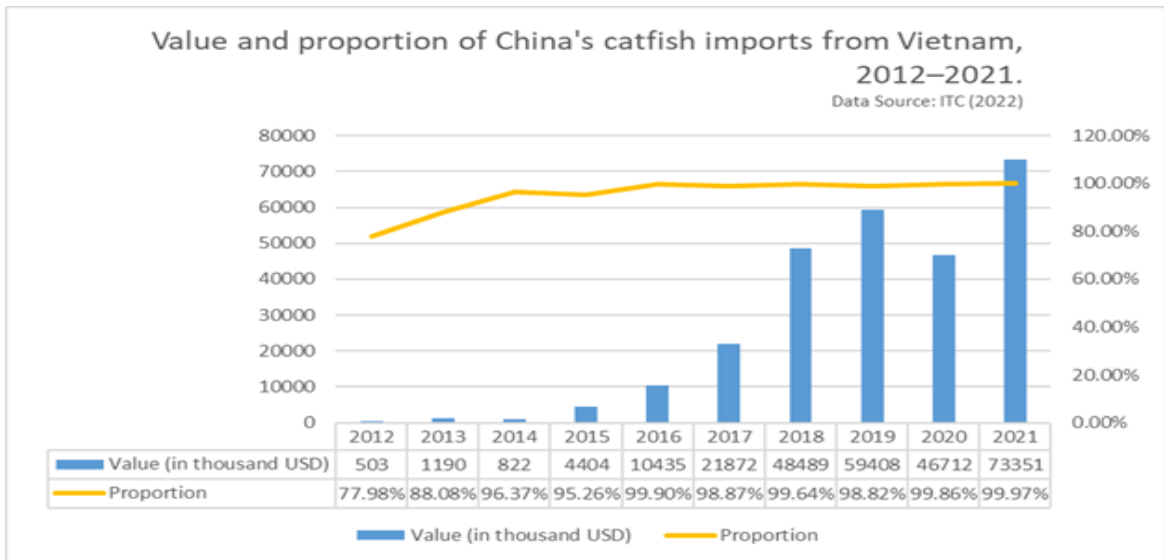


Fig. 1 Value and proportion of China's catfish imports from Vietnam in 2012–2021

Source: ITC Trademap (2022)

Catfish imports from Vietnam to China experienced impressive growth from 2012 to 2021. Despite a decrease in 2020 which is possibly due to a disruption in the logistics chain during Covid-19, the value of China’s catfish imports from Vietnam reached a new height of 73,551,000 USD, increasing by almost 150 times from USD 503,000 in 2001 (Fig. 1). Such a remarkable expansion can be partly attributed to the advancement in the sustainability of Vietnam’s catfish farming (TRAN *et al.*, 2021; *B4-01 Case study: Catfish farming in Viet Nam – the challenges of change | Climate Smart Agriculture Sourcebook | Food and Agriculture Organization of the United Nations*, no date), and the improved trade relationships between Vietnam and China, notably the signing of the RCEP signed in 2020.

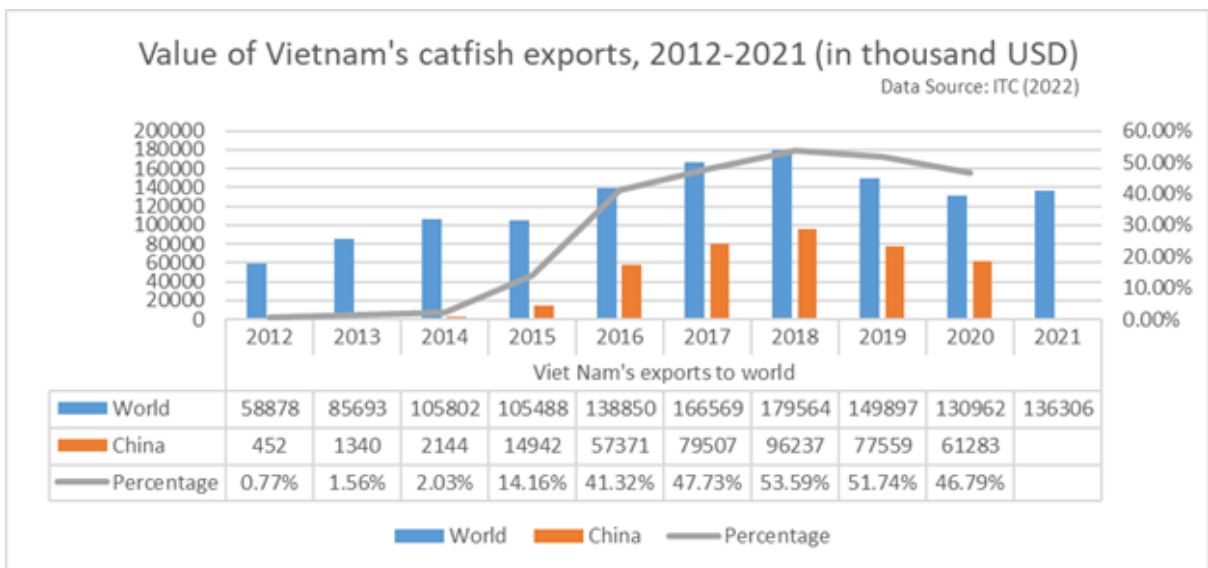


Fig. 2 Value of Vietnam's catfish exports during the period of 2021 - 2022

Source: ITC (2022)

Since 2016, China has become a critically important importer of Vietnam’s catfish as they become the market for more than 40% of Vietnam’s total catfish exports. In 2021, China’s share of Vietnam’s catfish is estimated to be 53.8% (ITC 2022). Besides China, other big partners to which Vietnam has exported catfish include Colombia, the Russian Federation, the United States of America, and Saudi Arabia with respective proportions of around 17.7%, 4.7%, 3.8%, and 2.1% (ITC 2022).

From 2018 to 2020, both the value of Vietnam’s catfish exports to China and the world declined; nevertheless, there was a recovery in 2021 regarding exports to the world.

2.3 *Tariff reduction commitment and reduction under RCEP*

From 2013 to 2020, the number of tariff lines at 0% remained unchanged, constituting only 4.4% of the total. However, the average tariff rate of all the five groups still moderately decreased to the rate of 7.09% (Table 1). In other words, China imposed a consistently low tariff on Vietnam’s fish export.

Among the five groups, China has set the highest tariff on HS 0305, at about 13.8% in 2013 and 7.92% in 2020, whereas the tariff rate on HS 0301 is constantly the lowest during the period. The three remaining groups, namely HS 0302, HS 0303 and HS 0304, are imposed a tariff of 7.38, 7.43% and 7.00% respectively in 2020.

Table 1. China’s tariffs for fishery imported from Vietnam

HS	Tariff lines (number)	Base year 2013		2020		Simple average tariff rate (%)	Tariff reduction schedule under the RECP				
		Tariff lines at 0% (number)	Tariff at 0% (%)	Tariff lines at 0% (number)	Tariff at 0% (%)		Tariff lines in Schedule A (%)	Tariff lines in Schedule B (%)	Tariff lines in Schedule C (%)	Tariff lines in Schedule D (%)	
0301	20	8	4.40	6.98	8	4.40	4.80	9.89	1.10	0.00	0.55
0302	48	0	0.00	11.88	0	0.00	7.38	25.82	0.00	0.55	0.00
0303	46	0	0.00	10.78	0	0.00	7.43	22.53	1.65	0.55	0.55
0304	43	0	0.00	10.79	0	0.00	7.00	23.63	0.55	0.00	0.00
0305	25	0	0.00	13.80	0	0.00	7.92	6.04	8.24	0.00	0.55
Total	182	8	4.40	11.07	8	4.40	7.09	87.91	11.54	1.10	1.65

Source: Author’s calculations from China’s tariff schedule in the RCEP and ITC Trademap (2020)

On 18 November 2020, RCEP was made public for information purposes. The fish tariff reductions are divided into four groups A, B, C and D based on China’s tariff schedule on

ASEAN countries published with the base year of 2013. Specifically, 87.91% of tariff lines are classified into Schedule A, which mandates that tariff rates be abolished one year after the day the RCEP comes into force. 11.54% of all tariff lines are under Schedule B. This type states that starting on the day the RCEP takes effect, tariff rates will be eliminated in 10 equal annual phases. Between the two last schedules, Schedule D covers slightly more tariff lines than Schedule C at 1.65% and 1.10% namely. The former is to remove tariffs after the next 15 years and the latter will be considered tariff-free in the 20 years' time beginning on the date the RCEP enters into force.

Regarding catfish tariff reduction, China's tariff on catfish imported from Vietnam shall be removed immediately one year after the date the RCEP comes into force. Specifically, in the base year of 2013, all catfish groups including HS 030324, HS 030389, HS 030487, HS 030489, and HS 030499, were imposed a 10% tariff. However, most of the catfish groups will be cut down to 0% with one equal annual stage of tariff removal and the tariffs of the remaining groups will be eliminated from 2031 to 2036.

Table 2. Schedule of tariff reduction commitments of China for ASEAN member under RCEP at 6-digit HS (%)

HS Code	Base Rate	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
030324	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030389											
03038910	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
03038920	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
03038930	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
03038990	10.0%	9.3%	8.7%	8.0%	7.3%	6.7%	6.0%	5.3%	4.7%	4.0%	3.3%
030487	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030489	10.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030499	10.0%	9.0%	8.0%	7.0%	6.0%	5.0%	4.0%	3.0%	2.0%	1.0%	0.0%
HS Code	Y11	Y12	Y13	Y14	Y15	Y16	Y17	Y18	Y19	Y20	Y21
030324	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030389											
03038910	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
03038920	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
03038930	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
03038990	2.7%	2.0%	1.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030487	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030489	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
030499	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Source: The author's compilation from RCEP text (*TTWTO VCCI - RCEP*, 2020)

3. Research methodology

3.1 Selecting Research Model

Various techniques can be used to measure an FTA's impact (Karingi *et al.*, 2005; Kehoe and Kehoe, 1994; Philip *et al.*, 2011), nevertheless, the most popular ones include (1) trade indicators; (2) the partial equilibrium through the adoption of the SMART; (3) the computable general equilibrium (CGE) through GTAP model (Global Trade Analysis Project). To assess the impacts of an FTA from different aspects, each of the three methods can be used with its own pros and cons. When describing, evaluating and comparing a country's trade flow and patterns over time or across different nations (Mikic, 2005; Petri and Plummer, 2020) argued that trade indicators do not just simply provide the current status of trade information, but are useful in identifying potential impacts of an FTA. Nevertheless, the method is only considered the first step in assessing the future impacts of an FTA due to its inability to provide the precise impacts of FTA on welfare and trade.

Kehoe and Kehoe (1994) indicated that GTAP is the most thorough tool for evaluating the effects of FTA on several aspects of an economy, including GDP, employment, investment, trade, pricing, savings, and the environment. However, as GTAP requires data from all involved countries at both macroeconomic and industry levels, the model is fairly complicated. Another limitation of GTAP is in the CGE analysis, as GTAP is based on equilibrium conditions and complicated constraints (Andreosso-O'Callaghan, 2009; Cassing *et al.*, 2010). Moreover, CGE cannot deal with disaggregated data (Ahmed, 2010).

On the other hand, the SMART model can compensate for other models' shortcomings. Firstly, SMART can be computed using disaggregated product levels which is crucial in evaluating the impacts of an FTA. Secondly, SMART allows quantification of the impacts of tariff policy changes in a single market on trade flows, tariff revenue, trade creation effect, trade diversion effect, and social welfare of a nation detailed at HS 6-digit products (Ahmed, 2010; Cheong, 2010). Thirdly, SMART simulation can offer good implications for both governments and enterprises in a given specific segment. However, SMART also has its limitations, such as ignoring the economic interactions between various sectors of an economy; disregarding restrictions on resources like labor, land, and money, as well as the flow of resources between different economic sectors (Karingi *et al.*, 2005). Finally, the model does not provide results about the impacts on domestic output, which may be of interest to policymakers (Petri and Plummer, 2020).

Nevertheless, due to the utility of assessing trade consequences at a disaggregated level to provide better implications for governments and businesses, the SMART model is becoming more popular in analyzing the future impact of an FTA. For example, Kumar and Ahmed (2014) analyze how the South Asia Free Trade Agreement (SAFTA) would affect some sensitive product lines; Llano *et al.*, (2019) applied SMART to assess the impact of the US tariff on the

steel industry for different economic industries; Karingi *et al.* (2005) evaluated the economic and welfare impacts of the EU Partnership Agreement with the African countries at the product level. In Vietnam, more and more papers on evaluating an FTA's potential future effects also use the SMART model. To illustrate, Vu (2016) used SMART to measure the possible effect of EVFTA on importing drugs to Vietnam from the EU; (Tu, Ngoc and Huong (2017) used SMART to assess the potential impact of the RCEP on automobile import in Vietnam; and TRAN *et al.* (2021) evaluated the impact of EVFTA on trade flows of fruits between Vietnam and EU.

This paper aims to evaluate the impacts of RCEP on Vietnam's export of frozen catfish to the China market. The SMART model is chosen as the analytical model for the paper since it emerges as the most pertinent among other tools used in prior literature.

3.2 Data

Quantitative research approach was adopted for this study; therefore, SMART is used as it is a strong model to yield important quantitative results. The SMART is known as a partial equilibrium model that is easily implemented together with the trade database from the World Integrated Trade Solution (WITS) and software developed by the World Bank (WB) and the United Nations Conference on Trade and Development (UNCTAD).

In the SMART model, import demand and export supply are the two important economic theories to develop the model with three key assumptions: (1) the Armington assumption of the import demand side, (2) the two-stage optimization process, and (3) the assumption of infinite export supply elasticity.

The Armington assumption of import demand implies that there is a difference in commodities due to their import sources, which means a commodity imported from one country cannot be a perfect substitute for one from another country. As a result, import demand does not shift completely to the partner under the preferential trade liberalization of FTA (Armington, 1969). Regarding the second assumption, the SMART model views it as the two-stage optimization process that helps maximize consumer's welfare - first, the sum for purchasing imported goods will be determined based on the elasticity of import demand; afterwards, the relative prices will be calculated, and expenditure will be allocated among such commodities of different origins. The third assumption relates to the export supply curve. As there is always competition between nations to export their goods to a particular import market, the export supply curve, which is based on the assumption of infinite export supply elasticity, will be flat and an export country can export as many as it can at a given world price. By default, an export supply elasticity in the SMART model is usually 99 for all products and partners in order to estimate the quantity effect of a tariff reduction, while the price effect is always equal to zero. Since this paper is dealing with a single-country simulation tool, one country is too small compared to the rest of the world in order to have an impact on the price level (Amjadi *et*

al., 2011; Veeramani and Saini, 2010).

To run the model, three parameters are inputs for the SMART model, namely (1) the import demand elasticity, (2) the import substitution elasticity, and (3) the export supply elasticity. In this research, the Trade Map database is used to retrieve information on the value of China’s imports from Vietnam and the rest of the world. The tariff rates levied by China on foreign exporters are extracted from UNCTAD’s TRAINS, WTO’s IDB (Integrated Database) and ITC’s MacMap. In conducting the research, the default number of the import demand elasticity in the SMART model is applied. As Vietnam cannot unilaterally impact the price levels of catfish exported to China, the infinite export supply elasticity is set at 99. The import substitution elasticity is the shift in how imported sources allocate spending in response to changes in relative prices, and it is set to be 1.5 as suggested by Amjadi *et al.* (2011).

In terms of HS classification, there are five following groups of fish used to assess the impacts of RCEP on Vietnam’s export of catfish: HS 0301 - Live fish, HS 0302 - Fish, fresh or chilled (excluding fish filets and other fish meat of heading 0304), HS 0303 - Frozen fish (excluding fish fillets and other fish meat of heading 0304), HS 0304 - Fish fillets and other fish meat, whether or not minced, fresh, chilled or frozen, HS 0305 - Fish, fit for human consumption, dried, salted or in brine; smoked fish, fit for human consumption, whether or not cooked before or during the smoking process; flours, meals and pellets of fish, fit for human consumption. These five groups cover all kinds of fish which are exported from Vietnam to other markets.

3.3 Sensitive Analysis and Robustness test

When evaluating the influence of FTAs on trade under the SMART model, sensitivity analysis and certainty qualification need to be conducted to assure that the simulation results are reliable and useful in providing implications for the policy-making process.

To perform sensitivity analysis, as per the previous research by Ratisai (2014) and Zgovu and Kweka (2008), the simulation is conducted under several scenarios by applying different substitution elasticities.

Table 3. Elasticities used in sensitivity analysis

Elasticity	Lower bound	Base case	Upper bound	Worst case
Substitution elasticity	0.5	1.5	2	6
Export supply elasticity	99	99	99	99

Source: The authors’ compilation

3.4 Revealed Comparative Advantage (RCA)

While the SMART model is used to estimate the changes in which product categories will benefit most from trade liberalization, the research also adopts RCA to examine Vietnam's

comparative advantages in exporting such product categories to other nations in order to determine whether or not it is a feasible export item.

The Revealed Comparative Advantage (RCA) measure was originally proposed by Balassa (1965), who stated that the export performance of a specific product or industry from a country, as measured by RCA index, is the relative share of that country's product exports in the world exports of the same product, divided by the country's overall share of world exports. The reported comparative advantage index (RCA_{ji}) of product j exported from nation i can be stated more precisely as follows:

$$RCA_{ji} = (X_{ji}/X_i) / (X_{wj}/X_w)$$

where

X_{ji} = exports of product j from country i

X_{jw} = world exports of the product j

X_i = exports of country i

X_w = world exports

The country is considered to have a revealed comparative advantage if the index value is greater than 1. The nation displays a revealed comparative disadvantage if it is less than 1. In other words, the higher the RCA index is, the more efficient the country is in producing the commodity. More details about the effective comparative level are specified in Table 4.

Table 4. RCA index range of value

RCA Index	Range
> 2.5	Very high
1.25 - 2.5	High
0.8 - 1.25	Medium to unstable
< 0.8	Low

Source: World Bank

4. Results

4.1 Simulation results

4.1.1 Trade creation and trade diversion

It can be seen from the WITS-SMART model that the catfish export market from Vietnam to China has a noticeable increase, contributing to the increase in Vietnam's export revenue. Table 5, by computing from the base year 2021 to free-tax year (2037), provides information to assess an overview of Vietnam catfish export to China as soon as RCEP comes

into effect from 01/01/2022.

Table 5. Change in Vietnam's catfish export to China

Indicators	Effects (US\$ Thousand)
Initial export value (2021)	142155.8
Export value after (2037)	151665.126
Total export change	9509.326
Increase in export (%)	6.69
Trade creation	7036.078
Trade diversion	4189.345
Trade total effect	11225.423
Trade creation/Total export change (%)	62.68

Source: Authors' calculation based on the SMART simulation results

As referred to above, the volume of Vietnam catfish export takes up 16.51% in China's domestic market (ITC). The simulations indicate that Vietnam's catfish export will increase by 9.509 million USD until 2037, accounting for 6.7% of the export value from the base year of 2021, while trade total effect is recorded at 11.247 million USD. This substantial increase results from two main reasons: trade effect accounting for 62.68% (7.036 million USD) and trade diversion accounting for 37.32% (4.189 million USD). An explanation for the simulation outcome is that after a long time of lockdown due to Covid and other occurring political events, frozen catfish supply is disrupted while demand for these products keeps raising, so China has a tendency to guarantee the stable imported catfish supply, creating more room for Vietnam to boost trade values during the upcoming years. Another reason is that Vietnam's catfish export industry will be offered a fully tariff elimination policy in 2037.

Table 6. Trade creation and trade diversion effects of Vietnam's catfish exports in RCEP at level of 6-digit (US\$ Thousand)

HS code	Export before	Export after	Trade creation	Trade diversion	Total effect	trade % change
030324	73350.9	77020.168	3667.545	1723	5390.545	7.00
030389	3207.6	3630.116	160.384	262.052	422.436	11.64
030487	949.02	1241.831	208.957	83.854	292.811	23.58
030489	346.99	465.263	76.401	41.872	118.273	25.42
030499	64301.29	69307.748	2922.791	2078.567	5001.358	7.22
Total	142155.8	151665.126	7036.078	4189.345	11225.423	7.40

Source: Authors' calculation based on the SMART simulation results

After the implementation of the RCEP, it is visible from Table 6 that catfish (HS 030324) and frozen fish meat excluding fillets (HS 030499) accounts for 51.5% and 45.2% of total catfish export from Vietnam in the same order. These two segments are contributing the most trade creation for export value, 3.667 million USD for and 2.922 million USD respectively. The reason the two export codes increase the most is they make use of a tariff rate of 0% as soon as 2037. Although other catfish products all have a large increase in trade effect value, in China market, the value they contributed to total trade value remains low.

The simulation also points out that Vietnam catfish export possesses 4 HS code (HS 030324, 030487, 030489, and 030499) with positive trade creation against trade diversion, which means those 4 HS codes would gain sustainable competitive advantage without being considerably substituted by other related same-kind products, especially with the case of HS 030324 at 3.667 million USD trade creation value against only 1.723 million USD of trade diversion. One reason for that can be Vietnam's policies in promoting and developing quality standards to boost these products to higher rank in quality and value.

Table 7. Change in export value of specified trading partners

Country	Initial export value (US\$ Thousand)	Export increased (US\$ Thousand)	Export increased (%)
Vietnam	142155.8	9509.326	6.69
Thailand	39590.89	5005.771	12.64
Indonesia	181076.82	22649.326	12.51
Myanmar	25982.32	3409.079	13.12
Malaysia	59390.33	7126.595	12.00

Source: Authors' calculation based on the SMART simulation results

According to the calculations in table 7, Vietnam is the second highest catfish export to China in ASEAN countries (only after Indonesia) at the figure of 6.69% during the period 2022-2032. Other competitors in ASEAN group also experienced a large increase in export value proportion with Thailand, Myanmar, and Malaysia at 12.64%, 13.12% and 12% respectively. An explanation for the figures is that China also offers a tariff elimination proposal for other ASEAN groups under RCEP, making room for more catfish import from countries in South-East Asia area, which means Vietnam should take into consideration the future competition in catfish export to devise the appropriate strategy to stay dominant in China market.

4.1.2. Sensitivity Analysis and Robustness Test

At the base value of 1.5, the substitution elasticity value at 0.5 (the lower bound) shows no change in trade creation effect. Also, the elasticity at 2 (upper bound) and 6 (worst case) indicates no changes in trade creation, as well. The simulation also points out the value of total export after RCEP vary from 150.035 million USD to 155.581 million USD

Table 8. Sensitive Analysis and Robustness Test using different elasticities

	Lower bound	Base case	Upper bound	Worst case
Trade creation	7036.078	7036.078	7036.078	7036.078
Export value after	150035.332	151665.126	152485.632	158414.839

Applying the results from the Table 7, the percentage change of these scenarios are evaluated as follows:

$$\% \text{ change} = \frac{\text{Base case} - \text{Scenarios value}}{\text{Base case}} \times 100\%$$

Table 9. Percentage change of scenario simulations from the base case

	Lower bound	Upper case	Worst case
Trade creation	0	0	0
Export value after	1.07	0.54	4.45

As can be seen from the table, on the lower bound and upper bound, the variation in trade creation falls less than 5% level of significance, even at the figure of the worst case, which means that the results at the base case are reliable and can be applied to interpret the implications.

4.2. Implication behind RCA

In Section 4.1, simulation results show that Product line HS 030324 exhibits the highest export potential into China. The increase in this product line accounts for over 50% of the total export value of the FTA. In this section, the authors examine the revealed comparative advantage index of ASEAN countries to have a deeper view of the exporting level of Vietnam compared to the remaining countries in the group.

Table 10. Revealed Comparative advantage (RCA) Index of Vietnam and its rivals in ASEAN on catfish export

Country	RCA in 2021
Vietnam	3.26
Thailand	2.27
Indonesia	7.17
Myanmar	12.2
Malaysia	2.69

Source: The author's calculation based on Smart Simulation results and ITC Trademap data

It can be seen that the RCA index for catfish was consistently high with an average above 2.5, indicating a strong comparative advantage of almost ASEAN countries' catfish in China (Table 10). In addition, Vietnam already had a high comparative advantage over its two rivals Thailand and Malaysia but a remarkably smaller comparative advantage in comparison with Indonesia and Myanmar in the catfish market. This can be attributed to the enormous catfish export values of Myanmar, accounting for nearly 59% of the total commodity export value of this country to China, while the export values of Vietnam to China made up for only 1/9 of the total export value from Vietnam to the world. Overall, although the five nations in ASEAN all have their comparative advantages, Vietnam can still be regarded as a strong potential exporter in the long term as long as Vietnam can utilize its inherent strengths and seize the opportunities, possibly via RCEP or during the Trade War.

5. Conclusion

5.1 Recommendations

It can be contended that Vietnam is among the dominant catfish exporters to major economies in the world, including China. To fully assess the effect of tariff reduction and elimination on Vietnam's export catfish value to China under RCEP by 2037, this research makes use of the partial equilibrium model SMART, a simulation tool under WITS. The findings indicate that Vietnam would export 6.69% more catfish value to China, reaching 151.665 million US dollars when all the tariff lines for this product are eliminated in 2037 for ASEAN countries. The adoption of RCEP would also bring out a positive trade effect among all product lines examined. The two product lines with over 20% change in export value, whose HS codes are HS 030487 and HS 030487 respectively, could be the mainstay products in the future albeit the less export value in comparison with the other three lines. In spite of the large value exported to the destination country, the increased percentage is rather small as the preferential tariffs are applied to all ASEAN countries. However, trade creation making up 62.68% of the total export change implies that Vietnam has effectively allocated resources to gain the market share compared to non-ASEAN countries during the non-tariff context. Nevertheless, Vietnam still has room for improvement regarding the competition with other ASEAN countries which also have a significantly high competitive advantage in catfish export.

With the aim of better developing Vietnam's catfish exports, the authors suggest some proposals for both the Government and local enterprises to make the most of the advantages and overcome the disadvantages of the RCEP Agreement. From the authorities' perspective, firstly, Vietnam's Government should proceed with adjustments to the trade policies to match the current context and incentivize businesses to utilize this FTA. Additionally, the political leaders can systemize and publish the "RCEP handbook" as a guideline for ministries, industries and enterprises to apply the agreement as well as host webinars, seminars and talkshows to inform, discuss and raise questions on this topic in collaboration with the Vietnam Association

of Seafood Exporters and Producers (VASEP). In the context of RCEP, the VASEP needs to act as an intermediary between enterprises and the government to deliver detailed instructions and tackle difficulties, especially the rule of origin and other trade barriers. Secondly, authorities should provide initiatives, such as subsidies and resources and technology upgrades, to catfish firms to enhance their advantage in the current competitive market of all ASEAN countries benefiting from tariff elimination. The VASEP then can lend their support in advising the fish farmers and businesses on how to improve quality and quantity with the aforementioned incentives and up-to-date facilities. Regarding the industries, enterprises can overcome the obstacles together by proactively forming a strong network and creating synergy among the members. Besides, catfish firms must conform to the legal requirements and produce high-quality products with concern for the water environment and sustainable development, which can empower Vietnam's position in the international arena.

5.2 Limitations & Future research

Although the paper has contributed to the existing literature by analyzing the impacts of the RCEP on Vietnam's export of catfish to the China market using the SMART model, thus providing some recommendations for Vietnamese business, it still has some shortcomings that should be noted for improvement in later studies.

Firstly, the methodology of the research requires a partial equilibrium approach, which is inherently imperfect due to its static nature. Such an approach only allows for a comparative static comparison of pre- and post-policy changes when other variables are all held constant, ignoring the inter-industry effects and the feedback effects, therefore oversimplifying the real world. Moreover, the SMART model does not take into account the effects of FTAs on domestic production and the chance of new entry of foreign exports. The SMART model also has its default parameter value provided by the World Bank, which might be deemed unrealistic by Vietnam and other developing countries. Therefore, future research can substitute the current parameter value with more accurate or reasonable ones.

Secondly, the data used to run the SMART model in this research is taken from ITC Trademap, ITC Macmap, WITS, and WTO, which may be less timely and reliable in developing nations like Vietnam. Hence, subsequent research may find, replace or supplement the data using other diverse sources.

Thirdly, according to the provisions of RCEP, although the tariff rate for Vietnam's catfish has been reduced, catfish exported to China may still be subject to high tariffs due to violations of trade defense mechanisms. Future studies may make use of different models, such as GTAP, to examine such cases.

Finally, because RCEP is a trade agreement that was signed and came into force recently, the number of studies on the impact of RCEP on the trade activities of member countries is still limited. The following papers can explore the impact of RCEP on other import

and export markets in the region, creating a premise to promote stronger commercial trade among the RCEP's members.

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EMPIRICAL ANALYSIS OF IMPACTS OF TAX REFORM ON TAX REVENUE IN VIETNAM

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Abstract

As a part of the implementation of the economic reforms initiated in 1986, tax reforms in Vietnam have been adopted through four fundamental phases. After the four phases of tax reforms, the tax system of Vietnam improved remarkably. This paper aims to investigate how the law changes relevant to two main categories of taxes, which are corporate income tax and value-added tax (VAT), may affect tax revenue in Vietnam during the period 1997-2020 by applying the Ordinary Least Squares (OLS) regression analysis. The OLS regression results reveal that revenues from corporate income tax and value-added tax have a significantly positive correlation with tax revenue. Furthermore, dummy variables of recent changes in tax laws show negative effects on total tax revenue. This reflects the fact that reduction in tax rates for corporate income and the heavy burden of VAT may increase tax loss from domestic SMEs and FDI firms as well as reduce consumption, thereby hindering economic growth and budget revenue. Besides, control variables such as gross domestic saving and gross domestic investment are two factors contributing to tax collection in Vietnam.

Keyword: *tax reform in Vietnam, tax revenue, corporate income tax, value-added tax*

1. Introduction

Tax reform plays an important role in the process of economic development in a country. After the four phases of tax reform, tax revenue has improved significantly and supported Vietnamese governments to efficiently manage and increase their domestic revenue. In fact, the government revenue from tax has increased by more than 13 times from 79,497 billion VND in 2000 to 1,055,552 billion VND in 2020 (ABD, 2022). Moreover, revenue stemming from categories of taxes and fees maintained became one of the most important sources of domestic revenue. According to the General Department of Taxation, the government revenue from taxes and fees in 2021 was 881,004 billion VND, which accounted for more than 76% of domestic revenue in 2021.

However, due to the negative impacts of the Covid-19 pandemic, Vietnam's government collected tax revenue equivalent to 16% of GDP in 2021, which is less than Malaysia (18.3%), Singapore (18.5%), India (19.7%), Thailand (20.3%), and China (27%). This is also less than before the pandemic, reflecting numerous tax cuts made during periods of confinement.¹³

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¹³ <https://www.cepweb.org/tax-for-development-does-vietnam-need-tax-reform/>

Therefore, the IMF (2022) suggested that the authorities should design a tax reform strategy that would raise the revenue intake over the medium term. In the context of difficulties in reducing government recurrent expenditure at the stage of development in Vietnam, as well as the decline of government revenue after the pandemic, improving tax revenue should be taken into consideration to finance budget deficit as well as obtain sustainable economic growth in the long run.

This paper investigates how much the tax reform affect total tax revenue in Vietnam during the period 1997-2020, by applying multiple regression analysis. The basic hypothesis is that there is a positive relationship between tax reform and tax revenue. To confirm this hypothesis, this paper includes revenue from corporate income tax and value-added tax in the model. Furthermore, a set of control variables that may affect the tax revenue and tax reform nexus, such as domestic saving, domestic investment is included. This study differs from other research in several aspects. First, most earlier studies focused on the impact of tax revenue on economic growth (such as Romer, 1986; Lucas, 1988; Masood et al., 2010; Santiago et al., 2012), while this study emphasized on the relation between two main categories of tax reform and tax revenue with a specific country. Second, to the best of the author's knowledge, only a few and inconclusive empirical studies (such as Pham et al., 2011; Su et al., 2015) have been carried out to determine the link between tax revenue and economic growth in Vietnam. Hence, this is one of the first comprehensive studies classified into two categories, by using a different methodology with updated data, to provide empirical evidence on the relationship between tax revenue and tax reform in Vietnam.

The remainder of this paper is structured as follows: section 2 presents the past studies on tax reform. Section 3 gives an overview of tax system and the process of tax reform in Vietnam. The fourth section introduces model specifications and section 5 is the methodology where methods and techniques to test the hypothesis are discussed. Section 6 provides the econometric analysis and empirical results of the study, followed by concluding remarks.

2. Literature review

In most countries, tax reform is defined as a tool for increasing government revenue. Moreover, a small number of major taxes account for most of the revenue: personal income tax, corporate income tax, consumption taxes, trade taxes, excise taxes, and social insurance taxes (Jason Lakin, 2020). Tax reform requires changing in both tax policy and tax policy implementation. However, the data and information regarding this topic has been limited. In fact, most of previous studies focused on the relationship between tax revenue and economic growth in developed countries while the studies on tax reform in developing countries are still scarce. In addition, there is more literature related to Latin America and Africa than Asia countries. These studies have neglected the changes of the tax rates and categories in each country, and that in the process of development, tax revenue structure should be changed, so

that the effects of tax on GDP growth would be varied, especially in developing and emerging countries.

Several studies focused on the determinants of taxes to estimate tax effort and tax potential via economic growth and other macroeconomic performances. For example, Tanzi (1992) argued that optimal tax theory inappropriately neglects the informational, administrative, and political requirements. The author pointed out that half of the variation in the tax ratio is explained by per capita income, import share, agriculture share, and foreign debt share for 88 developing countries during the period 1978-1988. Bird et al. (2004) used the panel of 110 developing and transitional countries over the period 1990-1999 to investigate the factors in determining revenue performance. The authors found several key factors such as corruption, rule of law, and entry regulations. Similarly, Gupta (2007) conducted a study using data from 105 developing countries during the period 1980-2004. The results showed that several structural factors like per capita GDP, the share of agriculture in GDP and trade openness were statistically significant and strong determinants of revenue performance.

For the case of Vietnam, until now, there are a few studies on the impacts of tax revenue on economic growth. Some of them focused on the change in tax policy reform by using qualitative methods while others applied quantitative analysis, but were out of date, which may not be applicable for the current tax system in Vietnam. For example, Pham et al. (2011) emphasized the issues that Vietnam will be facing in the process of reforming its tax policy and administration and provided some policy recommendations contributing to the preparation of key policies and legislative documents to ensure the achievement of the state budget revenue target and other tax administration reform targets in the Socioeconomic Development Plan of 2011–2015. Su et al. (2015) investigated the response of economic growth when the tax system changed in Vietnam during the period of 1988 to 2013. An empirical result showed that raising tax revenue size is of no benefit to economic growth. Hence, this is practically the only study based on the latest data with varied tax categories, which illustrates a need for this study.

3. Tax reform in Vietnam

As a part of the implementation of the economic reforms initiated in 1986, tax reforms in Vietnam have been adopted through four fundamental phases as presented below.

(i) Phase 1 (1990-1995)

The first phase of tax reforms was initiated in the early 1990s with the enactment of a single tax system applied uniformly across different economic sectors. Specifically, Vietnam transformed itself into a socialist-oriented market economy and revised the law on foreign investment in 1990 and 1992 to create a favorable condition for doing business. Accordingly, a key objective of tax reforms during this phase was to reduce discrimination between foreign

and domestic investors in Vietnam through the enactment of nine important taxation laws.¹⁴ Among these laws, the turnover tax, profit tax, and import-export tax laws played critical roles in driving high rates of economic growth at early stages of economic development. The Profit Tax Law came into effect in 1993, comprising three tax rates: 25% for industrial materials, 35% for consumption products and processed industries, and 45% for trade services.

Meanwhile, the Turnover Tax Law was adopted in October 1990, including 11 tax rates ranging from 0.5% to 40%. The precursor of the Personal Income Tax was the 1994 Ordinance on Income Tax for High Income Earners, which applied to earners with a tax rate ranging from 0% to 60% depending on personal monthly incomes. Originally, the tax system was progressive, but it has become more flat tax later, which shows the trend of regressive nature. Apart from the implementation of tax reforms, the General Department of Taxation was established on August 7, 1990. The aim of this department was to advise and assist the Minister of Finance in managing domestic revenue, including but not limited to taxes, charges, and fees. Another objective of the department was to implement tax policies in accordance with existing taxation laws.

(ii) Phase 2 (1997-2005)

The second phase of the tax reforms focused on removing the discriminatory nature of the tax system between different economic sectors (World Bank, 2011). In this reform stage, corporate income and value-added taxes were launched in line with a structural shift toward a market-oriented economy. Indeed, the aim of issuing a corporate income tax was to create an equal business environment for all types of enterprises across various economic sectors. The Corporate Income Tax (CIT) was initially introduced in 1997 to replace the Profit Tax, taking effect in 1999 with tax rates ranging from 32% to 50%. The CIT law was amended to reduce the overall rate in 2003 and it came into effect in 2004 with the standard tax rate at 28%. Meanwhile, the Ordinance on Income Tax on High Income Earners was changed to reduce the burden of the wealthy people in 2001 and 2004 with tax rates ranging from 0% to 50% and 0% to 40%, respectively.

The Value-Added Tax (VAT) was first issued in 1997 to replace the Turnover Tax, which is doubly taxed, with a wide range of tax rate (0.5%-40%) that differed from product to product. The VAT was levied to goods and services used for production, trade and consumption. Initially, the VAT had four separate tax rates at 0%, 5%, 10%, and 20%, but was revised in 2003 to have three rates at 0%, 5%, and 10%. In addition, the Law on Import-Export Duties was introduced in 1998 and came into effect in 1999. The specific tax rates depend on the country of origin. Goods from countries in the most favored nation (MFN) category and

¹⁴ They include import-export duty law; turnover tax law; special consumption tax law; profit tax law; agricultural land use tax law; tax law on transferring land use rights; ordinance on natural resource tax; income tax ordinance for high-income earners; ordinance on housing and land tax.

countries with existing trade agreements enjoyed preferential tariff rates, while goods from countries without any trade agreements were levied at a different rate.

(iii) Phase 3 (2006-2010)

The primary motivation for tax reforms during this period was tax reduction for every field in order to promote the integration of Vietnam into the world economy (World Bank, 2011). According to Decision No. 201/2004/QĐ-TTg, the objective of the third phase of the tax reforms was to simplify the tax system and modernize the tax administration to ensure an adequate level of revenue collection for the state budget and to contribute to economic growth, as well as to take initiative in international economic integration.

To achieve the above targets, the Vietnamese government carried out significant reforms to the tax system, especially after Vietnam became a member of the World Trade Organization (WTO) in 2007. For instance, the Personal Income Tax Law, which was introduced in 2007 and came into effect in 2009, was levied on the income of all Vietnamese citizens, whether earning incomes domestically or abroad, and on non-residents earning taxable incomes in Vietnam. The Personal Income Tax Law helped eliminate discrimination in the tax system as follows. First, it applied the personal income tax rate, instead of the corporate income tax rate, on individuals doing business that now enjoyed the same tax rate as those with incomes from wages and salaries. Second, equal tax rates were applied to both Vietnamese citizens and foreign residents. Third, reduction in family members and contributions to charity were considered when determining one's personal income tax. Fourth, income from investment capital, transferring capital, and security transactions were subject to taxation, of which tax rates on real estate transactions were reduced when compared with the tax rate on the transfer of land use rights.

Moreover, reforms to taxation laws during this period made various changes to corporate income, value-added and special consumption taxes. Furthermore, the issuance of the law on natural resources tax, the law on non-agricultural land-use tax, and the environmental protection tax helped to improve the tax system during this period. In particular, the Corporate Income Tax Law of 2008 was amended to narrow the scope of tax exemptions and reductions and to lower the standard tax rate to 25%. Within 5 years from 2003 to 2008, the Vietnamese government was continuing to reduce the maximum tax rate for CIT. Meanwhile, the Value-added Tax Law was revised to cover an expanded range of taxable objects, to narrow the classification of objects levied at a tax rate of 5% from 21 to 12 commodity groups, and to adjust calculation methods (tax credit method or tax based directly on added value method). The scope of the 10% tax rate was widened, whereas that of the 5% tax rate was narrowed.

The Natural Resources Tax Law was established in 2009 to ensure social equality and the efficient use of natural resources throughout the country (World Bank, 2011). The introduction of the Non-agricultural Land Tax Law and the Environmental Protection Tax Law

in 2010 also helped to improve the existing tax system. Overall, tax policies in Vietnam were reformed to align with international practices and to facilitate the regulatory tax compliance of the country's rapidly growing private sector (Bhattarai et al., 2019).

(iv) Phase 4 (2011-2020)

The fourth phase of tax reforms was implemented in the period 2011-2020. According to Decision 732/QĐ-TTg, tax reform policies carried out over this period aimed to establish a comprehensive, equitable, and effective tax system, which is consistent with transitioning toward the so-called socialist-oriented market economy. The reforms also sought to create an institutional framework with transparent tax policies, simple and efficient tax administrative procedures, which align with international practices. Furthermore, the Vietnamese government proposed to establish a well-functioning tax system that utilizes up-to-date information technologies, which also serve to combat corrupt activities within the tax system by reducing intervention from tax officers. These targets are broadly in line with the government's five-year development plan of 2011-2015, which involved structural change in the Vietnamese tax system, as characterized by three main features: (i) reduced dependence on oil revenue and tariff revenue, (ii) a reduced share of the state sector and an increased share of the non-state sector in total revenue, and (iii) the increased importance of the VAT.

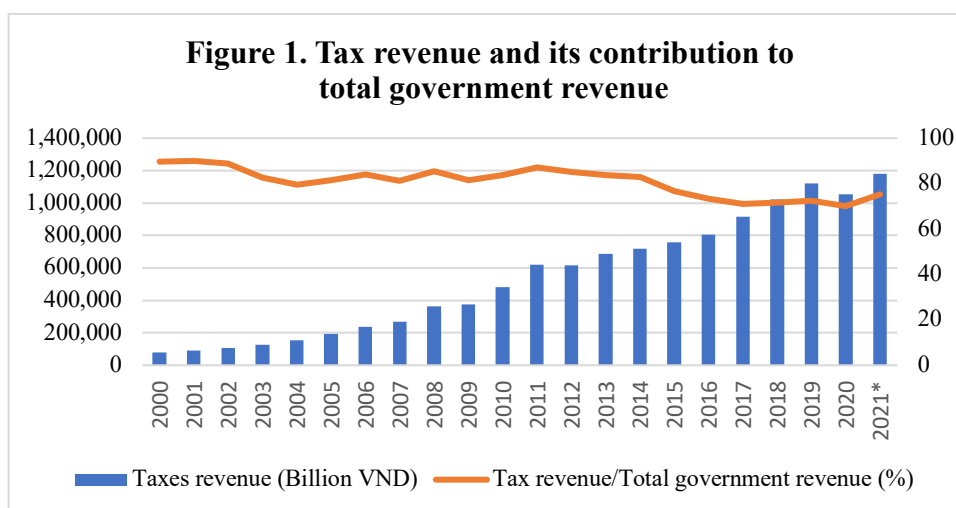
Some categories of taxes have been adjusted in accordance with international practices, which forms part of Vietnam's commitments to several bilateral and multilateral free trade agreements. For instance, the government reduced the standard corporate tax rate from 25% in 2008 to 22% in 2014, and down again to 20% in 2016. This helped promote FDI and provide some support to local enterprises. In addition, a key revision of the law on value-added tax postulates that goods and services of business households or individuals with an annual turnover of 100 million VND or less are tax-exempt. Public services for sanitation and water drainage in streets and residential areas had been subject to a tax rate of 5% since 2014. The revised law also identified a threshold of turnover in calculating VAT, in which all businesses with annual revenue of 1 billion VND or more were able to pay taxes through a credit method. Furthermore, under the revised Personal Income Tax Law in 2012, the reduction for the taxpayer was made to be 108 million VND per year and, for each dependent, 3.6 million VND per month. Incomes earned from transfers of real estate in any form were made subject to paying personal income tax. Moreover, organizations and individuals were now required to prepare tax declarations, withhold, and remit taxes into the state budget, and make tax finalizations for all kinds of taxable income paid to taxpayers.

Before the pandemic, the Ministry of Finance of Vietnam announced proposals to further amend and supplement the current multiple taxation laws. Accordingly, the CIT rate was proposed to decrease to 15% for micro-sized enterprises with annual revenue below 3 billion VND, and to 17% for small and medium-sized enterprises with 200 or less employees,

that participate in the Social Insurance Scheme, and have annual revenue between 3 to 50 billion VND. The VAT rate was proposed to rise from 10% to 12% in 2019. The government also planned to revise methods of calculating current personal income tax in which a taxable monthly income of up to 10 million VND enjoys a tax rate of 5%.

More recently, the Prime Minister signed Decision No.508/QĐ-TTg, with the goal of mobilizing government tax revenue by 2030. Accordingly, the average ratio of state budget revenues is expected to make up at least 16% of GDP, including taxes and fees accounting for about 13 - 14% of GDP; the proportion of domestic revenue to total state budget revenue strives to reach about 85-86% by 2025. In this period, the government focuses on supporting businesses and the population in mitigating difficult situations and restoring their production and business activities adversely affected by the Covid-19 pandemic. By 2030, the average ratio of state budget revenues is expected to make up about 16 - 17% of GDP, including taxes and fees accounting for about 14 - 15% of GDP; the proportion of domestic revenue to total state budget revenue strives to reach about 86-87%.

After four phases of tax reform, government revenue collected from tax has been improved and shown in Figure 1. It reveals that tax revenue increased significantly during the past 20 years. However, due to the Covid-19 pandemic, government revenue collected from various types of taxes decreased by 6% in 2020. It is estimated to rise again to 1,180,119 billion VND in 2021. The share of tax revenue on total government revenue maintained the range of 80-90% for the last decades.



Note: Data in 2021 is estimated

Source: *Key Indicators for Asia and the Pacific, 2022 (ADB)*

4. Model specifications

The identity of total tax revenue (TAX) and various categories of tax such as corporate income tax (CIT), value-added tax (VAT) and other tax, is shown as follows.

$$\text{TAX} = \text{CIT} + \text{VAT} + \text{Other taxes}$$

$$\text{CIT} = r_c \times \text{Tax base}; \quad \text{CIT} = r_v \times \text{Tax base}$$

Where: r_c is corporate tax rate

r_v is value-added tax rate

The change in tax rate may affect to revenue of each category of tax and thus, it may lead to the change in total tax revenue. For example, if the CIT rate increases, after-tax return will decrease. As a result, the income of labor and economic output will be lower because of discouraged capital formation. Therefore, it is necessary to investigate the impact of each category of tax and the change in tax rate on total tax revenue.

The empirical model on the nexus between tax reform and tax revenue in Vietnam during the period of 1997-2020 is formulated from the analysis of the traditional supply-side variables of the tax effort. The model included other variables, such as domestic savings, investments to capture indirect correlation of these control variables to tax revenue. In fact, since 2000, the flows of FDI into Vietnam have changed the output structure as well as the nation's economy remarkably. FDI enhanced economic growth via crowding-in effects in domestic investments, labor income, and savings. Once GDP growth and personal income had been improved, the revenue from tax also increased. Therefore, the set of explanatory variables above, which plays a key important role on socioeconomic development in Vietnam, is necessary for this model.

Furthermore, for the case of Vietnam, after four phases of tax reform, law changes relevant to the main categories of tax (CIT, PIT, and VAT) have significantly affected total tax revenue. Thus, the dummy variables of changes in taxation laws need to be added in the model. For instance, since the CIT and VAT law changes were in 1999, the dummy variable of taxation law change takes the value of 0 before 1999, and 1 from 1999 onwards. Similarly, the dummy variables of the tax law changes in 2004, 2009, 2013, 2014, 2016 will be applied.

Within the scope of this analysis, three categories of tax (corporate income tax, and value-added tax) are used as sub-dependent variables to investigate the relationship between the two main taxes and total tax revenue in Vietnam for the past 23 years. Empirical models are formulated as follows.

(1)

(2)

Where: TAX is tax revenue-to-GDP ratio (%)

GDP is GDP per capita growth rate, annual (%)

CIT is the share of corporate income tax on GDP (%)

PIT is the share of personal income tax on GDP (%)

VAT is the share of value added tax on GDP (%)

X is a set of control variables, including:

S as gross domestic savings (% of GDP)

I as gross domestic investments (% of GDP)

D₁₉₉ is dummy variable of the year having changes in CIT and VAT laws (0 before 1999, and 1 from 1999 onwards)

D₁₀₄ is dummy variable of the year having changes in CIT and VAT laws (0 before 2004, and 1 from 2004 onwards)

D₁₀₉ is dummy variable of the year having changes in CIT and VAT laws (0 before 2009, and 1 from 2009 onwards)

D₁₁₄ is dummy variable of the year having changes in CIT and VAT laws (0 before 2014, and 1 from 2014 onwards)

D₁₁₆ is dummy variable of the year having change in CIT law (0 before 2016, and 1 from 2016 onwards)

α is the intercept or constant term

t is the trend term

β_i is the coefficients of independent variables

ε is the error term

5. Methodology

This study uses multiple regression analysis with the following steps of empirical analysis. The first step is to check whether each variable has a unit root or not. In the second step, the linear relationship between tax revenue and two main categories of tax will be investigated by applying Ordinary Least Squares (OLS) regression.

The reason why this study employs these tests are as follows. First, this study refers to Bird et al. (2004) in selecting a set of control variables, however, the number of observations is relatively small (23 observations). Hence, multiple regression analysis has been utilized to identify the relationship between corporate income tax, VAT, and total tax revenue. Second, because non-stationary often occurs due to fluctuations in business activities from which most of the data is derived, testing for unit roots is critical in a time series analysis. Finally, in this study, OLS regression is used to investigate whether the relationship between two main categories of tax and total tax revenue is positive or negative.

Unit Root Test

There are two motives behind the unit root test. The first one is to know the order of integration, which is crucial for setting up an econometric model. The second one is to investigate the properties of the prior test to the construction of an econometric model. In this case, unit root tests are mainly a descriptive tool performed to classify a series as stationary or non-stationary. The most conducted technique for testing unit root is Augmented Dickey-Fuller (ADF) test.

Ordinary Least Squares (OLS) Regression

Ordinary Least Squares (OLS) is used for estimating the unknown parameters in a linear regression model. OLS chooses the parameters of a linear function of a set of explanatory variables by the principle of least squares: minimizing the sum of the squares of the differences between the observed dependent variable (values of the variable being predicted in the given dataset and those predicted by the linear function.

6. Results and Discussion

Unit Root Test

Table 1: Augmented Dickey-Fuller (ADF) Test

	level	p	lag	1st	p	lag
TAX	-1.53	0.49	(0)	-4.94	0.001	(0)***
	-1.3	0.86	(0)	-5.69	0.001	(0)***
CIT	-1.76	0.39	(0)	-4.74	0.001	(0)***
	-1.26	0.86	(0)	-5.57	0.001	(0)***
VAT	-1.5	0.51	(0)	-4.51	0.002	(0)***
	-0.95	0.92	(0)	-5.08	0.004	(0)***
S	-1.96	0.3	(0)	-4.52	0.002	(0)***
	-3.74	0.05	(4)**	-4.76	0.006	(0)***
I	-1.05	0.71	(0)	-3.57	0.017	(0)***
	-1.37	0.84	(0)	-3.78	0.04	(0)**

Note: 1. Upper: Constant; Lower: Constant and Trend;

2. ***, **, * denote significance at 1%, 5%, and 10%, respectively.

Source: Author's calculations based on the data of WDIs, ADB, and MoF.

The ADF results (Table 1) show that at each level, each of the series has a single unit root for both models (constant, constant and trend) since their ADF statistics are lower than the critical value of the ADF test at the 10% level. However, at the 1st difference, the null hypothesis of a single unit root is clearly rejected. This proves that all variables are stationary at the first difference, and they are, therefore, integrated of order one.

Ordinary Least Squares (OLS) Regression

Finally, the correlation between total tax revenue and two main categories of tax will be

examined by using OLS regression. Since domestic investment and total tax revenue are highly correlated, in the OLS regression, the variable (I) and TAX are in a separate run to avoid multicollinearity. In addition, domestic savings (S) and investments (I) should be in principle equal in GDP definition, though the two variables will be run separately in the model.

Regarding the relationship between CIT and total tax revenue, Table 2-1 shows that CIT revenue has a positive impact on total tax revenue at the significance level of 10%. This might be due to the fact that corporate income tax remains a key source of the government's total tax revenue. According to the MoF of Vietnam, CIT revenue accounted for around 25% of total tax revenue during the period of 2010-2020.

The dummy variable of 2004 has insignificantly positive effect on total tax revenue while dummy of 2014 has negative effect at the 5% of significance level. This result reflects the fact that if the CIT tax rate was reduced at a reasonable level (e.g., standard tax rate at 28% in 2004), it may enhance CIT revenue and total tax revenue through the income and substitution effects. Particularly, lower tax rate would help enterprises increase after-tax return to investing, thereby expanding the productive capacity in those companies and further improving the level of economic activity. Otherwise, constant reduction of CIT rate (e.g., standard tax rate at 22% in 2014) would induce the decline in CIT revenue because of tax avoidance. In fact, a number of small firms in Vietnam keep reporting their income below the threshold to take advantage of preferential tax treatment while FDI enterprises utilize tax incentive for transfer pricing.

Table 2-1: Regression Analysis on Total Tax Revenue and CIT Revenue

Dependent Variable: TAX

Method: Least Squares

Sample: 1997 2020

Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CIT	0.61*	0.32	1.87	0.08
S	0.004	0.071	0.060	0.9533
D _{t99}	0.638	1.312	0.487	0.6347
D _{t04}	0.895	1.416	0.632	0.5382
D _{t09}	-0.091	0.868	-0.105	0.9183
D _{t14}	-2.27**	0.96	-2.36	0.03
D _{t16}	1.592	1.348	1.181	0.2589
C	14.8	1.66	8.90	0.0000
R-squared	0.7772	Mean dependent var	19.7062	
Adjusted R-squared	0.6572	S.D. dependent var	1.9483	

S.E. of regression	1.1407	Akaike info criterion	3.3834
Sum squared resid	16.9145	Schwarz criterion	3.7813
Log likelihood	-27.5260	Hannan-Quinn criter.	3.4698
F-statistic	6.4779	Durbin-Watson stat	1.1385
Prob(F-statistic)	0.00198		

*** and * denotes significance at 5% and 10% level, respectively.*

Regarding the relationship between VAT and total tax revenue, VAT revenue is positively correlated with total tax revenue at the 1% level of significance (Table 2-2). This can be explained by the fact that besides corporate income tax, VAT is one of the most critical taxes contributing to total tax revenue. It recently exceeded corporate income tax and contributed about one-third of total tax revenues, which is the largest share of all taxes to total tax revenue.

Together with VAT, domestic saving has also contributed to an increase of total tax revenue at the level of 5% significance. An appropriate explanation for this result is that capital is accumulated savings, whether it is physical capital (machines and buildings used for production, but also housing held by families) or financial capital (bank and financial assets). Hence, an increase in gross savings would contribute directly to GDP growth and create higher tax revenue from domestic savings.

Dummy variable for 2004 has significantly positive effect on total tax revenue while dummy variable of 2009 shows negative effect. This can be explained by that lower VAT rate in 2004 accompany with stable inflation rate had stimulated consumption and economic growth during the period 2004-2007. Meanwhile, the widening tax base since 2009 and high inflation following the Global Financial Crisis has caused heavily burden on lower- and middle-income people, in turn, contributed to a decline in consumption, investment and thereby, reducing total tax revenue.

Table 2-2: Regression Analysis on Total Tax Revenue and VAT Revenue

Dependent Variable: TAX

Method: Least Squares

Sample: 1997 2017

Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
VAT	1.01***	0.32	3.29	0.005
S	0.14**	0.06	2.53	0.024
D ₁₉₉	-1.220	1.231	-0.991	0.3385
D ₁₀₄	1.529*	0.78	1.93	0.07
D ₁₀₉	-1.974**	0.758	-2.67	0.021

D _{t14}	-0.746	0.799	-0.934	0.3659
C	10.416***	2.046	5.09	0.0002
<hr/>				
R-squared	0.8395	Mean dependent var	19.7062	
Adjusted R-squared	0.7707	S.D. dependent var	1.9483	
S.E. of regression	0.9329	Akaike info criterion	2.9602	
Sum squared resid	12.1848	Schwarz criterion	3.3084	
Log likelihood	-24.0822	Hannan-Quinn criter.	3.0358	
F-statistic	12.2039	Durbin-Watson stat	1.2709	
Prob(F-statistic)	0.00007			

*** and ** denotes significance at 1% and 5% level, respectively.

7. Concluding Remarks

Revenues from two main categories of taxes (corporate income tax and value-added tax) have a significantly positive correlation with total tax revenue. This reflects the fact that the Corporate Income Tax (CIT) and Value-added tax (VAT) have accounted for almost two-thirds of the tax revenue of the Vietnamese government for the past two decades. In addition, the coefficient and significance level of VAT is higher than that of CIT. An appropriate explanation for this result is VAT revenue has become the most important source of state budget with the highest proportion in total tax revenue (more than 30%), while there has been a downward trend in CIT revenue since 2014.

Dummy variables of recent changes in tax laws show negative effects on total tax revenue. This reflects the fact that reduction tax rates for corporate income and heavy burden of VAT may increase tax loss from domestic SMEs and FDI firms as well as reduce consumption, and thereby hindering economic growth and budget revenue. It is noted that VAT itself is regressive, which is damage for the lower income people. Hence, if the government relies on VAT, it may put negative effects on income distribution.

Domestic investment has a positive and significant correlation with total tax revenue. This could be explained by the combination of FDI and domestic investments that encouraged business activities, created more employment opportunities, and increased people's income and consumption. As a result, revenue from CIT and VAT were improved, and directly contributed to total tax revenue. The significance of PIT would be changed in accordance with the emergence of middle-class consumers. Because of the rising purchasing power of the middle class, the number of foreign brands is expected to increase sharply, boosting CIT and VAT revenue in the future.¹⁵

Similarly, domestic saving also shows a positive and significant effect on total tax

¹⁵According to the Ministry of Investment and Industry (2018), 183 foreign brands have been granted a franchise in Vietnam, mostly from the U.S., Australia, South Korea, and the EU.

revenue. An appropriate explanation for this result is that gross domestic saving is one of the most important sources of economic development, through which capital is utilized for investment. And thereby, it would create higher productivity of growth and contribute to government tax revenue.

Finally, since the period covered is short (only 23 years), the value of R-squared is not so high. However, low R-squared does not mean that there is a biased or consistent estimator of the effect of policy change (Wooldrige, 2003). Hence, even when R-squared is low, if the p-values are good, it still indicates a real relationship between the significant predictors and the response variable.

The results would be changed in the next decades because of the change in the share of the three main categories of taxes on total tax revenue, especially after the ASEAN Economic Community (AEC) 2025 Consolidated Strategic Action Plan is adopted. In the process of regional economic integration, revenue from VAT on imports may decrease because of lower tariff rate in the AEC. Consequently, to compensate for the loss in customs duty revenue, Vietnam should restructure the tax system from a FDI dependent one to personal income and domestic enterprises-based revenue in the long-term.

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ANALYSIS OF THE FACTORS THAT INFLUENCE THE IMPORT DEMAND OF PETROLEUM IN VIETNAM – SOME SUGGESTION

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Abstract

Petroleum is one of the key sectors of the economy and is a vital input material for production, services, and transportation in Vietnam. It accounts for a significant proportion of the country's budget revenue. However, when Vietnam participates in a Free Trade Area (FTA), the import tax rate of petroleum decreases, leading to a reduction in state budget revenue. This goes against the objectives of the Vietnamese Government. The article provides an analysis of the factors that influence the import demand of petroleum in Vietnam and offers suggestions to improve the petroleum import policy.

1. The Importance of Petroleum Products in the Vietnamese Economy

Petroleum products are a strategic commodity that plays a crucial role and exerts a strong influence on the economic development and social stability of every nation, especially those with significant fuel needs for industrial sectors like Vietnam. However, in reality, a significant portion of petroleum products consumed in the Vietnamese market is currently imported, primarily from ASEAN, China, and South Korea.

In Vietnam, petroleum is an essential commodity that serves both to ensure energy security and plays a crucial role in all aspects of economic, political, and social life. This is because petroleum serves as both a source of raw material for export production (such as electricity generation and plastic production) and as an input for manufacturing and business activities in factories. Additionally, it serves as fuel for transportation, facilitating the movement of goods through various modes of transport, including maritime, river, air, and road transportation.

Furthermore, in the structure of state budget revenue, the tax revenue collected from imported petroleum products constitutes a significant portion. From this perspective, it becomes evident that the role of the customs authorities is crucial in inspecting and monitoring the import and export activities of petroleum products by businesses to accurately determine the product names, HS codes, quantities, and values of imported and exported petroleum products, ensuring

the correct and sufficient revenue collection for the state budget (data according to the statistics of items with significant state budget revenue).

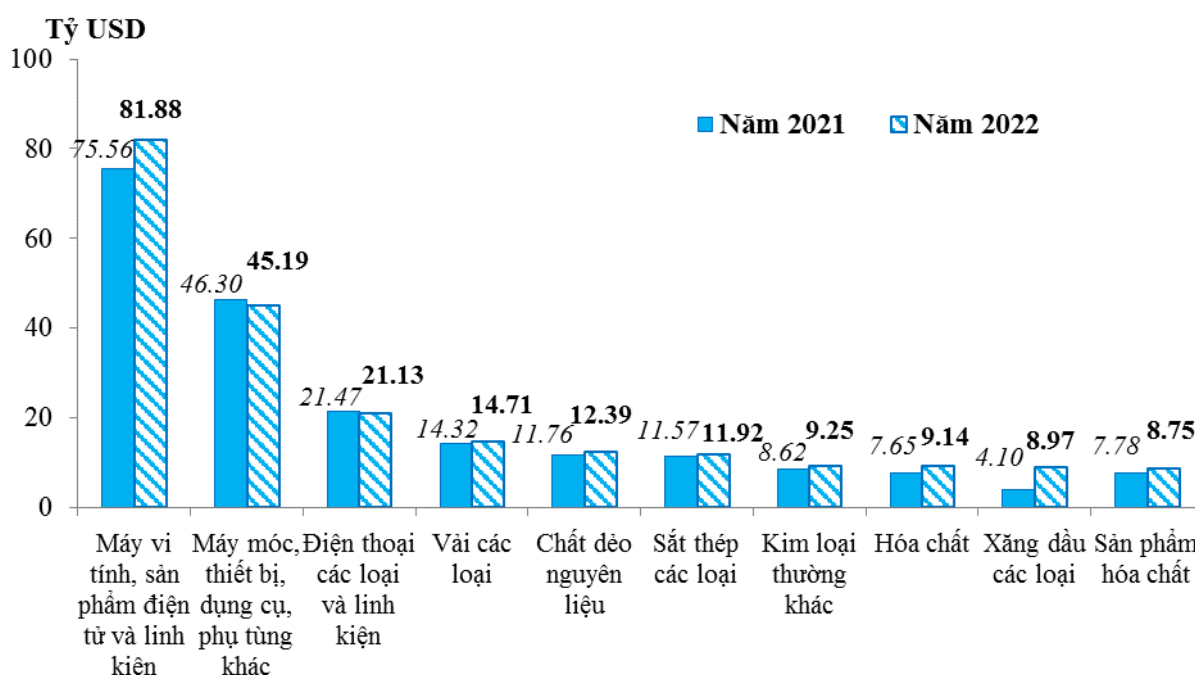


Figure 1. Statistics of Items with Significant State Budget Revenue

Therefore, analyzing the factors influencing the import volume of petroleum products is crucial in the formulation of tax policies by the Vietnamese government.

2. Factors Influencing the Import Volume of Petroleum Products

Import Tax Rates¹⁶: The import tax rates are specified in the tariff schedules issued in different periods. Businesses can choose the tax rate for their items based on the commitments Vietnam has made with exporting countries. There are two types of import tax rates:

+ Preferential import tax rates for imported petroleum products: The Most Favored Nation (MFN)¹⁷ tax rate is the standard preferential tax rate expressed as a percentage applied by Vietnam to goods originating from WTO member countries. When applying this tax rate, businesses do not need to present a Certificate of Origin. The specific tax rates applicable to goods from WTO member countries are detailed in government decrees that provide a breakdown of tariff schedules for exports and imports during each period.

¹⁶ According to the Import Tax Tariff issued alongside Circular No. 182/2015/TT-BTC by the Minister of Finance

¹⁷ There are 13 FTAs: ASEAN (ATIGA), ASEAN - China (ACFTA), ASEAN – Korea (AKFTA), ASEAN – Japan (AJCEP), Vietnam - Japan (VJEPA), ASEAN- Australia-Niu-di-lân (AANZFTA), ASEAN - India (AIFTA), Vietnam - Chi lê (VCFTA), Vietnam - Korea (VKFTA), Vietnam -EAEU (VN-EAEU FTA), TPP, AHKFTA, (EVFTA).

+ Special preferential tax rates for imported petroleum products: Special preferential tax rates (applied based on trade agreements) are tax rates expressed as a percentage under bilateral and multilateral trade agreements that Vietnam has signed with certain countries or regional blocs (currently, there are 13 trade agreements in effect). These tax rates are generally lower than the MFN tax rates. However, to apply these tax rates, importers, whether organizations or individuals, must provide a Certificate of Origin (referred to as C/O) to demonstrate that the imported petroleum products originate from a country or bloc participating in the trade agreement.

To study the factors influencing the import demand for petroleum products in Vietnam, base on study of Murray và Ginman (1976) about import demand model $Q = \beta_0 Y \beta_1 P \beta_2 e^u$ (Q: total import demand, Y: GDP, P: price, e: logarit), the author employs Import Volume as the dependent variable and independent variables include Import Tax Rates, GDP, and the dummy variable FTA, while Control variables encompass various types of taxes, Nominal GDP, Inflation Index of GDP, Yearly GDP growth rate, and Origin variables. The author decides to use a correlation assessment model to determine the factors affecting the import volume of petroleum products.

Specifically, the first model is as follows:

$$KNNK_VND_{jit} = \alpha_0 + \alpha_1 * im_tax_rate_{jit} + \alpha_2 * dummy_FTA_{jit} + \alpha_3 * GDP_t$$

Where $KNNK_VND_{jit}$ represents the Import Volume, calculated in VND, aggregated by petroleum product with HS 8-digit code i, country j, and year t; $im_tax_rate_{jit}$ represents the import tax rate for petroleum products with HS 8-digit code i, country j, and year t; $dummy_FTA_{jit}$ is a dummy variable based on the condition that the observed value does not belong to the group 'Import Tax Rate at 150% of the MFN rate' and 'Import Tax Rate under Preferential Trade Agreements.' A value of 1 (True) indicates other tariff codes, and a value of 0 (False) indicates the tariff codes falling within the mentioned two groups.

The control variable includes the Nominal GDP¹⁸ in Vietnam for year t.

The coefficient α_1 represents the elasticity of import volume based on changes in import tax, assuming that all other variables remain constant (ceteris paribus). If α_1 is positive, it indicates that changes in the import tax rate have an increasing impact on GDP. This means that

¹⁸ The data take form www.wdi.com

as the economic growth rate in Vietnam increases, the impact will become more significant as the economic development process unfolds.

The coefficient α_2 reflects the degree of variation in import volume based on whether a country has signed a trade agreement with Vietnam, while keeping all other variables constant. If α_2 is positive, it suggests that signing a trade agreement with Vietnam has a positive impact on the import volume of petroleum products from that country to Vietnam. The remaining coefficients measure the elasticity of import volume based on changes in the control variable, which is GDP.

To estimate the specific short-term impact of import tax in the energy sector in WTO countries during the implementation of FTA trade agreements, the empirical analysis includes daily data displayed in the panel dataset from 2017 to 2022 (on a monthly basis). The dataset comprises all petroleum product items under chapter 27, with each item identified by its 8-digit HS code.

Table 1 below includes basic descriptive statistics (number of observations, mean, standard deviation, minimum value, maximum value) of the main variables in the model (dependent variable: import volume; independent variables: import tax rate and nominal GDP of Vietnam). It can be seen that Vietnam's average import volume during the period 2017-2023 is quite impressive at over 57 billion VND, with significant differentiation in import volumes for each commodity type, reflected in the relatively large difference between the minimum and maximum values (12,497 VND and 1.708 trillion VND, respectively). The average tax rate for the three types of taxes (import tax, special consumption tax, and VAT) is 5.36%, with the minimum value being 0% for items not subject to any tax and the maximum value being 13.33%. The standard deviation is 5.36%, indicating relatively stable average tax rates during the period 2017-2023. Additionally, Vietnam's nominal GDP during this period shows significant variation over time, with the average value quite distant from the minimum and maximum values.

Table 1. Descriptive Statistics of Key Variables

	Number of Observations	Mean Value	Standard Deviation	Minimum Value	Maximum Value
Import Volume	12.434	57.637.893.731	84.377.692.942	12.493	1.708.036.136.180
Tax Rate	12.434	5,36	3,52	0,00	13,33
Nominal GDP	12.434	1.585.634.422.452	3.410.583.107.863	12.005.825.759	21.380.976.119.000

Table 2 below describes the correlations between the main variables in the model. The correlation between the dependent variable Import Volume and the key independent variable Average Tax Rate is negative (-0.02), while the correlation between the dependent variable and the independent variable Nominal GDP is positive (0.12). However, the degree of correlation for both relationships is relatively weak, especially between Import Volume and Average Tax Rate.

Table 2. Correlation between Key Variables

	Import Volume	Average Tax Rate	Nominal GDP
Import Volume	1.00		
Average Tax Rate	-0.02	1.00	
Nominal GDP	0.12	-0.02	1.00

The model testing results are as follows:

$$KNNK_VND_{jit} = 47.603.567.053 - 6.436.851.5391 * im_tax_rate_{jit} - 6.278.669.713 * dummy_FTA_{jit} + 975.720.962 * GDP$$

According to the results, the import tax rate has an inverse relationship with import volume, while GDP has a positive relationship with import volume. This means that when the

import tax rate increases, import volume decreases, while when GDP increases, import volume increases.

Within the scope of the research, the author proposes several solutions for managing and improving Vietnam's import tax policies on petroleum products. These proposals aim to contribute to economic and social development by 2030 and increase revenue from import taxes on petroleum products for the state budget.

3. Recommendations for Import Tax Policy

Recently, the domestic supply of petroleum products has been primarily met through imports. Therefore, to centralize revenue collection and prevent trade fraud, most of the budget revenues are currently collected at the import stage through import taxes and special consumption taxes (for petroleum products). Other revenue sources include value-added taxes (VAT), fuel fees, and corporate income taxes collected at the sales stage.

The current import tax management approach effectively meets the requirements of centralized budget revenue collection, ensuring revenue is collected when global petroleum prices are low. However, when domestic consumption of petroleum products is met through both imports and domestic production, maintaining high import taxes (up to 40%) may not encourage oil refineries to lower costs since they are protected by high import taxes. This situation could lead to a risk of supply shortages due to uncompetitive imports.

Thus, the state needs to fundamentally reform import taxes, reduce them as committed, and replace them with new revenue sources to compensate for the revenue shortfall resulting from reduced import taxes. The volume of domestically produced petroleum products should be taxed equivalently to imports to create a level playing field between businesses importing petroleum products and those producing them domestically. The implementation solution is to shift the majority of import taxes and all special consumption taxes to the sales stage. Specifically:

(i) Import Taxes: Maintain them at a sufficient rate to incentivize production. Proposed new import tax rates could range from 0% to 5% instead of the current range of 0% to 40%. The remaining portion (after deducting 5%) should be collected at the sales stage and can be referred to as 'Petroleum Utilization Tax.'

(ii) Special Consumption Tax: Currently applied at 10% on the CIF price with import taxes and collected at the import stage for gasoline. In the future, it is recommended to shift this tax to the sales stage and collect it based on an absolute amount.

(iii) Fuel Fees: No distinction should be made between domestically produced and imported sources; they should be fully collected at the sales stage as they are currently. Entities responsible for declaring and paying fuel fees should be intermediary businesses to ensure centralized control and prevent fraud.

Additionally, the state should create a legal framework for both petroleum importing businesses and households consuming significant amounts of petroleum products (such as those in the coal, electricity, cement, iron, and steel industries) to apply a 'price risk prevention' mechanism through purchasing petroleum products in a manner that aligns with international practices. This will help stabilize production input costs and ensure domestic market stability in the face of unpredictable fluctuations in global oil prices.

Alongside incentivizing domestic oil refineries, efforts should be made to encourage domestic businesses to explore alternative sources of energy that can replace petroleum products for both domestic consumption and export.

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FACTORS INFLUENCING EMPLOYEES' PERFORMANCE IN LABORATORIES

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Abstract.

To examine productivity in laboratories, this paper aims at identifying factors influencing employees' performance and solutions from human resources management perspective. Based on previous research on management theories and models of employees' performance determinants, the proposed research model and questionnaires are built with 2 dependent variables of Employee Performance and Employee Engagement and 3 independent variables of Working Environment, Performance Management System, Leadership and 3 control variables of Education, Position, and Department. Primary data collected from questionnaire responses of public laboratories from 03/2022 to 02/2023 is processed with Partial Least Square – Structural Modelling Equation. Processed statistics from Smart-PLS display surprising results that engagement and satisfaction of employees towards job and organization does not influence employee performance, it is the educational level and employees' competency that take the most credit for employees' high performance.

Keywords: *human resources management, employee performance, engagement, organizational behavior*

**BRAND MANAGEMENT IN HIGHER EDUCATION: ANALYZING
FACTORS THAT INFLUENCE BRAND RESONANCE ON CUSTOMER –
BASED BRAND EQUITY (CBBE)**

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Abstract

In branding context, the customer-based brand equity (CBBE) model developed by Kevin Lane Keller has been applied into many studies. The CBBE model involves six brand building blocks out of which brand resonance is the most valuable factor. This research studies brand management in higher education by using CBBE model to understand factors influencing brand resonance among customers (including current and past students). The empirical evidence indicated that sense of community and behavioral loyalty create feelings of gratitude which develops brand resonance among students. Marketing communication to alumni should be adapted to current educational trends to create durable emotional bonds leading to reciprocal relationships.

Keywords: *Brand management, brand equity, brand resonance, higher education.*

ECONOMIC FORECASTING AND EXPORT UPGRADING OPPORTUNITIES AT THE INDUSTRY LEVEL: THE CASE OF VIETNAM'S ELECTRONICS SECTOR

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Abstract

The study proposes a new approach to forecast potential products that a country can upgrade in short and medium term of development, basing on concepts of product complexity and production relatedness. We apply our framework to the electronic sector of Vietnam, which is a critical industry in the world and for the economy. Using global export data over 20 years of 2001-2020, the study uses algorithms in machine learning techniques to calculate complexity index and relatedness matrix of exporting products at 6 digit-level. The forecasted products for upgrading include products that are highly complex and are closely connected to products that Vietnam currently has comparative advantages. In addition, a set of strategic products that is highly complexed but less related to the country's comparative advantaged products is also forecasted, aiming to build up an unrelated diversified strategy for the country's long-term development. The paper also discusses the challenges for Vietnam electronic sector that currently relies on low labor cost and has gradually lost competitive advantages as consequences of raising wages and focusing on low technological products.

Keywords: *Vietnam, electronics, upgrading opportunities, product complexity, product space, relatedness.*

1. Introduction

To avoid the middle-income trap, an economy needs a structural change, which is a process where new export industries with higher value added gradually replace old labour-intensive industries. Instead of focusing on the establishment of entirely new sectors, a country can emphasize the need to base the promotion of new export products on the economy's existing skills and capabilities. An obvious question in this context is "What are the new export industries that a developing country should focus on?".

Forecasting the patterns of structural transformation during the transition phase from a low income, agrarian rural economy to an industrial urban economy with a higher capita income is crucial for policymakers. Traditional economics growth model has been guided by the notion that during the transition a country increases its productivity by using more efficient the

aggregate production inputs such as capital and labor (Syrquin, M., 1988). Recently, more attention has been given to specific products that an economy produces and exports (Hausmann et al., 2007; van Dam & Frenken, 2022). A country can upgrade its economy by entering new economic activities that require the knowledge and capacities similar or complementary to those already present in the economy (van Dam & Frenken, 2022).

This study has two purposes that is to propose a methodology for selecting which new export products to promote, given the economy's existing pattern of revealed comparative advantages, and then apply the framework to forecast upgrading opportunities for Vietnam's electronics exports. The point of departure is the product space model and the concept of product complexity introduced by Hidalgo et al. (2007) and Hidalgo & Hausmann (2009). The product space model maps the relatedness between products based on observations of how common it is that they are jointly exported: the assumption is that products that are closely related rely on similar resources, skills, capabilities, and institutional conditions. Hence, it will be easier for a country that has revealed comparative advantages in exports of product X to use its existing resources to develop exports in highly related product Y than in non-related product Z.

The methodological framework then is applied to select upgrading and strategic Vietnam's electronic exports for short, medium, and long-term development. The research question mentioned above is very familiar to Vietnamese development planners, and most of the country's five-year plans identify strategic sectors where domestic investment and FDI are promoted through various forms of investment incentives. Yet, it is difficult to convince foreign investors to invest in activities where Vietnam does not have existing comparative advantages. In recent years, Vietnam has managed to attract FDI in some high-tech sectors such as electronics, but the operations that are actually carried out in Vietnamese affiliates are often related to assembly and other labour-intensive activities with low value-added.

The following outline the process for identifying the products that could be targeted for export upgrading. Section 2 introduces the core concepts and the methodology, section 3 describes the data set, section 4 provides a brief background on the global electronics market and the Vietnamese electronics sector, and section 5 presents the results of the data analysis. Section 6 provides a summary and conclusions.

2. Methodology

2.1. Overall analytical framework

Previous research suggest that the technology, capital, institutions, and skills needed to manufacture and export new products are more easily adapted from some existing products than from others (Hidalgo et al.2007; Hausmann et al. 2014). This section introduces concepts and methodology for identifying products that could be targeted for upgrading by policymakers. Drawing on the seminal contributions by Hidalgo et al. (2007), Hidalgo & Hausmann (2009), and Hausmann et al. (2014), we first define the terms revealed comparative advantage (RCA),

two calculations of product complexity, product relatedness, concepts such as diversity and ubiquity. Thereafter, we outline a multi-stage procedure for identifying target products for upgrading. The first stage involves calculating a product complexity index (PCI) and creating a network of relatedness for the targeted industry appearing in world trade. This stage is based on analysis of a large cross-country dataset on exports at the HS 6-digit level, covering more than 5,000 specific products and 119 countries over the period 2001-2020.

2.2. Revealed competitive advantages

If X_{cp} represents the export values of country c in product p , then the Revealed Comparative Advantage (RCA) of that country in exports product p is calculated as:

$$RCA_{cp} = \frac{X_{cp} / \sum_p X_{cp}}{\sum_c X_{cp} / \sum_{c,p} X_{cp}} \quad (1)$$

Country c has a revealed comparative advantage in exports of product p if $RCA > 1$, so that it exports more than its “fair” share of the product, i.e., more than product p ’s share of total world exports (Balassa, 1965).

2.3. Two calculations of product complexity

The measure of RCA is used to construct a matrix ($M_{c,p}$) that connect each country the products are made. The entries of the matrix are 1 if country c has product p with RCA larger than 1, and 0 otherwise. The $RCA_{c,p}$ greater than 1 also implies that the country c specializes in export of product p . Formally, the matrix M_{cp} is defined as

$$M_{cp} = \begin{cases} 1 & \text{if } RCA_{c,p} \geq 1 \\ 0 & \text{otherwise} \end{cases} \quad (2)$$

The Economic Complexity Index (ECI) is defined as

$$ECI = \frac{\bar{K} - \text{mean}(\bar{K})}{\text{stdev}(\bar{K})} \quad (3)$$

Where \bar{K} is an Eigenvector ($\tilde{M}_{cc'}$) associated with second largest eigenvalue as follows

$$\tilde{M}_{cc'} = \sum_p \frac{M_{cp} M_{c'p}}{k_{c,0} k_{p,0}} \quad (4)$$

The Product Complexity Index is defined as

$$PCI = \frac{\bar{Q} - \text{mean}(\bar{Q})}{\text{stdev}(\bar{Q})} \quad (5)$$

Where \bar{Q} is an Eigenvector ($\tilde{M}_{pp'}$) associated with second largest eigenvalue as follows

$$\tilde{M}_{pp'} = \sum_c \frac{M_{cp} M_{c'p}}{k_{c,0} k_{p,0}} \quad (6)$$

The complexity indices suggested by Hidalgo & Hausmann (2009) are defined in a linear-recursive way, which presents both mathematical and conceptual problems (Cristelli et al, 2013; Tacchella et al, 2012; Mariani et al, 2015). As an alternative, Tacchella et al. (2012) suggest an approach they call the Fitness Complexity Method, which is based on the observation that highly diversified economies generate limited information on product complexity, while weakly diversified countries are more likely to export specific product that are not very complex. Therefore, they propose a non-linear iteration scheme to bound the complexity of products by the fitness of the least competitive countries exporting them (Tacchella et al., 2012). The country fitness ($\tilde{F}_c^{(n)}$) and product complexity ($\tilde{Q}_p^{(n)}$) indices are defined as the stationary state of the following non-linear iterative process:

$$\begin{cases} \tilde{F}_c^{(n)} = \sum_p M_{c,p} Q_p^{(n-1)} \\ \tilde{Q}_p^{(n)} = \frac{1}{\sum_c M_{c,p} \frac{1}{F_c^{(n-1)}}} \end{cases} \quad (7)$$

Where scores of $\tilde{F}_c^{(n)}$ and $\tilde{Q}_p^{(n)}$ are normalized in each steps by $F_c^{(n)} = \tilde{F}_c^{(n)} / \overline{\tilde{F}_c^{(n)}}$ and $Q_p^{(n)} = \tilde{Q}_p^{(n)} / \overline{\tilde{Q}_p^{(n)}}$, respectively, given the initial condition $F_c^{(0)} = \mathbf{1}$ and $Q_p^{(0)} = \mathbf{1}$. The non-linear iterations proceed until the converge state is reached, and the country and product complexity index are obtained. The non-linear iterations built on Fitness Complexity method is proved to outperforms the linear iterations built on the method of Reflection in both ranking of products and ranking of countries (Mariani et al, 2015).

The generalized country fitness $F(\gamma)$ and generalized product complexity $Q(\gamma)$ is suggested by Mariani et al (2015) as follow:

$$\begin{cases} \tilde{F}_c^{(n)}(\gamma) = \sum_p M_{c,p} Q_p^{(n-1)} \\ \tilde{Q}_p^{(n)}(\gamma) = \left[\sum_c M_{c,p} \left(\frac{1}{F_c^{(n-1)}} \right)^\gamma \right]^{-1/\gamma} \end{cases} \quad (8)$$

The parameter γ is called extremality parameter and set to be positive to make a consistence with the economic interpretation. The system of equation 8 reduces to system of equation 7 for $\gamma = \mathbf{1}$, that make $F(1)=F$ and $Q(1)=Q$. The higher the value of γ the more sensitive the generalized complexity to the fitness of the least-fit production country.

The complexity index estimated by above recursive approach may not reflect the fact that the higher income-countries usually target to produce more complexity products. Therefore, we calculate product complexity index by the second approach, and names it as Income based-Product Complexity Index (IPCI). The calculation can be formulated as

$$IPCI_p = \frac{\sum_c \frac{X_{cp,rca}}{\sum_c X_{cp,rca}} \overline{GDP}_c}{NC_{p,rca}} \quad (9)$$

Where $IPCI_p$ is the income based-complexity of product p, X_{cp_rca} is export value of product p from country c that has comparative advantage of producing this product ($RCA_{cp}>1$), \overline{GDP}_c is income per capita of country c, and NC_{p_rca} is the number of country having comparative advantage of exporting product p. Intuitively, the income-based product complexity is calculated as following procedure. We firstly keep only products that have $RCA > 1$, then the export share of this products of each country from global export value (of the product with $RCA > 1$) is calculated. The export share of each product ($RCA > 1$) in each country is multiplied with the nominal income per capita of the country. The income based-product complexity index of each product is finally obtained by the average of all countries having product with $RCA > 1$.

2.4. Product relatedness

Hidalgo *et al* (2007) introduced the idea of product space, a network connecting products that are likely to be exported in tandem, to show that the probability a country will start exporting a product increase with the number of related products that the country is already exporting. Relatedness between products is measured using the concept of proximity. Formally, proximity $\Phi_{pp'}$ between product p and product p' is the minimum of the pairwise conditional probability that a country exporting a product given that it exports another (Hausmann *et al.*, 2014). Hence:

$$\Phi_{pp'} = \frac{\sum_c M_{cp} M_{cp'}}{\max(k_{p,0} k_{p',0})} \quad (10)$$

Product relatedness measures the *similarity* in the capability requirements of different products. We use two kinds of product complexity indexes and the matrix of product relatedness, which are calculated at a global scale, to forecast upgrading and strategic opportunities for Vietnam electronic sector, starting with baseline products in which Vietnam has comparative advantages ($RCA > 1$).

2.5. Forecasting process

We have collected disaggregated export data from the International Trade Center (ITC, 2021) for all 6-digit level products and all countries during the 20-year period 2001-2020. There are altogether 237 countries and territories in the database. In cleaning the data, we first dropped those countries and territories that did not report data for every year during the sample period, which reduced the number of countries to 185. Countries with less than one million inhabitants (as reported in the World Bank database in 2019) were also removed. We then defined four sub-periods (2001-2006, 2007-2010, 2011-2015, and 2016-2020) and calculated the average export value for each country, each 6-digit product, and each sub-period, to reduce the effects of inflation and temporary variations in export values. Following Hausmann and Hidalgo *et al* (2014), who excluded countries with total export value below \$1 billion, we also dropped products where the export value for the 6-digit product category was below \$100 million in each of the four periods.

The final dataset used for the analysis covers 119 countries and 5,016 -6-digit products.

The calculations were performed for all four sub-periods in order to understand development pattern and gain insights for the analysis. However, only the last sub-period (2016-2020) was used to identify the products that would be most suitable for export upgrading. After calculating the RCA, complexity index of all products, relatedness matrix, and other relevant measures, the data set included a total 96 electronic products for selection. The forecasting / identification procedure is structured as follows:

- Step 1 is to formulate a baseline product including all electronic products in which Vietnam currently has revealed comparative advantages ($RCA > 1$)
- Step 2 is to identify products that are highly connected to the baseline products, as indicated by the proximity matrix that shows relatedness or conditional probability that products will be co-exported.
- Step 3 is to remove from the list of selected products in step 2 the products that have low complexity index calculated by equation 5.
- Step 4 is to further remove from the list of selected products in step 3 the products that have low income based-complexity index calculated by equation 9.

The benchmark for removing low complex products in step 3 and 4 depends on the development level of the sector. In our case, the benchmark is the average complexity index of all electronic products in analysis. This is because Vietnam's electronic sector is well developed over past 20 years, but the specialized electronic products of Vietnam still have average complexity index below the global average complexity.

- Step 5 is to select strategic products for long-term development. The strategic products are those products that Vietnam currently has no comparative advantage, deficit trade (import greater than export), have high complexity scores calculated by both methods, and are not highly connected to comparative advantaged products.

3. An application to Vietnam's electronic sector

3.1. *The world's electronic industry*

Over last 20 years, aggregate world exports of electronic products increased more than threefold from \$614 billion per year in 2001 to \$2,021 billion per year in 2020 (Figure 1). The top exporters throughout the 20-year period were China, USA, Japan, Taipei, Hongkong, Singapore, South Korea, Malaysia, and Germany. The United Kingdom and some European countries such as France, the Netherlands, Italy, and Sweden were relatively important exporters during our first sub-period (2001-2006), but their market shares have fallen significantly since then – Germany is the only European country that is still among the top exporters of electronics. Vietnam entered the top ten exporter list during the last sub-period (2016-2020), with an average export value of \$83 billion per year.

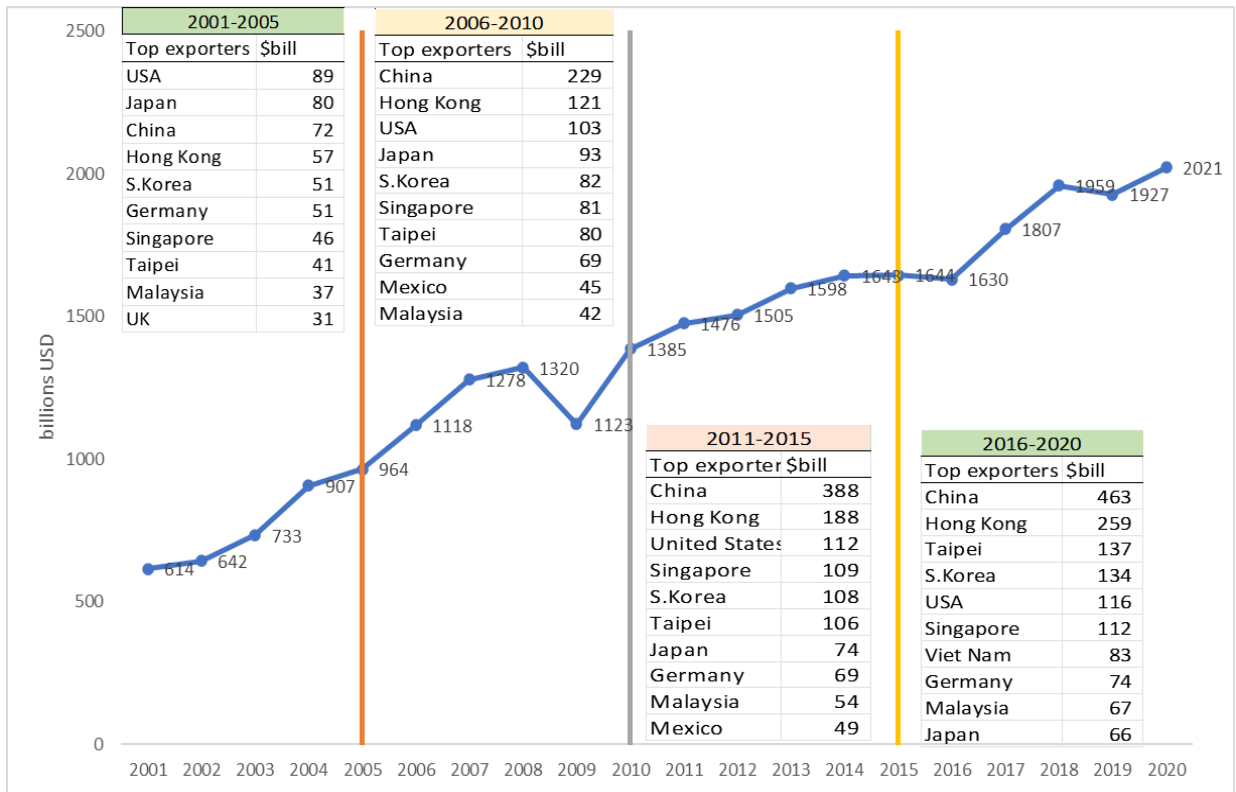


Figure 1. Evolution of world export of electronic products

China (excluding Hongkong) has been the largest exporter during the last three sub-periods, accounting for around one-quarter of global exports of electronics in 2016-2020. If Hong Kong is included, the share of greater China was about 40% during this period. Several of other countries in the top list are highly specialized in electronics, and the product category accounted for more than one-quarter of total exports in Taipei, Philippines, Vietnam, Singapore, Malaysia, and South Korea. The countries are not only the top exporters in term of export value but also diversify in exported products indicated by the number of specialized products with RCA greater or equal to 1 in 2016-2020 including Malaysia, China, Singapore, USA, Philippines, Czech Republic, Japan, Taiwan, and Thailand. These countries have comparative advantages at least around 40% (37/96) of number products in our analysis in 2016-2020.

In the latest period, there are six electronic products with global export value exceeding 100 \$billion per year (Table 1). Of which three top products with export value over 200 \$million are Telephones for cellular networks "mobile telephones" ('851712), Electronic integrated circuits ('854239), Electronic integrated circuits as processors and controllers ('854231). Interestingly, all of the top six items had zero export value in 2001-2006, so they are named as emerging products. Similarly, 12 out of 20 electronic items in Table 1 are emerging products. There are 7 of 20 products presented in Table 1 named as important products since their export value are consistently on the upper tertile of every sub-period from 2001-2020. Only headphones and earphones, whether or not combined with microphone ('851830') has export value in the upper tertile from the second period (2007-2010).

Table 1. Global export value per year of top 20 electronic product in 2016-2020

No	Code	Product	Value in \$billion	PCI	Product position
1	'851712	Telephones for cellular networks "mobile telephones"	256.40	0.66	Emerging
2	'854239	Electronic integrated circuits	232.85	1.77	Emerging
3	'854231	Electronic integrated circuits as processors and controllers	227.09	1.27	Emerging
4	'854232	Electronic integrated circuits as memories	177.56	2.13	Emerging
5	'851762	Machines for the reception, conversion and transmission	144.71	1.49	Emerging
6	'851770	Parts of telephone sets, telephones for cellular networks	131.19	2.07	Emerging
7	'854140	Photosensitive semiconductor devices	54.21	1.69	Important
8	'852990	Parts suitable for use with transmission and reception apparatus	53.07	1.78	Important
9	'853400	Printed circuits	48.20	1.66	Important
10	'852872	Reception apparatus for television, colour	48.05	1.22	Emerging
11	'852580	Television cameras, digital cameras and video camera recorders	34.28	1.87	Emerging
12	'853890	Parts suitable for use with the apparatus of heading 8535, 8536 or 8537	31.48	1.31	Important
13	'852351	Solid-state, non-volatile data storage devices for recording data from an external source	29.04	1.41	Emerging
14	'854129	Transistors with a dissipation rate ≥ 1 W	19.17	1.37	Important
15	'853224	Fixed electrical capacitors, ceramic dielectric, multilayer	16.07	1.76	Important
16	'854233	Electronic integrated circuits as amplifiers	14.40	2.23	Emerging
17	'852852	Monitors capable of directly connecting to and designed for use with an automatic data processing	13.43	2.74	Emerging
18	'851830	Headphones and earphones, whether or not combined with microphone	13.11	1.28	nA
19	'854290	Parts of electronic integrated circuits	12.73	1.60	Important
20	'852859	Monitors, not incorporating television reception apparatus	12.18	2.11	Emerging

Electronics is one of the most innovative and rapid changing industries over last two decades. In 2001-2006 there are 75 electronic items having global export value exceeding 1\$billion. However, 23 of those products are disappeared in global trade (i.e. zero export value) in the third period of 2010-2015). Five top products with highest export value (exceeding 10

\$billion) in period of 2001-2006 were disappeared in global trade just after one period (i.e. in 2007-2010) such as Television receivers, colour, whether or not incorporating radio-broadcast receivers or sound ('852812), Still image video cameras and other video camera recorders ('852540), Monolithic digital integrated circuits as metal oxide semiconductor circuits ('854213), Monolithic digital integrated circuits, incl. circuits obtained by a combination of bipolar ('854213), and Electronic integrated circuits, monolithic, analog or analog/digital ('854230).

3.2. Vietnam's electronic industry

The electronics sector began to expand rapidly after Vietnam's accession to the WTO in 2007. By 2016, Vietnam had grown to be the world's 12th largest electronics exporter and the third largest in ASEAN (MOIT, 2018). During the period 216-2020, Vietnam was the ninth exporter of electronic and electrical products (Figure 1). By 2020, the export turnover of electronic products exceeded \$110 billion, which corresponded to nearly 40% of the economy's total exports (ITC, 2021). However, around 95% of the export turnover of electronic products is accounted for by foreign multinational enterprises (MNEs) (MOIT, 2018). By 2017, there were around 600 foreign electronics firms located in Vietnam, with about half of them producing parts and components. Most of the sector's domestic enterprises operated in the low-end segments of the electronics value chain, producing components, with a localisation rate of only 20–30% (Pham et al, 2020).

Table 2. Electronic products Vietnam has competitive advantages (RCA>1, 2016-2020)

No	Code	Product	Export (\$mill)	Import (\$mill)	RCA	PCI
1	'851712	Telephones for cellular networks	31.473,9	1.673,8	8,23	0,66
2	'851770	Parts of telephone sets	16.626,9	13.772,7	8,5	2,07
3	'854231	Electronic integrated circuits	12.572,1	8.834,0	3,71	1,27
4	'851762	Machines for the reception, conversion	4.000,6	667,9	1,85	1,49
5	'852990	Parts suitable for use with transmission and reception apparatus	3.566,7	3.108,4	4,51	1,78
6	'854140	Photosensitive semiconductor devices	2.541,6	2.279,0	3,14	1,69
7	'851830	Headphones and earphones	2.069,1	51,3	10,59	1,28
8	'852580	Television cameras	1.712,2	714,5	3,35	1,87
9	'852872	Reception apparatus for television	1.632,4	485,4	2,28	1,22
10	'853400	Printed circuits	828,4	3.328,5	1,15	1,66
11	'851829	Loudspeakers, without enclosure	727,4	170,9	9,78	1,82
12	'852859	Monitors	534,5	229,3	2,94	2,11
13	'851761	Base stations of apparatus	396,4	249,8	4,23	1,29
14	'852871	Reception apparatus for television	251,7	36,5	1,73	1,6
15	'854190	Parts of diodes	153,0	478,5	1,26	2,06
16	'851890	Parts of microphones, loudspeakers	151,4	622,3	2,27	1,65

17	'851822	Multiple loudspeakers,	131,0	47,2	1,18	1,94
18	'852550	Transmission apparatus	120,0	8,2	5,16	0,6
19	'851769	Apparatus for the transmission	117,5	41,9	1,15	0,35
20	'852910	Aerials and aerial reflectors of all kinds	113,0	65,6	1,33	1,19
21	'851711	Line telephone sets with cordless handsets	102,5	1,4	5,06	0,31
22	'853180	Electric sound or signalling apparatus	74,1	8,8	2,01	0,88
23	'851821	Single loudspeakers	71,6	31,3	1,01	2,21
24	'851810	Microphones and stands therefor	50,6	127,2	1,02	0,98
25	'852799	Radio-broadcast receivers	45,9	1,1	3,17	2,82
26	'852341	Optical media for the recording of sound	43,9	12,3	3,45	1,29
27	'851981	Sound recording	38,2	9,9	1,6	1,32
28	'851989	Sound recording	22,9	7,1	1,42	1,95
29	'851850	Electric sound amplifier sets	15,1	14,7	1,09	0,31
30	'852321	Cards incorporating a magnetic stripe	5,4	2,0	1,21	0,3

In the early 2000s, the trade balance for electronic and electrical products typically recorded substantial deficits, with the import value two to three times larger than export value. The dominating imported products were transition apparatus for radiotelephony ('852520) and electronic microsamples ('854250). Exports were dominated by printed circuits ('853400) and telephone receivers ('852812). Since 2013, after large inflows of FDI into the economy, Vietnam has had a trade surplus electronics product. The major export products in recent years have been telephone for cellular networks ('851712), parts of telephone sets ('851770), and electronic integrated circuits ('854231). Vietnam's imports are mainly parts of telephone sets and electronic integrated circuits used for assembly operations. In the recent sub-period Vietnam has competitive advantage of 30 products ($RCA > 1$) as presented in Table 2. Headphone and earphones ('851830), loudspeakers without enclosure ('851829), part of telephone sets ('851770), and telephones for cellular networks ('851712) are products with significant export share above the world average export share (i.e. large RCA).

3.3. Upgrading opportunities

The probability that a country will make a new product is strongly related to how close that product is to other products the country already makes. Therefore, the position of a country in the product space captures information regarding both the productive knowledge that it possesses and the capacity to expand that knowledge by moving into other nearby products. In this section, we present the result of the multi-stage process for identifying the products that Vietnam could potentially target for export upgrading in a short and medium-term perspective. We define the upgrading opportunities based on two characteristics. First, they should be products that Vietnam has a high probability to produce and export because their high relatedness to products where Vietnam already has manufacturing capacity and revealed comparative advantages. Second, the upgrading products should be more complex than the currently specified products.

Data for the 2016-2020 period reveal that Vietnam currently had revealed comparative advantages ($RCA > 1$) in 30 electronic products (Table 2) during the period. Using these products to define a baseline of existing competencies (step 1), we perform step 2 as identifying first list of 34 upgrading products that have a conditional probability of co-exports greater or equal to 0.5 with at least one baseline products. In principle, Vietnam has capacity to produce all of these 34 products. However, to avoid recommend products that Vietnam has already produced or not high technical requirement, we perform the step 3 that remove products having PCI lower than the average PCI. We use the average PCI as benchmark is because Vietnam's specialized products have complexity score lower than but not far below the average score of global complexity index.

Step 3 yields 20 products and then we perform step 4 to remove further products having IPCI lower the average. Finally, we obtain 16 electronic products that Vietnam does not currently have revealed comparative advantages in any of these products, but they are highly related to existing RCA products, and they have high PCI as well as IPCI. The average complexity score of the 16 products targeted for upgrading (1.82) is significantly higher than the average PCI of the existing RCA products (1.40). Similarly, the average IPCI of 16 selected products for upgrading (370.86) is significantly higher than the average IPCI of the existing RCA products (207.01). Interestingly, we identify that except for the Philippine, which are the same development level of Vietnam, all countries currently have comparative advantages of exporting these 16 selected products are at higher level of development than Vietnam. They are at groups of middle income or above (Table 3).

Table 3. Forecasted products for short and medium upgrading

No.	Code	Product Name	PCI	IPCI	Links to baseline ^a	Country with RCA>1
1	'851840	Audio-frequency electric amplifiers	2,03	307,04	7	Hungary, HKong, Malaysia, Romania, Germany, Mexico, US, Denmark, Czech, China
2	'852329	Magnetic media for the recording of sound	1,71	602,10	1	Malaysia, Guatemala, Czech, Greece, Singapore, Japan
3	'852691	Radio navigational aid apparatus	1,59	348,29	1	Philip, Austria, Taiwan, Poland, Mexico, Denmark, Netherlands, Israel, Slovakia, Lithuania, Belgium, Germany, Portugal, Hungary, UK, Japan, Czech, Malaysia
4	'852792	Radio-broadcast receivers, for mains operation only	2,39	417,40	5	Thailand, Sweden, Netherlands, China, Hong Kong, Malaysia, Denmark
5	'852851	Monitors of a kind solely or principally used in an automatic data-processing machine	2,01	318,27	2	Sweden, Slovakia, Czech, China, Latvia, Mexico, Netherlands, Korea, Singapore
6	'853120	Indicator panels with liquid crystal devices "LCD"	1,57	277,15	5	Philip, HKong, Sweden, Indonesia, Finland, Hungary, Austria, Singapore, Malaysia, Portugal, Taiwan, China, US, UK, Thailand
7	'853221	Fixed electrical capacitors, tantalum	1,62	297,86	15	Japan, Indonesia, Mexico, US, HKong, Czech, Taiwan, Chinese, Israel, Philippines, Thailand
8	'853222	Fixed electrical capacitors, aluminium electrolytic	1,60	389,74	18	Hungary, Portugal, Indonesia, Taiwan, Malaysia, HKong, Brazil, China, Singapore, Japan, Netherlands, Thailand
9	'853224	Fixed electrical capacitors, ceramic dielectric, multilayer	1,76	391,81	24	Singapore, China, Philipp, Taiwan, Czech, Malaysia, Korea, Japan, Hkong
10	'853290	Parts of electrical "pre-set" capacitors, fixed, variable or adjustable	1,64	506,67	14	Indonesia, Malaysia, Japan, Slovenia, Mexico, Singapore, Hkong, Philip
11	'854110	Diodes (excluding photosensitive or light emitting diodes)	1,79	321,49	20	Philipp, Japan, Singapore, Austria, China, Taiwan, HKong, Malaysia
12	'854121	Transistors with a dissipation rate < 1 W	1,76	308,13	22	Thailand, Philipp, Japan, China, Singapore, HKong, Malaysia, Korea
13	'854232	Electronic integrated circuits as memories	2,13	280,16	17	Korea, Taiwan, Malaysia, China, Singapore, Japan, Hkong
14	'854233	Electronic integrated circuits as amplifiers	2,23	440,10	6	China, Malaysia, HKong, Singapore, US
15	'854239	Electronic integrated circuits	1,77	412,10	20	Taiwan, Malaysia, Japan, Thailand, Singapore, Philipp, Hkong
16	'854290	Parts of electronic integrated circuits	1,60	315,52	14	HKong, Singapore, Estonia, Malaysia, Philipp, Thailand, Japan, Israel, US

^aIt means the number of connections that selected products to RCA products, with a probability of being co-exported above 0.5

Table 4. Strategic products for long-term development

No.	Code	Product Name	PCI	IPCI	Country with RCA>1
1	'853223	Fixed electrical capacitors, ceramic dielectric, single layer (excluding power capacitors)	1,92	471,94	Czech,Indonesia,Mexico,Thailand,Taiwan, Hong Kong, Singapore,USA
2	'854020	Television camera tubes; image converters and intensifiers; other photo cathode tubes (excluding ...)	1,75	457,58	Netherlands,Japan,Czech,Greece,USA,Russian,Sweden,France,UK
3	'854071	Magnetrons	3,16	466,72	Thailand,Netherlands,UK,Hungary,USA,Japan
4	'854079	Microwave tubes, e.g. travelling wave tubes and carcinotrons (excluding magnetrons and grid-controlled ...)	1,99	766,07	Japan,Germany,UK,USA,France,Russian
5	'854081	Receiver or amplifier valves and tubes (excluding microwave tubes, photo-cathode tubes and ...)	1,67	474,04	Malaysia,USA,Singapore,Belarus,Russian,France,Slovakia
6	'854099	Parts of thermionic, cold cathode or photo cathode valves and tubes, n.e.s. (excluding parts ...)	2,14	557,42	USA,Japan,Singapore,Italy,France,Bulgaria,Netherlands,UK,Taipei, Hong Kong
7	'854130	Thyristors, diacs and triacs (excluding photosensitive semiconductor devices)	1,63	363,11	Germany,Slovakia,Philippines,Hungary,China,Hong Kong,Finland,Czech,Switzerland,USA,Singapore,France
8	'854320	Signal generators, electrical	2,20	561,07	Germany,UK,Czech,Estonia,Japan,Israel,Malaysia

other's. Vietnam's RCA products (i.e. baseline products) indicated in red are concentrated in a group (upper part of the space) and selected products for short-medium upgrading indicated in green are concentrated in a group that are more in central part of the space. Strategic products in blue colour locates in the edge of the network that are less connected to Vietnam RCA products. Looking further to the relatedness matrix, most upgrading products have high number of connections with baseline products (prob>0.5), with 11 links on average, and 13 of 16 upgrading products have 5 or more connections to the baseline (detail in Table 3). These 13 upgrading products can be considered as critical electronics that Vietnam should invest significantly on them. The highly technical complexity and high number of connections indicate that if Vietnam can take current advantages to produce them, it will open door to produce more complex products in future.

One of emerging questions is that what the country like Vietnam can do with the suggestions (i.e., forecasted products) to achieve short, medium, and long-term development. We have worked with experts in electronic sector to understand what the knowledge and skills that labor force need to be equipped so that Vietnam can achieve the upgrading and strategic strategy. Table 5 presents seven knowledge/skill areas as relevant training subjects for upgrading products. The strategic products require advanced knowledge and skills in table 5, plus the advanced knowledge in data communication, telecommunication, digital signal processing, audio and video engineering. These learning subjects are available in many relevant technical schools and universities of Vietnam. However, the practical and updating contents may be a concern and it needs a collaboration between school the industries, especially with the FDI firms present in Vietnam, in innovating the curriculum.

Table 5: Required Knowledge and skill for upgrading strategy

No.	Required knowledge for upgrading	Code of upgrading products
1	Analog electronic circuit design	'851840
2	Electronic devices, electronic circuit design	852329; '853221; '853222; '853224; '853290
3	Electromagnetics/microwave	852691; '852792
4	Signal processing, electronic circuit design	'853120
5	Opto-electronic, power electronic	'853120
6	Electronic devices/ materials	854110; '854121
7	Signal processing, Integrated circuit, VHDL	854232; '854233; '854239; '854290

4. Discussion and conclusion

To avoid the middle-income trap – in this context, the risk of being trapped as a low-cost location for labour-intensive FDI – it is necessary for a developing country to raise the

value added of its export activities. We have argued that the preferred mode for doing this is to promote export upgrading in existing export enterprises, rather than trying to attract new investors into industries that are not yet well established in the country. To this end, we have proposed a methodology for identifying products for export upgrading, then we apply it to the Vietnamese electronics sector. The methodology is based on the concepts of product space and product complexity introduced by Hidalgo et al. (2007) and Hidalgo and Hausmann (2009), with some adjustments. In particular, we have disaggregated product space to the HS 6-digit level, to facilitate export upgrading within existing global value chains and international production networks. Enterprises that engage in export upgrading within the industrial sector where they are already active will be better placed to utilize existing networks of suppliers, partners, and customers than enterprises diversifying into other industrial sectors.

The multistage process we propose involves i) constructing a matrix of revealed comparative advantages, which defines the baseline products where a country has existing capabilities, ii) calculating two complexity indexes basing two different methods, and a proximity index based on the network of relatedness for products, iii) identifying upgrading targets for a specific sector among the HS 6-digit products that are closely related to the baseline products (in product space) and that also embody relatively high product complexity in comparison with the baseline. In the empirical illustration for the Vietnamese electronic sector, we carried out these steps using a large cross-country dataset on world exports at the HS 6-digit level, covering more than 5,000 specific products and 119 countries over the period 2001-2020. The final dataset for the electronics industry included 96 specific products.

The results show that the set of 30 electronics products in which Vietnam has revealed comparative advantages ($RCA > 1$) is relatively dispersed and that most of these baseline products have relatively low complexity scores. Departing from the 30 baseline products, we have identified 16 potential targets for upgrading in a short to medium-term perspective. In addition, we have pointed to a set of 8 strategic products that Vietnam should pay attention, those products are highly complexed but currently not well connected to the baseline products, and Vietnam currently has trade deficit on those products.

The findings have important policy implications. The most important message is that development and higher labor incomes can be achieved over time even without full focus on risky and uncertain structural shifts to entirely new “strategic” sectors. The existing skills, capabilities, and corporate networks developed in the past can and should play important roles also in the future – upgrading within existing export industries is likely to be an important component of long-term growth and development. However, upgrading is unlikely to occur automatically, in particular in an economy such as Vietnam, where the major industrial actors are foreign MNEs (Pham et al., 2020) with many potential alternatives to Vietnam as a production location. These firms cannot be mandated to upgrade their export portfolios: they will carry out the upgrading only if it is part of a profit-maximizing long-term strategy. The

task for Vietnamese policy makers is therefore to facilitate the decision to upgrade exports.

The export competitiveness of firms is the sum of several factors beyond labor cost. These include macroeconomic stability, rule of law, predictable trade rules, well-functioning logistics, strong local partners, a good supply of trained workers, and host of other locational characteristics. One of the obvious bottle necks in the Vietnamese case is access to skilled labor (McGuinness et al. 2021). Moving up the value chain will require focused efforts to strengthen the Vietnamese educational system, covering both tertiary and vocational education. One of the advantages of the forecasting model proposed here is that the identification of specific target products for export upgrading will also help identify the specific skills and capabilities needed to manage the more sophisticated production processes connected to upgraded products. Moreover, while it may initially aim to promote upgrading in MNEs and other exporters, it is clear that a policy focus on skills and capabilities will also have strong positive effects on domestic firms. A general improvement in the skill level of the labor force will be equally helpful for local firms as for foreign MNEs – in fact, one of the effects of focused investments in human capital could be a stronger domestic supply base for foreign MNEs, which are now often relying on imports or other foreign-owned enterprises that have been attracted to Vietnam to act as their first- and second-tier suppliers. Specific investments in infrastructure, transportation, and logistics will also be easier to carry out if there is a vision of what types of production and exports these investments are intended to support.

This paper has two important contributions to literature of industrial development that are the methodological framework to forecast upgrading opportunities for a specific industry, and results from implementing the approach to Vietnam's electronic industry can help policymakers in upskilling the sector. Some limitations in this paper should also be noted. Most importantly, the complexity and proximity indices are based on data on past trade patterns, and the implicit assumption is therefore that emerging markets like Vietnam will to some extent follow the same sequences as countries that are already more developed. However, we know that technological progress is not always linear, and that new trends are likely to emerge as innovations result in new general-purpose technologies that could potentially change existing patterns of industrial competitiveness and trade. In recent years, much attention has been paid to Industry 4.0 and the potential disruptive effects of the industrial and commercial use of artificial intelligence. These innovations may well change global production conditions, but it is likely that they will have stronger negative effects in countries and industries with lower skill and capability requirements. Hence, investments in skills and capabilities will still be needed to strengthen the resilience and adaptability of existing industry – the challenge is that we simply do not know exactly what skills and capabilities will be most useful in such circumstances. This suggest that the investments in education and training should be somewhat broader than what is indicated by any forecasts of future competitiveness or industrial development.

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THE RELATIONSHIP BETWEEN PERFORMANCE ON ECONOMIC TRANSFORMATION READINESS AND CSR PERFORMANCE: THE MEDIATING OF CORRUPTION

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Abstract.

With the rapid changes of society, new social needs and requirements for the company are gradually formed. The concept of Corporate Social Responsibility (CSR) has gradually become popular and proven to generate benefits for the company, with many scholarly studies to confirm this importance over the past decades. This paper aims to clarify the relationship between Performance on economic transformation readiness and CSR performance. This study also investigates the mediating effect of corruption on the mentioned relationship.

This paper uses data of CSR performance for 504 companies in 26 countries in 2020 and 2021. Consistent with most previous related studies on economics and CSR performance, we find that performance on economic transformation readiness has a positive effect on CSR performance by using the SEM model. And corruption partially positively moderates the mentioned relationship. Furthermore, there have been no previous studies on the performance of economic transformation readiness and CSR performance relationship, this paper contributes to closing the existing large gap in Performance on economic transformation readiness and CSR performance, studying the influence of performance on economic transformation readiness as well as other factors that affect CSR performance. Eventually, our research results are discussed for further implications and offer solutions in corporations, governments and related parties.

Keywords: *Economic transformation readiness, CSR Performance, MNCs, Corruption, CSR*

1. INTRODUCTION

The pandemic Covid-19 has made a great impact on global economics. According to the Congressional Research Service Report, it estimates it has reduced global economic growth in 2020 to an annualized rate of around -3.2% and global trade is estimated to have fallen by 5.3% in 2020. And following the World Economic Forum (WEF) Report 2020, the pandemic has disrupted corporate activity and revealed weaknesses in today's healthcare systems and social protection, affecting the livelihoods of millions of people. As a result, it's crucial to think about not just how to get back to growth, but also how to develop stronger economies that benefit people and the environment. Furthermore, rather of assessing a country's economic productivity, we look at how economies should think about revival and transformation as they recover and restructure their economies in order to promote human progress and environmental compatibility. So in this study, we use the WEF's latest transformation readiness framework

which can track the transformation's progress of each country using a new index that combines several quantitative and qualitative markers and provide 11 priorities that arise from the economic transformation phase.

The crisis has hastened the impact of the Fourth Industrial Revolution on trade, skills, digitization, competition, and employment, revealing the gap between our economic systems and societal resilience. It also accelerates the changes in social framework conditions which have created new societal demands and requirements on companies. It draws the team's attention to consider the relationship between Performance on economic transformation readiness and Corporate social responsibility (CSR) performance, which hasn't been investigated by any other researchers, papers or studies yet.

Corporate social responsibility is frequently regarded as a viable instrument for satisfying public demands and criticism since a firm voluntarily accepts responsibility for society. Companies can use CSR reports to measure the impact of their actions on the environment, society, and economy (the famous triple-bottom-line). Companies may obtain reliable and meaningful data in this way, allowing them to enhance their processes and have a more positive impact on society and the world. Corporate social responsibility has been receiving considerable attention from multiple management perspectives over the last few decades (Wang et al., 2016). In all, 92 per cent of the largest 250 companies in the world produced a CSR report in 2015, up from 64 per cent in 2005 (Meier and Cassar, 2018). Although there is a lot of literature on CSR, there is still no uniform and precise definition (Scherer & Palazzo, 2007; Wood, 2010). Wood (2010) argues that this is because CSR is difficult to conceptualize. However, some authors believe that the lack of a clear definition makes it difficult to conduct empirical studies on CSR (e.g. Lozano, 2008; Orlitzky, Siegel, & Waldman, 2011; Van Beurden & Gössling, 2008)

There have been a lot of researchers investigating CSR and the relationship of CSR with other economic components. CSR has been shown by researchers to improve attraction and employee retention (Kim & Park, 2011), relationships with customers and stakeholders (Pelozo & Shang, 2011; Gogozan et al., 2012). There has been a surge in environmentally conscious consumers over the last few decades, who are seeking more sustainable and environmentally friendly products and services (Gauthier, 2005; Van Beurden & Gossling, 2008). Another study has also shown that consumers use CSR in terms of evaluating companies and/or when purchasing decisions are made (Brown and Dacin 1997; Sen and Bhattacharya 2001).

Many studies have been conducted to identify the aspects that influence CSR due to the lack of a CSR theory. Firm size (Krishna Udayasankar, 2008; Trencansky & Tsaparlidis, 2014; Golrida et al., 2017) and digital transformation (Kayser và Theuvsen, 2014; Rommelspacher 2012; Vanhonacker và Verbeke, 2014) are two factors that affect CSR that are frequently discussed, with research findings indicating that they have a positive impact on CSR. Besides the fact that there haven't been any studies discovering about the relationship between Performance on economic transformation readiness and CSR performance, our team also raised

a question whether corruption can mediate this relationship. Corruption, broadly defined, means the illegal payment to a public agent for undeserved benefits, or the abuse of public office for personal gains (Klitgaard, 1988; Shleifer and Vishny, 1993). Corruption comprises bribery, falsification, fraud, manipulation, financial crimes, abuse, favoritism, and nepotism, among other things, committed through the misuse of authority or power by public (government) or private office workers (businesses) for personal benefit, financial or otherwise (Article 3). An investment manager who is actually conducting a Ponzi scheme is a good example of financial corruption. Numerous studies have examined the impact of corruption on economic growth, with the consistent conclusion that the former has a positive impact on the latter. Based on the case we mentioned above, our team wants to observe the mediator variable - corruption, whether it has an affect on the relationship and how much of an impact it has

This paper seeks to fill the gaps listed above while remaining within the framework of an academic investigation so the purpose of this study is to clarify “The relationship between Performance on economic transformation readiness and CSR performance: The mediating of corruption”

2. LITERATURE REVIEW

2.1. Performance on economic transformation readiness

Economics is a macro issue studied and discussed by many policymakers, researchers. They offer a lot of theories and methods, indicators to evaluate the performance of a country, thereby making comparisons as well as reflecting on the development of that country in many aspects. In our research paper, according to the World Economic Forum (WEF), how a country performs is demonstrated through economic transformation readiness. The economic transformation readiness of a country seems to be still a new term in economics. We have not seen any research papers related to the economic transformation readiness of a country other than the WEF yet.

The World Economic Forum (WEF), a non-profit, independent worldwide institution dedicated to improving the world via public-private partnerships, was founded in Davos, Switzerland in 1945. WEF members are global professionals who are committed to finding answers to the world's most complex problems. The World Economic Forum publishes the Global Competitiveness Report every year, which rates countries based on progress ratings derived from annual assessments of productivity and long-term economic growth factors.

The World Economic Forum's latest transformation readiness framework is founded on the idea that our society has reached a point where economic productivity alone is no longer sufficient. Rather, it must address our society's key concerns, such as sustainability, aging, digitalization, and social equality.

For this reason, The World Economic Forum has decided to replace its popular Global Competitiveness Index, which measures previous performance, with a more forward-looking index that evaluates each country's readiness for economic transformation. To overcome these problems, the World Economic Forum convinces that a significant transformation of our

economy and governments is essential. As a result, it believes it is worthwhile to track the transformation's progress using a new index that combines several quantitative and qualitative markers.

According to WEF, an economy concludes 4 key building blocks: Enabling Environment, Human Capital, Markets, and Innovation Ecosystem. Within each of these key building blocks, priorities for policymakers to consider in developing productive, shared prosperity-enhancing, and ecologically sustainable economic systems are provided.

2.1.1. Enabling Environment

The enabling environment of an economy includes both formal and informal institutions, utilities and infrastructure such as energy, transportation, telecommunications, and water, as well as fiscal policy framework conditions and monetary and, more broadly, public finances.

The economic foundations produced by well-functioning institutions, a stable macroenvironment, and high-quality infrastructure will be vital with rising social and economic polarization and the coming threat of climate change. The quality of a country's enabling environment, on the other hand, will be judged not just on its ability to promote growth and productivity, but also on its ability to reform the economy in order to meet environmental and shared prosperity goals.

2.1.2. Human Capital

Human capital—the capabilities and skills of individuals and populations—is a fundamental driver of economic success and productivity. It can be developed by ensuring that people are in excellent health and have in-demand skills and abilities. Human capital is produced through education over the first two decades of a person's life as well as mid-career training investments, and it is realized in the labor market through profitable work. Finally, a collection of preconditions aligns incentives between workers and firms, such as keeping a close link between compensation and productivity, meritocracy in pay, and professionalization in company management as preconditions for greater labor productivity.

2.1.3. Markets

Markets are the foundation of any well-functioning economy. Competitive markets frequently create goods and services that meet a wide range of human requirements at the lowest possible cost. However, markets do not always provide the greatest results, especially when there is concentrated market power, inadequate knowledge, or externalities. The global financial crisis of 2008, for example, demonstrated that markets are inefficient when a company has an incentive to raise its risk exposure because it does not suffer the entire cost of that risk. Regulations or public interventions are essential in such instances to prevent or repair failures.

2.1.4. Innovation Ecosystem

Innovation ecosystems are a multi-step process that includes the production of ideas, their translation into products, and their large-scale commercialization. A business culture that rewards entrepreneurship, risk-taking, and a willingness to embrace change, a set of regulations

and administrative norms that encourage this attitude, a strong knowledge-generation sector (universities, research centers, and laboratories), and collaboration between these knowledge centers and commercial businesses are all important factors in this progression. Innovation can be successfully directed toward applications that are very beneficial to society (e.g. green energy).

It should be mentioned that due to the lack of (a) explicit definitions of the many aspects of transformation and (b) reliable statistics to quantify these characteristics, performance on economic transformation priorities should be put into perspective.

2.2. Corporate Social Responsibility (CSR)

2.2.1. Corporate Social Responsibility (CSR)

With the rapid changes of society, new social needs and requirements for the company are gradually formed. The concept of corporate social responsibility has gradually become popular and proven to generate benefits for the company, with many scholarly studies to confirm this importance over the past decades. A few previous studies have shown that CSR is considered a criterion when consumers evaluate companies or make purchasing decisions (Brown & Dacin 1997; Sen & Bhattacharya 2001). CSR has also been shown by researchers to improve attraction and employee retention (Kim & Park, 2011), relationships with customers and stakeholders (Peloza & Shang, 2011; Gogozan et al., 2012).

There has been a surge in environmentally conscious consumers over the last few decades, who are seeking more sustainable and environmentally friendly products and services (Van Beurden & Gossling, 2008; Gauthier, 2005). Another study has also shown that consumers use CSR in terms of evaluating companies and/or when purchasing decisions are made (Brown and Dacin 1997; Sen and Bhattacharya 2001). This is considered a motivation for researchers to pay more attention to CSR. It has thus become a prominent concept in the management literature (de Bakker, Groenewegen, & den Hond, 2005; Dobers, 2009; Nejati & Ghasemi, 2012).

Despite the abundance of literature on CSR, there is no clear and uniform concept of CSR (Scherer & Palazzo, 2007; Wood, 2010). This, according to Wood (2010), is due to the difficulty of conceptualizing CSR. However, some authors (Orlitzky, Siegel, Waldman, 2011; Lozano, 2008; Van Beurden, Gössling, 2008) think that the lack of a defined definition makes it difficult to perform empirical studies on CSR.

In general, there are two sources that approach the definition of CSR in the most clear and appropriate way. The first source of the approach stems from the concept of sustainable development developed by the United Nations World Commission on Environment and Development, which defines and considers CSR as a temporal structure, comprising three aspects: economic, environmental and social. From this perspective, CSR implies that companies consider the well-being of society, manage their impact, and their role in the economy, environment and society. Carroll (1979) claims that corporate social responsibility encompasses the economic, legal, moral, and libertarian expectations that a society must

organize at a given period. To put it another way, Carroll (1979) defined CSR by separating firms' economic, legal, ethical, and charitable duties. Many people believe Carroll's (1979) idea of CSR is the clearest because, in addition to establishing business commitments to society, it also systematically distinguishes corporate responsibility from profit-making and government social responsibility (Chen, Chang, & Lin, 2012; Lozano, 2008; Wood, 2010). Proof of the strength of this claim is that many scholars have used this definition in their studies (e.g. Galbreath, 2008; Galbreath & Shum, 2012; Sheth & Babiak, 2010; Shum & Yam, 2011).

In addition to the above two sources, there are many other definitions of CSR from different researchers. Dahlsrud (2008) analyzed nearly 40 definitions of CSR, fortunately concluding that to the extent that the existing definitions are relevant, the main confusion created is not so much about how to define CSR, but about how CSR is built in a specific social context. Despite the lack of a clear definition, all competing definitions of CSR agree on one thing: corporations must design their environmental management strategies to satisfy society's expectations (Gossling & Vocht, 2007).

2.2.2. Impacts of CSR

Many studies have been conducted to identify the aspects that influence CSR due to the lack of a CSR theory. Firm size (Krishna Udayasankar, 2008; Trencansky & Tsaparlidis, 2014; Golrida et al. , 2017) and digital transformation (Kayser và Theuvsen, 2014; Rommelspacher 2012; Vanhonacker và Verbeke, 2014) are two factors that affect CSR that are frequently discussed, with research findings indicating that they have a positive impact on CSR.

2.2.2.1. Firm size impacts on CSR

Several studies suggest that there is a relationship between firm size and corporate social responsibility (CSR). There have been conflicting arguments about the impact of firm size. First, Krishna Udayasankar (2008) proposes that the influence of firm size on corporate social responsibility (CSR) has a U-shaped shape, in which he argues that both very small and very large firms prefer to be strongly involved in corporate social responsibility (CSR), while medium-sized enterprises tend to be less involved. Nevertheless, Golrida et al. (2017) argued that the hypothesis of Udayasankar (2008) only applies in developing countries, and several studies have also supported this argument (Trencansky & Tsaparlidis, 2014; Golrida Karyawati P et al, 2019).

There is also research on the relationship between corporate social responsibility and economic performance (EP) with the moderation of firm size. Because many studies have shown that firm size has a greater impact on firm performance (Ullman, 1985; Acar, 1993; Wijewardena and Cooray, 1995; Reid et al., 2000; Pelham, 2000; Santos and Gonzalez, 2000). As a result, Juan Pablo et al. (2019) stated that the relationship between CSR and EP is dependent on firm size, that is, the larger the firm, the higher the influence of CSR on EP. This is especially true for small enterprises compared to medium enterprises.

2.2.2.2. Digital transformation impacts on CSR

Digital transformation is another impact of CSR. Digital transformation helps develop

and grow the importance of the mass media, which has led to more transparency in companies' activities (Rommelspacher 2012; Vanhonacker and Verbeke 2014) and growing challenges with regard to firms' public relations activities (Kayser and Theuvsen 2014). Therefore, an increasingly critical society demands that companies from all industries take responsibility for their business environment to solve social issues and meet societal expectations (Henrike Luhmann and Ludwig Theuvsen, 2016). In addition, a number of other studies also show that the dramatic growth of both mass and social media has put the international operations of many firms under greater scrutiny by consumers and other stakeholders, who have lately demonstrated a greater tendency to punish irresponsible business behavior (Auger et al., 2010; Williams and Zinkin, 2008); and competing on societal rather than economic grounds has been gaining momentum recently, particularly among multinational corporations (MNCs), which, due to their financial and technological, are expected to take a more active role in accommodating global environmental, ethical, and other challenges (Kolk and van Tulder, 2010; Matten and Crane, 2005)

2.3. Performance on economic transformation readiness and CSR performance

With the goal of finding relevant studies on economic transformation readiness affecting other factors, in order to serve as a premise for us to understand more about existing theories, however, studies on economic transformation readiness are still limited. And mainly the research is done with digital transformation technology readiness (Jafari-Sadeghi et al, 2021; Limani et al, 2019; Marek Deja et al, 2021; Sánchez-Infante Hernández et al, 2020). Besides, we have found many studies affecting CSR performance (Krishna Udayasankar, 2008; Trencansky and Tsaparlidis, 2014; Golrida et al., 2017; Kayser and Theuvsen, 2014; Rommelspacher 2012; Vanhonacker and Verbeke, 2014).

Given the limited literature on economic transformation readiness, and its correlation with economic performance, our assumption is that economic transformation readiness will be reflected along with economic performance. And with previous studies on economic performance, many studies have been done to test the positive impact of CSR on economic performance (Sánchez-Infante Hernández, et al, 2019; Freeman, 1984, García- Castro et al, 2010, and MartínezCampillo et al, 2013). In addition, there are many studies that cannot determine the relationship between economic performance and CSR because there are many moderating variables on this relationship (McWilliams and Siegel, 2001).

Because of the many vulnerabilities and results found above, this study was conducted to find out the impact of the economic transformation readiness index generated by WEF on CSR, and we hypothesized H1 that:

Hypothesis H1: Performance of economic transformation readiness has a significant positive impact on corporate social responsibility performance

2.4. The mediating role of corruption on the relationship between performance on economic transformation readiness and CSR

Corruption is one of the areas of macro research of interest to researchers and

policymakers. People argued that institutions or individuals tend to engage in activities that bring greater economic returns (North, 1990). For example, the "Panama Papers" leak in 2016 exposed the heads of government involved in corruption or tax evasion have resigned or faced prosecution. There have been investigations in at least 82 countries (Three years after the panama papers: progress on horizon, 2019). Corruption, broadly defined, means the illegal payment to a public agent for undeserved benefits, or the abuse of public office for personal gains (Klitgaard, 1988; Shleifer and Vishny, 1993). Corruption includes acts of bribery, falsification, fraud, nepotism, manipulation, financial crimes, abuse, favoritism, etc., conducted by public officials (government) or commercial office workers (businesses) abusing their positions of authority or influence for personal, financial, or other advantage. (Salman Bahooa, Ilan Alonb and Andrea Paltrinieria, 2020). In order to control this problem, many policies, agencies, and tools have been implemented around the world, a growing trend that is considered an anti-corruption industry, a regime, or a global campaign (Sampson, 2010). Although much progress has been made to improve accountability, raise awareness of how corruption occurs, and change norms and perceptions, it still seems very difficult to effectively fight against corruption.

Public corruption (Pontell & Geis, 2007), private corruption (Argandona, 2003), pervasive corruption (Rodriguez, Uhlenbruck, & Eden, 2005), and arbitrary corruption (Rodriguez, Uhlenbruck, & Eden, 2005) are all types of corruption that have been discussed in the literature.

To begin, public corruption is defined as an illegal activity carried out by a government official, bureaucrat, or politician that involves the offer or receipt of financial or non-financial benefits from other government or private individuals. It is divided into four categories: petty vs. grand corruption (Elliott, 1997), organized vs. unorganized corruption (Elliott, 1997), and organized vs. unorganized corruption (Elliott, 1997) (Shleifer & Vishny, 1993). Public corruption is classified as petty when it involves the exchange of minor gifts or favors; nevertheless, grand corruption occurs when the trade involves significant sums of money. Organized corruption, on the other hand, depicts a situation in which the corruption is planned, intentional, and the individuals or companies involved are required to pay a lump sum, whereas unorganized corruption depicts a situation in which the individuals or companies involved pay a specific amount at each stage of illegal activity.

In contrast to public corruption, private corruption is described as an illegal conduct carried out by an employee, management, or corporation that includes the offer or receiving of advantages from other private or government individuals. When a given employee or management feels certain that bribery is required when dealing with government authorities, it is prevalent, and it is arbitrary otherwise (Cuervo-Cazurra, 2016, p. 38). The "demand side" (bribe recipients) or the "supply side" (bribe givers) can both contribute to corruption (Heimann & Boswell, 1998). Public corruption, on the other hand, is linked to the demand side, whereas private corruption is linked to the supply side. Cuervo-Cazurra (2016) argued that in the

international business setting, government officials' demand-side motivations should be separated from managers' supply-side incentives. The demand side of corruption, according to Everett, Neu, and Rahaman (2006), is the activity of a few "rotten eggs" that occurs at the individual level due to "resource shortage." According to Hamir (1999), private corruption occurs at the organizational level when effective governance mechanisms and oversight are lacking. Both governmental and private corruption, according to Caiden, Dwivedi, and Jabbra (2001), is widespread in individualistic societies where people are not exposed to traditional or collectivistic norms and education. They also reveal that foreign investors routinely offer bribes to government officials as part of supply-side corruption in foreign investment.

In this paper, we examine the impact of corruption on the relationship between performance on economic transformation readiness and CSR performance. Several explanations have been proposed to explain the relationship between corruption and the level of performance on economic transformation readiness. We hypothesized in our paper that corruption harms the relationship between performance on economic transformation readiness and CSR performance. However, this effect may not be the same. The regulatory pillars of the government that measure and control corruption differ between developed and developing countries, influencing how economic actors interact. As a result, we propose:

H2: Corruption significantly negatively modifies the relationship between performance on economic transformation readiness and CSR performance

2.5. Control variables

Much prior research has found that emerging markets and advanced markets have considerably different effects on a variety of parameters related to economic development, which might have an impact on Performance on economic transformation readiness. According to Awan and Vashma (2015), infrastructure improvement in emerging nations has enhanced economic activity and, as a result, economic growth. Awan (2014) argues that a large number of working-age people in emerging economies is a valuable asset that has been delivering dividends to their countries. In terms of technological advancement and capital accumulation, human capital is now a very scarce resource. In April 2010, the International Monetary Fund (IMF) conducted a poll to examine the fiscal issues that advanced and emerging markets face. After analyzing the impact of the 2008 financial crisis on emerging markets, they conclude that the amount of debt held by emerging markets was relatively modest and manageable at the time of the crisis. Finally, the IMF poll finds that emerging markets are in better financial shape than advanced markets. Besides, Henrique I. and Sadorsky P. looked at China's economic growth (One of the largest emerging economies) in the setting of substantial capital stock investment and large international trade volume. They discovered that this country has a positive link between investment, productivity, and exports in the long term. Their findings also reveal that this emerging market has economies of scale and technology transfer, as well as proper resource allocation and global competitiveness, all leading to increased productivity. Factors such as infrastructure, long-term investments, proper allocation of resources, and market access both

locally and internationally are the priorities mentioned by WEF in the 11 priorities to ensure economic transformation readiness.

A cross-cultural comparison of millennials' CSR behavior in advanced and emerging markets is crucial to academic research and commercial practice. Marketers must be aware of consumers' possible differences in CSR behavior, especially when positioning themselves strategically in emerging and advanced markets (Michaela Luger, Katharina Maria Hofer & Arne Floh, 2022). Due to differences in regulatory, ethical, and social circumstances in advanced and emerging markets, disparities in the meaning and relevance of CSR can be expected (Panda et al., 2019). Other studies reveal that, while CSR has piqued the interest of marketers, research on the topic is largely limited to advanced markets (Arli & Lasmono, 2010; Zhu & Zhang; 2015; Panda et al., 2019). Cheung et al, on the other hand, argue that CSR has gotten more notice in advanced markets than in emerging markets (Cheung et al., 2015). The explanation for this is that in advanced markets, firms place high importance on satisfying specific stakeholders (e.g., authorities, the media, and shareholders) about CSR disclosure. Furthermore, political, societal, and cultural issues all have an impact on CSR disclosure (Ali et al., 2017; Panda et al., 2019). Although corporations in emerging markets experience less public pressure than firms in advanced markets, internationalized firms, in particular, must consider the concerns of external stakeholders about their CSR policies (Ali et al., 2017; Cheung et al., 2015). Religious factors and varying stages of economic development also contribute to differences in CSR between emerging and advanced markets (Ali et al., 2017).

Through this, we may deduce that each market has its unique characteristics, which influence the impact of the independent variables (Performance on economic transformation readiness and CSR Performance). Therefore, we view the market as a source of measurement noise that must be removed to get a pure relationship between Performance on economic transformation readiness and CSR performance. As a result, we hypothesize the following:

H3: The relationship between Performance on economic transformation readiness and CSR performance is significantly controlled by market

3. METHODOLOGY

The quantitative research approach is the most appropriate for dealing with the main goal of this research: the relationship between two main variables: performance on economic transformation readiness and CSR performance, and the effect of the moderating variable of corruption on this relationship. The quantitative disengage and specify the variables on which they are based to develop a hypothesis, which is generally done prior to the data collection period, and then the data is used to test these hypotheses, according to theory. To put it another way, the variables are viewed as the means by which quantitative researchers execute their analysis. (Brannen, 2005; Saunders et al., 2012). In the quantitative method, the instrument utilized by the researcher during the data collecting and analysis process is a predefined and precisely adjusted technological tool that allows for far less imaginative input, flexibility, and

reflexivity (Bryman, 2004). To get statistically significant results in terms of generalization and data representation, the quantitative researcher needs appropriately well-planned samples (Brannen, 2006; Saunders et al, 2012). Accordingly, Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA), Structural equation modeling (SEM) are performed to achieve the goal.

3.1. Data collection

Questionnaires, interviews (semi-structured, in-depth, group focus, direct or indirect), observation, and secondary data from database sources are all common ways to acquire quantitative data. (Zikmund, 2013).

In this research, we use secondary data collected from CSR Hub - Consensus ESG Ratings, Corruption Perceptions Index 2020: Score and rank changes 2019-2020 from The Global Competitiveness Report SPECIAL EDITION 2020 of the World Economic Forum and Country weights in S&P DJI's global benchmark indices as of June 21, 2021.

Document secondary data are data that last physically (even digitally) as proof, allowing data to be translated over time and place and reanalyzed for a purpose other than that for which they were initially acquired (Melissa P. Johnston, 2017). When collecting secondary data, we consider many factors, including where to find it, how beneficial it is in connection to our research topic and aims, and ethical concerns virtues that are associated. We can assess the data before using it, which gives us an advantage over researchers who use primary data (Stewart and Kamins, 1993). Furthermore, secondary data is frequently higher-quality data than might be gotten by gathering data on one's own (Smith, 2008). Secondary data, unlike primary data, usually provides a source of data that is permanent and available in a form that can be easily reviewed by others (Denscombe, 2007). This implies that the data and research findings are more accessible to the general population

3.2. Measurements.

3.2.1. Corporate social responsibility (CSR)

To find out CSR data for the purpose of finding out the relationship between performance on economic transformation readiness and CSR, we use a secondary data source provided by CSRHub. The data sources here ensure relevance and accuracy through a six-step approach to eliminating several methodological challenges such as those used for analysis with different measurements and methods, the data source is not comprehensive, the data cannot be updated quickly because some companies report only once a year, some sources evaluate the performance of subsidiaries while CSRHub's approach is parent company evaluation. For an approach to eliminating methodological challenges, here are 6 steps for CSRHub to eliminate bias and inaccuracies:

1. Map to a central schema. In this step, CSRHub divided CSR performance into 12 subcategories representing the 4 main categories presented in detail about each in Table 1. They then moved each data element into the appropriate subcategories. by constructing more than 5000 data elements.

2. Convert to a numeric scale. For sources that are not on the 0-100 scale, CSRHub will convert it to this format to ensure consistency with other data sources.

3. Normalize. CSRHub compares rating scores from different sources for the same company to find a bias score. The data creators then remove it and create more accurate data.

4. Aggregate. CSRHub data creators aggregate data to create subcategory ratings and aggregate these sub-ratings again to produce category-level ratings.

5. Trim. CSRHub does not evaluate companies when they do not have enough data.

6. They do research on each rated company to establish which industries it operates in. They collect contact information, describe the company's business, and locate the company's website. With this information, they can create industry and country averages.

Table 3: Category and Subcategory

Community	Community		
	Philanthropy & Community Dev	Product	Supply Chain & Human Rights
The Community Category covers the company's commitment and effectiveness in the local, national, and international communities where it works.	reflects the company's relationship with the local community such as charitable activities, donations, employee volunteer time, and health protection, managing the impacts of a company's activities on the community, the impact of a company's land use, structural design on the surrounding economy and ecosystem.	reflects a company's responsibility to build, develop and manage its product's impact on customers and the community such as reducing environmental costs, safety, and the quality of the product, the company's response to the safety and quality of the product.	reflects the company's commitment to respecting fundamental human rights conventions, and its ability to maintain its license to operate.

Employees	Employees		
	Benefits & Compensation	Labor Rights & Diversity	Safety & Training, Health
reflects the disclosure of policies, programs and performance, labor relations and labor rights, and employee benefits such as compensation, benefits, training, health, and safety.	reflects a company's ability to increase employee loyalty and productivity through the form of compensation and benefits in a fair, equitable, and equitable manner.	reflects actual workplace policies and conditions including fair treatment, non-discrimination for employees, and other relevant policies.	reflects the company's success in safeguarding the health and safety of its employees on the job.

Environment	Environment		
	Climate Change & Energy	Reporting & Environment Policy	Resource Management
The Environment category includes information about a company's interactions with the environment as a whole, such as its usage of natural resources and its impact on the Earth's ecosystems.	-Reflects a company's ability to address climate change through suitable policies and strategies, energy-efficient operations, and research and development of renewable energy and other alternative environmental technologies.	-Reflects a company's ability to address climate change through suitable policies and strategies, energy-efficient operations, and research and development of renewable energy and other alternative environmental technologies.	-Examines how effectively resources, particularly those of a company's suppliers, are utilized in manufacturing and providing products and services.

Governance	Governance		
	Board	Leadership Ethics	Transparency & Reporting
The Governance category includes policy and procedure transparency, board independence and diversity, executive compensation, stakeholder issues, and an assessment of a company's culture of ethical leadership and compliance.	-Reflects the effectiveness of a company in following best practices in corporate governance principles related to board membership, independent decision-making through experienced, diverse, and independent board members, effectiveness in following best practices related to board activities and functions, and board committee structure and composition.	-Reflects how a corporation manages its interactions with various stakeholders, including investors, consumers, communities, and regulators.	-Evaluates factors such as whether corporate policies and practices are aligned with sustainability goals, whether the corporation's management is transparent to stakeholders, whether employees are appropriately engaged in the company's management, and whether sustainability reports comply with standards such as the Global Reporting Initiative, AccountAbility (AA1000), and other standards, as well as whether these reports are made publicly available.

3.2.2. Performance on economic transformation readiness

We use secondary data from The Global Competitiveness Report in this paper. The World Economic Forum compiled and/or gathered the information and data included in this report. Since 1979, the Global Competitiveness Report series has sought to broaden the perspectives of policymakers, businesses, and the general public on how to improve economic productivity and broader resilience by looking beyond growth alone.

The 2020 performance to recovery scores were calculated using primary and secondary data by the World Economic Forum. The Executive Opinion Survey, which consisted of 80 questions that respondents were asked to evaluate the situation for various areas at the country

level and provide insights into eight themes in 2020, was the source of primary data. The macroeconomic and business environment; social cohesion and well-being; governance and institutions; connection, access, and infrastructure; innovation capability and new products; education system and skills; labor market and employment; and a cross-cutting focus on equity and social justice dimensions are among these themes. The majority of the questions asked respondents to score their country's performance on various areas on a scale of 1 to 7 (worst in the world to best in the world). Infrastructure, technology, financial environment, trade and investment, competitiveness, business operations and innovation, security, governance, human resources, and risks and emerging technologies were among the ten subject areas in which questions were asked.

The World Economic Forum supervises the Survey's administration, which is carried out at the national level through the Forum's network of Partner Institutes. Universities or research institutions, industry associations, competitiveness councils, or, in rare situations, survey businesses are all examples of Partner Institutes. These organizations have a private-sector network for reaching out to top corporate executives, as well as a strong commitment to boosting their economies' competitiveness.

The report gives a preliminary evaluation of countries transformation readiness by combining the 11 goals that emerge from this analysis for the economic transformation phase. This unique paradigm makes use of the most up-to-date facts to assess where countries stand in this process right now. This study only looks at a small number of nations (37), focusing on economic transformation priorities rather than the entire set of factors that drive productivity, sustainability, and shared prosperity. This exercise has three objectives. First, it plots priority areas against data points in order to better describe the actions and/or policies required to "rebuild better" productive, sustainable, and inclusive economies. Second, it gives a glimpse of the current situation in each of the 37 countries, measuring how far many of them have progressed toward economic transformation. Third, it identifies critical data gaps that must be addressed when evaluating existing national policies and performance. Despite the fact that current statistics are insufficient to measure all facets of economic transition, the findings suggest that no country is totally prepared to adapt. However, among the currently measurable strategies, the "Nordic model" stands out as the most promising in terms of transitioning to a productive, sustainable, and inclusive economic system.

The transformation readiness framework utilized in this exercise is based on progressive aggregations of scores, starting at the indicator level (the most disaggregated level) and progressing to the concept level, concept level, priority level, and finally overall score for each country studied. Each aggregated measure is produced at each aggregation level by taking the average (i.e. arithmetic mean) of the scores of its components.

Prior to aggregation, raw data for individual indicators are converted into a progress score ranging from 0 to 100, with 100 being the best ideal outcome. Each indicator is turned into a unit-less score ranging from 0 to 100 using a min-max transformation to allow for the

aggregate of indicators of varying character and size. Each indicator is formally rescaled using the following formula:

$$score_{i,c} = \left(\underbrace{\frac{value_{i,c} - wp_i}{frontier_i - wp_i}}_{\alpha} \right) \times 100,$$

where $value_{i,c}$ is the "raw" value for indicator i of nation c , worst performance wp_i is the lowest acceptable value for indicator i and $frontier_i$ is the best possible outcome. The frontier might be a policy aim or desire, the maximum conceivable value, or a number derived from statistical analysis of the distribution, depending on the indicator (e.g. 90th or 95th percentile). If a value is less than the worst performance value, it receives a score of 0; if it is greater than the frontier value, it receives a score of 100

3.2.3. Corruption

The Corruption Perceptions Index (CPI) was created in 1995 as a composite indicator to quantify public sector corruption perceptions in various nations throughout the world. The CPI is based on 13 data sources that record the opinions of experts and corporate executives on a variety of public-sector corruption issues, including: Diversion of public funds, Use of public office for private gain, Nepotism in the civil service, State capture.

Some of the sources also look at the measures that a country has to fight corruption, such as: The government's ability to enforce integrity mechanisms, The effective prosecution of corrupt official, Red tape and excessive bureaucratic burden, The existence of adequate laws on financial disclosure, conflict of interest prevention and access to information, Legal protection for whistleblowers, journalists and investigators .

4. RESULTS

4.1. Data analysis result

After searching and removing all the observations with missing values, we have a final sample of 504 observations at companies in many different countries. In which, there are 151 companies from emerging markets and 353 companies from advanced markets.

On the other hand, the data we use the log function to reduce to the same measurement method, gives the result with the performance on economic transformation readiness index denoted E, the smallest result is 1.4 and the highest is 1.8. The CSR index is 1.4 and 1.7 respectively. Similarly with CPI of 0.1 and 1.8 respectively.

Assessing Cronbach Alpha is the next step after descriptive statistics analysis. Cronbach Alpha is a generally used method to examine the dependability of measurement by determining its internal consistency. After eliminating Log(E8) and Log(E9) (whose item sum correlation is 0.253 and 0.294, respectively, smaller than 0.3), we may conclude that the remaining measuring constructs meet the reliability requirement using this model because all construct measurements had Cronbach Alpha (0.758) values greater than 0.7 and item-total correlations greater than 0.3.

Next, exploratory factor analysis (EFA) with the Maximum Likelihood Method is performed with the goal of investigating the data and providing information on how many factors are required to best represent the data depending on the statistical method. To ensure the data's suitability for EFA, the Kaiser Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity (BTS) were tested. The KMO coefficient was greater than 0.80, and the BTS was statistically significant at the 0.05 level, indicating that the items were adequate (Hair, Black, Babin, & Anderson, 2010). A nine-factor solution was indicated by the break in the scree plot and retrieved eigenvalues (higher than 1). Things with factor loadings less than 0.50 or items that were cross-loaded were deleted one by one, and the remaining items were factor analyzed again (Hair et al., 2010).

The Kaiser-Meyer-Olkin (KMO) index is 0.816 (above 0.5) in this model, while Bartlett's test has a $p < 0.001$ value (smaller than 0.05). The Eigenvalues of the factors are all high (>1), the 2nd factor has the lowest Eigenvalues of $2.190 > 1$, the total variance calculated was roughly 58.758%, which was higher than the threshold value of 50%, so it can be concluded that 2 big factors explain 58.758% of the variation of data and implying that the scales' overall validity was reasonable (Hu, 1999). The EFA results met the requirement for the measuring scales' reliability coefficient, showing strong internal consistency (Hair et al., 2010)

The Component Matrix table shows that nine observed variables have been divided into two factors, all of them have coefficients greater than 0,7 and at the same time, none of the observed variables have similar loading coefficients and upload two factors together. As a result, their convergence and discrimination nature were both ensured through EFA exploratory factor analysis.

Specifically, based on the empirical evidence after the EFA test, economic structure is divided into two factors: Econ1 and Econ2.

After running EFA test, we found that the Performance on transformation readiness needs to be divided into 2 factors to be able to run CFA, so we set the following hypothesis to suit the results created:

Econ1 affects CSR with the negative moderates of Corruption, including Log(E1), Log(E2), Log(e3), Log(e4) , Log(E10) and Log(E11).

H1A: Factor 1 of performance of economic transformation readiness has a significant positive impact on CSR performance.

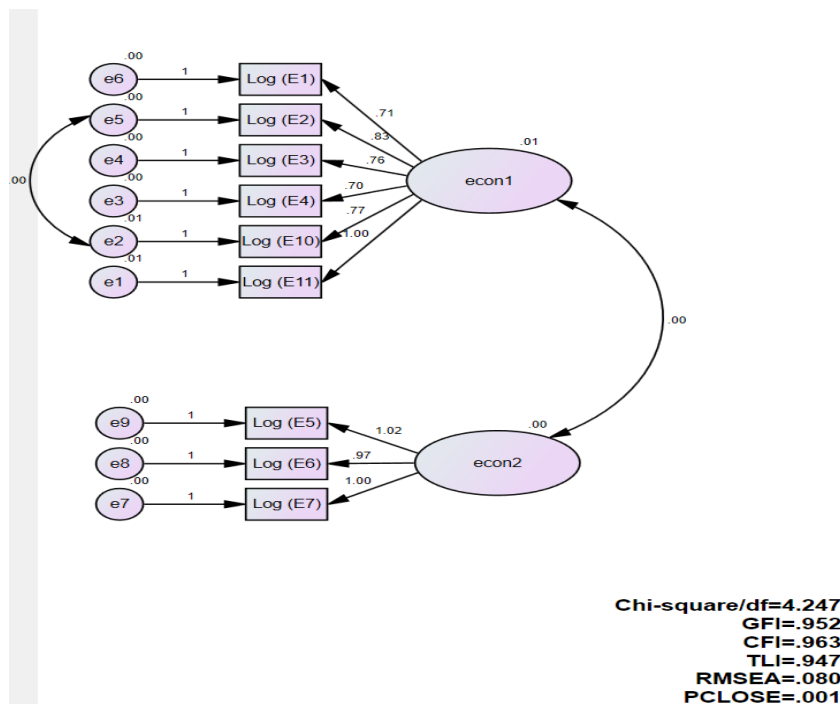
H2A: Corruption significantly negatively moderates the relationship between factor 1 of performance on economic transformation readiness and CSR performance.

Econ2 affects CSR without the negative moderates of Corruption, including Log(E5), Log(E6) and Log(E7).

H1B: Factor 2 of performance of economic transformation readiness has a significant positive impact on CSR performance.

H2B: Corruption significantly negatively moderates the relationship between factor 2 of performance on economic transformation readiness and CSR performance.

After resetting the hypothesis, we run CFA to see the fit of the model



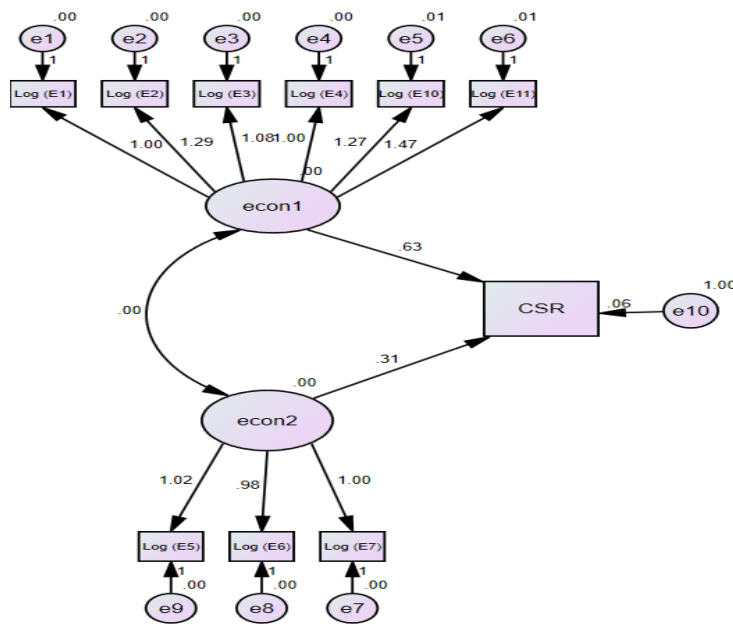
(Chi-square/df=4.247; GFI=0.952; CFI=0.963; TLI=0.947 and RMSEA=0.080)

Both GFI and CFI exceeded the 0.9 standards after modification, whereas 2/df, p, and RMSEA are all below the Hair et al, 2010 thresholds.

In conclusion, the model fit and construct validity results above give an appropriate measurement model (which meets all the requirements). As a result, the measurement model is suitable for hypothesis testing.

The maximum likelihood estimation (MLE) statistic is used to estimate the parameters of a probability distribution by maximizing a likelihood function (Myung, I. J., 2003), so that the thesis structural model can be specified, according to the CFA results. As a result, the control variables are clearly visible.

Overall, the index not only meets the required threshold (above 0.8, according to Bauldry, 2015 and Brett, 2010), but it also qualifies for a well-fit model (above 0.9) (Hair et al, 2014): CFI=0.937, GFI=0.932. The SEM result is depicted in the diagram below:



Chi-square/df=5.442
GFI=.932
CFI=.937
TLI=.914
RMSEA=.094
PCLOSE=.000

Dependent variables	Estimate	S.E.	C.R.	P	Result
CSR ← econ1	.625	.060	10.408	***	Supported
CSR ← econ2	.306	.057	5.359	***	

Hypotheses Testing Results

Performance of economic transformation readiness has a significant positive impact on CSR performance has been confirmed within the model. The Regression Weights index, in particular, demonstrates that economic transformation readiness and CSR performance have a significant relationship ($P < 0.001$). Furthermore, the table's estimates index reveals a positive relationship (> 0). Hypotheses H1A (Factor 1 of performance of economic transformation readiness has a significant positive impact on CSR performance) and hypotheses H1B (Factor 2 of performance of economic transformation readiness has a significant positive impact on CSR performance) are thus accepted.

The Standardized Regression Weights table is used to analyze the level of impact of the independent variables (performance on economic transformation preparedness) on the dependent variable (CSR performance). According to the table, a 0.859 standard deviation change in CSR performance would occur from raising or decreasing one standard deviation in performance on economic transformation readiness characteristics. The performance on economic transformation readiness accounted for 26.2 percent of the variance in CSR performance, according to the R-Squared index ($R^2 = 0.262$).

4.2. Robustness check (Bootstrap)

Robustness check is used to define the model fit and can be done in a variety of ways. We use the bootstrap method to test the model's robustness in this research. Bootstrapping is a resampling procedure that uses data from one sample to generate a sampling distribution by repeatedly taking random samples from the known sample, with replacement. The authors perform the bootstrap method with SPSS AMOS 20 with sample size 3000. The Bias/SE-Bias result of CSR to econ 1 and CSR to econ2 are 0 and they are less than 1.96, indicating that the model used is the best for representing the relationship between performance on economic transformation readiness and CSR performance. The detailed results are showed in Table 10.

Bootstrap results

Parameter		SE	SE-SE	Mean	Bias	SE-Bias
CSR	<--- econ1	.035	.000	.481	.000	.001
CSR	<--- econ2	.041	.001	.237	.000	.001

4.3. Multigroup analysis

Control effect of market on corporate social responsibility

Control effect of market		
Value	Chi-square	df
Constrained model	203.474	66
Free model	203.795	68
Difference	0.321	2
P-value	0.852	

A multigroup structural equation modeling technique was used to compare the market on the relationship of performance on economic transformation readiness and CSR performance in terms of control variables. The empirical findings revealed that market correlation ($p=0.852>0.05$) does not appear to be supported. As a result, H3 is not accepted in this study (the relationship between performance on economic transformation readiness and CSR performance is significantly controlled by the market).

As a result, due to the improved compatibility, this study uses the constrained model to read the data. In conclusion, the market does not have influence on CSR performance which doesn't support hypothesis H3 (the relationship between performance on economic transformation readiness and CSR performance is significantly controlled by the market).

4.4. Moderation analysis

To test the hypothesis that clarifies the relationship between Performance on economic transformation readiness and CSR performance: The mediating of corruption, a hierarchical multiple regression analysis was conducted.

Interaction between EC1 of performance on economic transformation readiness and CSR performance when adding CPI to the model

		Estimate	S.E.	C.R.	p	Label
ZCSR ←	ZCPI	-4.195	1.205	-3.482	***	
ZCSR ←	ZEC1	-.153	.076	-2.029	.042	
ZCSR ←	ZEC1x CPI	3.757	1.186	3.169	.002	
ZCSR ←	e1	.908	.029	31.718	***	

Standardized Regression Weights when adding CPI to the model

		Standardized Regression Weights	Estimate
ZCSR ←	ZCPI		-4.195
ZCSR ←	ZEC1		-.153
ZCSR ←	ZEC1x CPI		3.757

Squared Multiple Correlations when adding CPI to the model

	Squared Multiple Correlations	Estimate
ZCSR		.174

The analysis results show that the P value is $p = 0.042 < p = 0.05$, $b = 3.757$. The results show that the higher the presented CPI, the higher the effect of the partial effect of performance on economic transformation readiness on CSR performance and vice versa. Therefore, the results of the interaction analysis on the moderate influence of the corruption index do not support hypothesis H2A (Corruption significantly negatively moderates the relationship between factor 1 of performance on economic transformation readiness and CSR performance).

Interaction between EC2 of performance on economic transformation readiness and CSR performance when adding CPI to the model

		Estimate	S.E.	C.R.	p	Label
ZCSR ←	ZCPI	.629	1.224	.514	.607	
ZCSR ←	ZEC2	.394	.089	4.451	***	
ZCSR ←	ZEC2x CPI	-.834	1.189	-.702	.483	

Meanwhile, the findings suggest that the CPI has no influence on the partial adjustment of the main relationship between ECON2 and CSR performance. Part of the main relationship maintained even when the interaction term between CPI was added to the regression model. The interaction plot revealed no changes in the relationship between performance on economic

transformation preparedness and CSR performance ($p = 0.483$, $p > 0.05$). The results of the interaction analysis on the moderate influence of the corruption index do not support hypothesis H2B (Corruption significantly negatively moderates the relationship between factor 2 of performance on economic transformation readiness and CSR performance)

Therefore, the results show that CPI partially positively affects the relationship between performance on economic transformation preparedness and CSR performance, specifically the relationship between ECON1 and CSR performance.

5. CONCLUSION

5.1. Result summary

Existing literature has many limitations on economic transformation readiness. On the other hand, CSR is being considered as a necessary element of enterprises. Aware of this gap and its importance, this thesis was conducted to answer the question “What is the impact of performance on economic transformation readiness on CSR performance?”.

To summarize, the purpose of this study is to look into the links between economic transition readiness and CSR performance, an extensive literature review is carried out. As a result, the conceptual model is constructed using the following five hypotheses:

H1A: Factor 1 of performance of economic transformation readiness has a significant positive impact on CSR performance.

H1B: Factor 2 of performance of economic transformation readiness has a significant positive impact on CSR performance.

H2A: Corruption significantly negatively moderates the relationship between factor 1 of performance on economic transformation readiness and CSR performance.

H2B: Corruption significantly negatively moderates the relationship between factor 2 of performance on economic transformation readiness and CSR performance.

H3: the relationship between Performance on economic transformation readiness and CSR performance is significantly controlled by market

The study next examines the hypotheses and answers the research problem by combining the positivist paradigm with a deductive approach. Accordingly, the nature of this paper requires statistical analysis of quantitative data, followed by the use of structural equation modeling (SEM) to test hypotheses using conceptual models. Finally, the model's control variables and moderator effects were tested using multi-group covariance and moderation analysis.

Overall, the results indicate that hypothesis H1A and H1B is acceptable. In other words, economic transformation readiness performance has a significant impact on a firm's CSR performance. Specifically, the performance results of readiness to transform the economy affect the company's CSR performance in a positive way. However, the results show that corruption positively modifies the relationship between factor 1 of economic transformation readiness performance and CSR performance, which is not consistent with the hypothesis but also it can

draw positive conclusions based on the data.

5.2. Findings and Discussions

The main purpose of this paper is to find out the relationship between Performance on economic transformation readiness and CSR performance, as well as the mediating of corruption that influences this relationship. In general, our results support the hypothesis that Performance on economic transformation readiness (including Enabling Environment, Human Capital, Markets, and Innovation Ecosystem) and CSR performance are related, specifically Performance on economic transformation readiness has a positive effect on CSR performance. In addition, the relationship is also partly moderated by corruption.

Our findings support earlier research that shows that economic transformation readiness has a positive impact on a company's CSR performance. Much research has been done to examine the positive influence of CSR on economic performance (Sánchez-Infante Hernández, et al, 2020; Freeman, 1984, Garca- Castro et al, 2010, and MartnezCampillo et al, 2013). This can be explained by variances in the meaning and relevance of CSR in emerging and advanced economies, which can be predicted due to differences in regulatory, ethical, and social conditions (Panda et al., 2019). While CSR has grabbed marketers' interest, research on the subject is primarily limited to advanced markets (Arli & Lasmono, 2010; Zhu & Zhang; 2015; Panda et al., 2019). On the other hand, Cheung et al. contend that CSR has received greater attention in advanced markets than in emerging markets (Cheung et al., 2015). This is because, in advanced markets, corporations place a high value on satisfying specific stakeholders (e.g., regulators, the media, consumers, and shareholders) about CSR disclosure. Furthermore, CSR disclosure is influenced by political, sociological, and cultural challenges (Ali et al., 2017; Panda et al., 2019). Although companies in emerging markets face less public scrutiny than companies in developed markets, internationalized companies, in particular, must consider the concerns of external stakeholders regarding their CSR strategies (Ali et al., 2017; Cheung et al., 2015). According to Ali et al. (2017), the majority of CSR disclosure studies in emerging markets are focused on social and environmental responsibility and refer to Malaysia, Singapore, South Africa, and China. They also attribute the lower demand for CSR disclosure to the less informed society in these nations on social and environmental issues. Differences in CSR between advanced and emerging markets are also influenced by religious issues and different stages of economic development (Ali et al., 2017).

All of these may give us clear explanations for the positive relationships of performance on economic transformation readiness and the company's CSR performance

5.3. Theoretical contributions

Firstly, there have been no previous studies on the Performance of economic transformation readiness and CSR performance relationship, most studies related to CSR performance mostly focus on factors such as Firm size or Digital transformation that affect

CSR. Therefore, by studying this relationship, this paper contributes to closing the existing large gap in Performance on economic transformation readiness and CSR performance, studying the influence of Performance on economic transformation readiness as well as other factors that affect CSR performance. Besides, the author would like to contribute reliable research on the relationship between performance on economic transformation readiness and CSR performance, as a useful reference source for further research in the future.

Secondly, apart from WEF, we hardly find any research on Economic Transformation Readiness. While it is indeed a very important factor and has a strong influence on other issues of society, the WEF also asserted in their paper that long-term economic transformation is good for outcomes of shared prosperity and sustainability in the future (Klaus Schwab & Saadia Zahidi, World Economic Forum, 2020). As a result of the affirmation of the positive impact of Performance on Economic Transformation Readiness on CSR performance, this study contributes to the literature review as well as provides many arguments and evidence that Performance on Economic Transformation Readiness is extremely important and should be investigated by experts in its many other aspects.

Thirdly, the conflicting outcomes of these research may be due to the investigation of factors affecting CSR performance without removing the influence of the control variable (Dikova, D., & Sahib, PR, 2013; Shahzadi et al., 2014; Meyerson, G., & Dewettinck, B., 2012). As a result, this study employs the multi-group method to remove these noises from the measurement findings, allowing it to precisely conclude the link between the variables.

Finally, this study contributes to the advancement of these commonly used quantitative approaches by merging moderating variables and controlled variables in one model (Wu, A. D., & Zumbo, B. D., 2007). The model's inclusion of moderators and controllers helps to understand the relationship between economic transformation readiness and CSR performance, as well as the effects of other factors on this relationship (specifically, in this article corruption).

5.4. Implications

The next part draws conclusions from the paper and literature review for the implementation of social responsibility in companies and proposes policies to monitor the implementation of social responsibility for the government.

Research results show that there is a positive correlation between performance on economic transformation readiness and CSR performance, so the government needs to take measures to increase performance on economic transformation readiness as well as improve its management role and limit positive in the implementation of social responsibility in companies. Research results also show that corruption significantly positively modifies the relationship between performance on economic transformation readiness and CSR performance. This helps companies devise appropriate business strategies when entering markets in countries with high corruption. It is critical to identify and comprehend the major areas that must be identified in order to make CSR implementation possible.

- It is vital to strengthen communication and propaganda through a variety of channels so that people, particularly businesses and macroeconomic policymakers, grasp the true nature of the issue of "Corporate Social Responsibility" and the Code of Conduct.

- Conduct surveys and practical studies at businesses that have or will implement the Code of Conduct to determine the benefits, obstacles, and barriers so that appropriate solutions can be implemented.

- Businesses must be given support tools and policies by the government in order to meet their social duties. Businesses must incur costs, even rather considerable investment costs, in order to implement social responsibility and the Code of Conduct, such as investments to enhance sanitation and environmental conditions. labor. Because these expenditures are often unaffordable for firms, the state can borrow from the development assistance fund, the trade promotion fund, and other funds under a preferential policy.

- Promote the role of professional associations and organizations as information channels for businesses on social responsibility, particularly by providing updated information on the Code of Conduct; advising businesses on the implementation of social responsibility and the Code of Conduct, and so on. Protection clearly demonstrates the social duty of businesses in the development of industrialization and modernization environment.

- Continue to develop the legislative framework for environmental protection; penalties must be sufficiently severe to deter violators. Furthermore, it is vital to construct an environmental management system in factories and industrial parks in accordance with international standards while also organizing close inspection in order to create a pleasant and welcoming environment compared to humans.

- Strengthen the task of analyzing the situation, inspecting, examining, and monitoring the environment, and collaborating closely amongst specialized authorities.

- Organize the evaluation and assessment of investment projects' environmental implications with care. Implement planning and investment projects in a public and transparent manner, and establish circumstances for all groups and citizens to participate in social criticism of the plans and projects' environmental implications.

The CSR activity should be tailored to the organization's size and working style. Its CSR program will perform better in terms of economic transformation readiness, and vice versa. To develop a favorable atmosphere in society, it is necessary to increase knowledge among all stakeholders and gain the trust of localities. It is a vital component of the business houses' mission to expand knowledge and involve all stakeholders in the society's holistic development. CSR can only succeed if it is ethical, social, and moral in its approach to social and economic development, resulting in a stronger society. Improving economic transformation readiness will help improve CSR performance, thus benefiting consumers and contributing in return to the country's economic development. Therefore, consumers need to pay attention and require companies to implement CSR to ensure the common interests of the whole society. In practice, the conclusions derived from the findings of this study suggest that management can leverage economic transformation readiness as a factor in improving CSR performance.

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JOB DEMAND – RESOURCES THEORY IN RETAIN LECTURERS IN VIETNAM

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Abstract:

The objective of this article is to review research related to staff and retain lecturers in institutions and higher education. Author literature review about job demand – resources theory, thereby assessing research gaps in the context of public universities in Vietnam to propose issues to be studied in the future.

***Keywords.** Job Demand – Resources theory, retain lecturers, Public University, Vietnam*

1. Introduction

The departure of each individual has been confirmed to have an important influence on the organization (Räsänen et al., 2020). Party members leaving the profession is a dilemma for administrative agencies due to the economic and educational consequences of this phenomenon (Ryan et al., 2017). Employee transfers can impair the quality of education (Levy et al., 2006), with serious consequences on the quality of teaching, the learning ability of students and, more broadly, the school community (Räsänen et al., 2020). For example, research by Ronfeldt et al. (2013) has shown that faculty transfers have a negative effect on student and school performance. New faculty members can affect the continuity, stability, and functioning of the learning community because new working relationships must be established while the performance of new ones is usually lower in the first 2 years (NCTAF, 2003). In fact, attention to the possibility of preventing the departure of qualified faculty has opened up a rich area of research aimed at mitigating the problem of "faculty retention crisis" (DeAngelis & Presley, 2011).

Career change is considered a serious occupational risk in the education sector worldwide (OAJ 2018). Many surveys and studies on job transfers in the education sector have been carried out in developed countries. In the United States, for example, in 2003, it was found that between one-third and one-half of newparty members left the profession within their first 5 years (Darling-Hammond, 2003). In contrast to many studies conducted in developed countries, very little research on teacher retention has been conducted in developing countries while shortages of party members are becoming a concern for many countries, including Vietnam. Research by Nguyen Thi Binh and Vu Trong Sy (2012) in collaboration with more

than 10 pedagogical schools shows that nearly half of students do not want to continue teaching, 10% are just waiting for the opportunity to leave the industry. This has placed a requirement for public higher education institutions to retain faculty in order to improve the quality of their training. industry. But research on faculty retention in Vietnam is very limited. Therefore, this study has focused on faculty retention factors at Vietnamese public universities to support educational institutions to improve this situation.

Early studies of faculty's decision to keep or leave were all through their emotional responses to the institution. Accordingly, faculty will evaluate different aspects of the work environment and develop into positive (make them stay) or negative (cause them to leave) (Mowday et al., 1984; Lachman et al., 1987). Bakker and Demerouti's (2017) work-resource needs model (JD-R) has been widely used to predict happiness, satisfaction, and outcomes at the individual and organizational levels, as well as faculty retention (Skaalvik et al., 2018; Kaiser et al., 2020). Accordingly, the JD-R model suggests that faculty retention motivation is not only influenced by stressors or job demands, but has also been shown to be associated with positive aspects of the job, often referred to as job resources. If the demands of work are associated with a deterioration of health (burnout), then work resources will lead to a process of motivation (commitment).

Although widely used, the process by which work needs and resources lead to faculty retention has not been fully explored. Most studies have focused on the ability to create faculty burnout (Skaalvik et al., 2018; Kaiser et al., 2020; Sokal et al., 2020) or affect job satisfaction (Han et al., 2020; Drüge et al., 2021) with little regard for the career transition factor. Especially in the context of education, teachers must constantly and confront new development tasks in the form of school reform and educational innovation (Räsänen et al., 2020). Thus, the teaching profession increasingly requires the ability to tolerate constant change, insecurity, unfinished tasks, and individual incompleteness (Husu and Toom 2016). These requirements will activate faculty career adaptability (Zikic & Klehe, 2006). However, career adaptation is mainly used in studies of the transition from the place of study to the workplace, very few studies focus on the career adaptation of university lecturers. Therefore, the role of career adaptation needs to be verified.

The purpose of this study was a review of studies involving faculty/staff retention. From there, it is proposed to study the factors affecting the retention of lecturers in public universities in Vietnam based on the theory of work needs and resources.

2. Literature review

The study overview aims to synthesize, analyze, compare and evaluate factors affecting faculty retention in Vietnamese public universities. Studies are reviewed based on aspects such as sorting by research results, study duration to show research gaps.

The study conducted an overview according to the following 4 contents: (1) Overview

studies on the Job Demands – Resources Model; (2) Studies of the direct relationship between work needs and resources and faculty retention ; (3) Studies of the indirect relationship from public-resource work needs to faculty retention ; (4) Studies on the impact of contract type regulation variables on the relationship between job resources and job demands on employee retention; (5) Gaps and problems of research.

2.1. Studies of the direct relationship between job resource and teacher retention

- *The relationship between job demand and faculty retention*

Several studies have determined that salary has a direct influence on employees' attitudes towards their jobs and work decisions. Salary is the most important material welfare that affects the job satisfaction of employees . The study of 400 managers found that a quarter of those(Ghiselli, 2001; Qenani Petrela et al., 2007)(Qenani Petrela et al., 2007; Queiri et al., 2014)(Ghiselli, 2001) surveyed plan to change jobs in the near future, with at least half planning to leave their jobs entirely. Even some managers have job satisfaction, two out of five think they are unlikely to continue working for five years. The top reason for lack of employee engagement and retention is pay and benefits. Job satisfaction increases as their wages increase, and employees' engagement with the business is boosted. When employees are dissatisfied with the relationship between hours worked and the value of wages received, they tend to choose to change jobs. Studies of millennial employees for good pay and reasonable benefits within the company increase their satisfaction leading to the intention to retain their jobs. Millennials rate salary as the top factor for their motivation to work. (Qenani Petrela et al., 2007)(Queiri et al., 2014)(Qenani Petrela et al., 2007)

Employee engagement and retention also depend on conflict. Conflict between work and family is considered an important issue for today's employees. In recent years, there has been an increasing number of conflicts in employees' work and personal lives, and several studies have highlighted the role of employees in the workplace and their role in family life. In the West, studies linking work demands and work-family conflict show that long working hours and heavy work tasks and workloads have a direct effect on family-work conflict. In addition, many studies have been conducted with staff at state hospitals – where there is a heavy workload, dense work schedule, unsafe working environment, which influences employees' decision to commit to long-term work. Studies show that family-work conflicts often occur due to the need to work constantly, lack of time and discipline problems, stress due to large workloads. Therefore, without a balance between work and family, employees are prone to fall into many worries about work, reduced work performance and rest time. This is also the cause of the lack of work commitment of employees to find a new job that suits them. (Burke & El-Kot, 2010; Grandey et al., 2005)(Anafarta, 2011)(SPECTOR et al., 2007)(Boyar et al., 2008)(Grzywacz & Smith, 2016; Willis et al., 2008)(N. Yang et al., 2000)(O'Laughlin & Bischoff, 2005)(Willis et al., 2008)

Conclusions from previous research suggest that positive relationships when employees are less under time pressure, discipline issues have a long-term sense of engagement with the organization. Conversely, employee burnout due to time scarcity, constant work intensity, and stresses from work demands have a negative impact and lead to a lack of commitment to work at the organization. In addition, our studies show that employee retention is an effective prerequisite against burnout caused by work demands, correcting the effects of work that cause employee burnout stress. (Harry, 2011)(Bezuidenhout & Cilliers, 2010b; Rothmann, 2003)(Bezuidenhout & Cilliers, 2010b)(Harry, 2011)

- *The relationship between work resources and faculty retention*

Many studies show that employees strive for jobs with high growth opportunities, competent leaders, fair compensation, and effective work environments. Recognition of fairness in the organization, evidenced by fair compensation, fair treatment among employees is an important factor determining employee retention. These findings are evidenced in research by confirming that fairness in the work environment (especially corporate culture) has an impact on employee job satisfaction in Portugal. If employees are given important jobs with a clear role in the job, they will devote more enthusiasm to the work, increasing their long-term commitment to the organization. As evidenced by the fact that millennials tend to be more active in challenging jobs, they desire recognition from supervisors at work. In addition, indicate that a suitable work environment has an impact on employee satisfaction and long-term employee retention in the organization. In general, work resources have a role in increasing employees' long-term work commitment to the organization (Stewart et al., 2017; Walsh & Taylor, 2007), (Nadiri & Tanova, 2010), (López-Cabarcos et al., 2015a), (Brown et al., 2015; K. Kim & Jogaratnam, 2010), (Brown et al., 2015),(Kultalahti & Liisa Viitala, 2014), (C. Lee & Way, 2010), (López-Cabarcos et al., 2015a).

A study has shown that internal operations play an important role in employee retention, helping to reduce the rate of employee turnover in the business. Employees consider the relationship between the employee and the manager to be the most important relationship in the workplace . Employees' feelings toward empowerment and the effects of work environment conditions also play an important role in employee decisions. The study was conducted by identifying employees in millennials who decide to stay at a socially relevant business and change jobs when the business is not interested or has little social responsibility. In addition, draw conclusions about positive work attitudes and are less skeptical about work, less motivated to work hard for money by millennials than their predecessors. The reason is that millennial employees have fewer mandatory constraints such as family and health... closely related to money (Frye et al., 2020), (López-Cabarcos et al., 2015b; Nadiri & Tanova, 2010)(Walsh & Taylor, 2007), (Nadiri & Tanova, 2010), (Josiam et al., 2019), (Josiam et al., 2019).

Research shows employees tend to have word of mouth about their organization, which

has a good corporate culture, which has an effect on employee retention. Employees have positive word of mouth towards the organization to other employees, and these employees tend to stay in the organization longer. The inverse relationship was found in the employee's intention to lack of work commitment in the study. Specifically, millennials have a greater commitment to job retention than their predecessors. The findings on the influence of communication in the business show the importance of corporate culture for the decision to retain employees themselves. Not only that, but employee retention is also found through employees being empowered at work. Activities that adjust rewards and recognize employee contributions on the part of managers/supervisors have a positive impact on employee retention. If there is less empowerment in the organization, employee retention will be low. Our research points to a negative relationship between high empowerment and limited employee commitment. On the contrary, indicating millennial employees should be empowered to enhance their work experience, which has a positive effect on employee retention. (Frye et al., 2020), (Back et al., 2011; DiPietro & Milman, 2008), (J.-T. Yang, 2008), (Brown et al., 2015; Park & Gursoy, 2012), (Lashley, 1999), (Gill et al., 2011), (Gill et al., 2011)(H. Kim et al., 2009).

For education, work resources have an important impact on teacher retention. If there is a lack of employment resources, it can negatively impact the psychology of teachers, increasing the level of burnout in their lives. Work resources were identified as key drivers of increased work commitment and long-term commitment to the organization. This conclusion is based on previous studies. In particular, it is argued that workload can bring stress at work, which can lead to employees' decision to take a break from work, more negatively than psychological disorders in the long run. Other than , the conclusion is that schools can develop long-term commitments to the overall goals of the organization by providing opportunities for teachers to demonstrate their abilities. At the same time, these work resources can encourage individuals to increase their long-term commitment to the organization, retaining them in the long term. However, research finds work resources will negatively impact employees, leaving them burned out, which leads to a decline in employee retention commitment to the organization. Studies conclude that when job resources are available, employees increase their commitment to work, whereas when there is a shortage of work resources, it leads to employee absenteeism. Therefore, the decision to retain employees and quit/change jobs are two opposites, which are closely related to the impact from work resources. (Hakanen et al., 2006a)(Hakanen et al., 2006a)(Rudow, 1999)(Rudow, 1999)(Leithwood et al., 1999)(Hakanen et al., 2006a)(Hakanen et al., 2006a)(W. Schaufeli & Enzmann, 2020)(W. B. Schaufeli & Bakker, 2004b)(Hakanen et al., 2006a)

It can be seen that studies on the relationship between work needs and resources and employee retention are contradictory. Especially in the context that university lecturers are quite limited. So how does the mechanism of work-resource demand impact on faculty

engagement/retention, through intermediaries or regulators. In the next section, the author will overview the research on the mechanism of impact of work demand – resources on teacher engagement/retention through the mediated variable of career adaptation.

2.2. Studies of the indirect relationship between work resource and teacher retention

Teaching requires constant updating of new knowledge and skills to meet the needs of ever-changing society. Therefore, teachers in general and university lecturers in particular need to regularly update and change to adapt to the new needs of work and society (Collie & Martin, 2016). Therefore, career adaptation is assessed as an important competency of teachers in general and university lecturers in particular and (Collie & Martin, 2017) is considered a central and important factor creating effectiveness in teaching. Therefore, in (Kunter et al., 2013; Mansfield et al., 2012) this study, the author focuses on studying the mediation mechanism of job adaptation in the relationship between work needs and resources and teacher engagement/retention.

1.2.2.1 The relationship between work needs and resources to career adaptation

- *The impact of work demands on career plans*

According to , job needs are considered based on quantitative needs, qualitative needs, organizational needs; in which the need to quantify the assessment is based on the number of tasks and the speed of completion of tasks by employees. As quantitative demands are enhanced, tasks will require more time than what has been outlined in the career plan. Next, qualitative needs require the skills and effort of employees to get the job done. For difficult and complex work, employees need to put more effort and time into the previously set career plan. Plus, organizational needs have a negative impact on individuals and their work outcomes. This can negatively affect career plans in the short term. (W. B. Schaufeli, 2017)(Marc van Veldhoven & M., 2014)(Bowling & Kirkendall, 2012)(A. B. Bakker et al., 2014)

According to research from the University of South Africa in 2014, many universities in sub-Saharan Africa are experiencing a shortage of human resources, teaching staff have to work with high efficiency, high workloads that negatively affect physical and mental health. Time pressures and disciplinary issues in contrast to disproportionate salaries have an effect on faculty adaptation. Several studies have evaluated the influence of job demands on career adaptation from a quantitative perspective. Studies show that teaching in college is a high-pressure job, which stems from the rapid increase in students at schools. Work overload weighs on faculty and leads to conflict, reducing rest time. These are negative impacts on the physical and mental health of faculty, requiring appropriate career adaptations to continue career planning in the long term. (Barkhuizen, Rothmann, et al., 2014; Tonder & Fourie, 2015)(Atindanbila, 2011)(El-sayed et al., 2014)

Another interesting finding in the study found that career applicants will modulate the relationship between job demands and individual factors of psychological health. In the study, according to career planning there was high pressure and intensity that led to deterioration of employees' health. Along with that, the constant increase in work demands their relentless effort, which in turn depletes personal resources and causes physical problems. Research results confirm that with long-term career planning, job demands can seriously drain employees. Before individual and organizational career plans, job demands were noted to have negative impacts on employees, but these impacts varied. Specifically, for employees who adapt well to careers, they are less prone to burnout than employees who are not used to career pressure (van Yperen & Snijders, 2000)(Demerouti et al., 2001)(Xanthopoulou et al., 2007b)(A. Bakker et al., 2003b; A. B. Bakker et al., 2005a)(A. B. Bakker et al., 2005a). As a result, employees with good work experience and career adaptation are able to effectively implement career plans, meeting job demands better than employees who are new to the job (Xanthopoulou et al., 2007b).

- *The impact of job demands on career discovery*

Job demands can measure work challenges more than job stress. However, the demands of work become stressors in situations that require high effort on the part of employees to maintain the expected level of performance, make career self-discovery breakthroughs, which in turn cause negative reactions, especially burnout. To solve this situation, it is necessary to require employees to adapt to the profession. In our study, three job demands caused stress for teachers: harassment from students; the excesses of teaching ; less than perfect work environment. The stress of teachers comes from high job demands, which require employees to possess good career adaptation to overcome the impact from the environment, balance the psychological and physical health of each individual. (Steenland et al., 1997)(Hakanen et al., 2006a)(Hakanen et al., 2006a)(Evers et al., 2004;)(Burke & Greenglass, 1995)(A. B. Bakker et al., 2005b; Farber, 2000)(Hakanen et al., 2006a)

According to , the lack of information is related to the relationship between job demands and career adaptation. Studies have shown that both a positive and negative relationship exists between an employee's career needs and adaptation. Exploring careers from a personal perspective has a positive impact on organizational success. However, in reality, many unsuccessful attempts at innovation in career exploration stem from work pressures, time constraints, organizational discipline problems, lack of support, and employee burnout. The career discovery process needs the initiative of employees, especially to adapt well to careers and meet changes in job needs. This is a difficult and complex process that takes a lot of time and effort before achieving achievement. However, the demands of work are constantly increasing, which is the cause of failure as employees increasingly experience skepticism about long-term value, the purpose of proactive career exploration throughout the organization is moving in the right direction. Therefore, job demands have a negative impact on the career

discovery behavior of employees in the organization . However, career adaptation is considered a decisive factor in realizing creative ideas stemming from the employee's career self-discovery, thereby helping employees to better manage their time and balance the work pressures caused by work demands. (Rothmann & Jordaan, 2006b)(van den Broeck et al., 2013)(A. B. Bakker et al., 2010)(Anderson et al., 2014; Kwon & Kim, 2020)(Amabile et al., 2005; CHRISTIAN et al., 2011)(Anderson et al., 2014)(Janssen, 2004)(Shuck et al., 2017)(Kwon & Kim, 2020)(Shuck et al., 2017)(A. B. Bakker, 2011)

In previous studies, the results indicated that no direct link existed between job demand and career discovery. made an assessment based on a meta-analysis of career needs and career exploration related to employee satisfaction. Research has shown positive relationships: work challenges promote career exploration and increased job satisfaction. In contrast, negative associations were found to be associated with pressures at work. Therefore, the study recommends that organizations need to create challenging jobs and explore employees' potential careers, which promote positive status, increase career adaptation of employees. Conversely, obstacles at work should be reduced because this is a factor that causes stress at work for employees. More seriously, many consecutive stresses over long periods of time if not recovered will lead to employee burnout. Consistent with their findings, the authors assert that long-term physical and mental pressure from employees can lead to a lack of career exploration, more seriously, their lack of long-term work commitment. Therefore, it can be seen that career demands have a negative impact on employees' career exploration . (W. B. Schaufeli & Bakker, 2004a)(Podsakoff et al., 2007)(Podsakoff et al., 2007)(van Heerden, 2015)(May et al., 2004)(van Heerden, 2015)

- *The impact of work resources on career planning*

Work resources are evaluated based on organizational and personal resources. Universities in South Africa have issued numerous reports regarding professional pressures and faculty inexperience over a spike in student numbers, rising teaching hours that reduce their career adaptation. For graduate classes, in particular, the increased number of students means an increasingly severe workload for faculty. This alters previously defined career plans, affecting the career adaptation of faculty. (Naidoo-Chetty & du Plessis, 2021)(El-sayed et al., 2014)(Bezuidenhout & Cilliers, 2010a)

At the secondary level, a study of 115 secondary mathematics teachers and 1685 students from their classes on the career adaptation of math teachers and their perceptions of school support, the impact of teachers' words on students' math achievement. The researchers claim that adjusting the thoughts, feelings, and behaviors of mathematics faculty can positively affect their career adaptation. At the same time, support from supervisors (namely principals) in advocating for teachers' autonomy, imparting confidence in their professional adaptation, increasing bonds between teachers in schools, listening to teachers' needs, encouraging teacher

initiative, That has a positive effect on the commitment to sustaining long-term teaching at schools. The study results also show that there is a link between the apparent role of teachers and students' math achievement. Both of these mechanisms demonstrate that work resources are positively related to teacher wellbeing and a strong commitment within the organization. In addition, age and working seniority are positively related to teachers' long-term work commitment. It can be said that teachers' professional adaptation is associated with their activities at work, so it is necessary to develop teachers' long-term teaching plans and support activities to improve teachers' professional adaptation. However, the study confirms that teachers' professional adaptations to work resources are always changing to match long-term career plans. (Collie & Martin, 2017)(Martin et al., 2013)(Klassen et al., 2012)(Baard et al., 2004)(McInerney et al., 2015)(Bohle Carbonell et al., 2014)(Collie & Martin, 2017)

Unlike previous studies, our research points to a positive relationship between job resources and career adaptation in order to counteract the negative impact of job demand. Specifically, with jobs with time pressure and strict discipline, employees who hold good work resources will adapt to the profession higher, meet the needs of work effectively, and comply well with the available career plan. As a result, employees who possess good work resources with effective career planning will experience burnout to a lesser extent than employees who are not used to work pressure. In particular, in my research, the author points out that there exist work resources that promote career planning and increase career adaptation, thereby leading to positive psychological and organizational outcomes. (Xanthopoulou et al., 2007b)(A. B. Bakker et al., 2005a)(Xanthopoulou et al., 2007b)

- *The impact of work resources on career discovery*

According to , teachers can use their work resources effectively to increase professional adaptation, thereby promoting long-term commitment to the organization. On the other hand, if there is a lack of critical work resources to meet job demands, it will lead to impaired professional adaptation of teachers, leading to lower commitment to the organization. That's consistent with previous research findings, job resources promote career exploration, which predicts a decrease in employees' frequency of absenteeism/absenteeism, increasing their role and performance in organizational identity. Direct positive effects and indirect negative effects from work resources on employees' career adaptations were both found in the study. In particular, in my research, the author showed that job resources are important in explaining employees' career adaptations.(Hakanen et al., 2006a)(A. Bakker et al., 2003b)(Hakanen et al., 2006a)(van Heerden, 2015)

Work resources are linked to career adaptation from an individual perspective, particularly through career exploration. Employees' personal sense of effectiveness, self-esteem, and optimism is recognized as career adaptation. In many contexts, previous studies have shown that personal resources are directly related to employees' stress resilience, while

that career adaptation has an impact on their physical and emotional well-being. (Baron & Kenny, 1986)(Pierce et al., 1989)(Scheier & Carver, 1985)(Hobfoll et al., 2003)(Chen et al., 2001)(Chen et al., 2001)

Previous studies have shown a positive relationship between job resources and employees' career adaptation. affirm the availability of job resources that promote career exploration of employees. Given that job resources are good predictors of future career exploration of employees. The study of the link between job resources and career exploration and draw conclusions about future job development opportunities (diversity of learning opportunities, creativity and employee autonomy). Thus, job resources have a positive relationship towards career exploration. (A. B. Bakker et al., 2007; W. B. Schaufeli & Bakker, 2004a)(W. B. Schaufeli & Bakker, 2004a)(A. B. Bakker et al., 2007)(Rothmann & Pieterse, 2013)(Coetzer & Rothmann, 2007)

According to the motivational process, readiness in work resources constitutes the commitment of the organization and the professional adaptation of employees . Work resources along with environmental impacts motivate employees to explore careers to achieve their own goals. From there, employees make long-term commitments to work, because they see the role of personal responsibility in the organization. Previous studies have shown supervisory support or support from colleagues leads to better career adaptation in employees. The positive emotions of the individual that appear towards the effective use of work resources will increase their career exploration behavior. This concludes that work resources have a positive impact on the career exploration of employees. (W. B. Schaufeli & Bakker, 2004b)(Hackman, 1980)(A. Bakker et al., 2003b; Hakanen et al., 2006d)(W. B. Schaufeli & Bakker, 2004b)

1.2.2.2. The relationship between career adaptation and faculty retention

The constant increase of students at universities leads to long-term stress in teaching jobs and a decrease in faculty rest time. Research results show that escalating job demand but (Atindanbila, 2011)(El-sayed et al., 2014) insufficient resources to support faculty reduce career adaptation, which affects teacher engagement/retention. One study has shown that support from principals increases teachers' autonomy and positively influences their commitment to sustaining long-term instruction in schools. The study results also show that teachers' job adaptation is tied to their long-term work commitment. Having teachers with good job resources increases their professional adaptation, which in turn promotes employee self-retention. Through occupational adaptation mediation, indirect negative effects are found between the lack of work resources and the frequency of absenteeism/absenteeism in the employee's organization, whereas increased occupational adaptation promotes the employee's role and performance in organizational identity.(Barkhuizen, Roodt, et al., 2014)(Collie & Martin, 2017)(Klassen et al., 2012)(McInerney et al., 2015)(Collie & Martin, 2017)(Hakanen et al., 2006a)(A. Bakker et al., 2003b)

On the other hand, psychological reactions are closely related to the career adaptation of employees. As a result, employees with an optimistic mentality find positive results with a higher commitment to continue working than less optimistic colleagues. These studies show that employees with good personal resources adapt better to their careers, cope well with work pressures and prevent their negative outcomes. At the same time, employees who adapt well to their careers will have a sense of their own role in the business, thereby being more optimistic about their career future, forming the intention to retain employees at the organization, continue to participate in work for a long time. However, the study results do not deny that employees' perceptions of the work environment are different; Changing perceptions will impact employees' career adaptation, from which the authors confirm that a negative relationship exists between unfavorable job characteristics and employees' lack of long-term work commitment.(Mäkikangas & Kinnunen, 2003)(Xanthopoulou et al., 2007b)(Xanthopoulou et al., 2007b)

Besides, (Demerouti et al., 2001) point out with high career demands: great work pressure, time constraints and disciplinary problems will affect the health status of employees . (A. Bakker et al., 2003b; A. B. Bakker et al., 2005a)With time pressure and insecure work intensity, poor organizational culture, employees tend to fall into psychological exhaustion, appear to change jobs or find new ones. (Pierce & Gardner, 2004)At that time, employees who hold good work resources will adapt to their careers better, meet the needs of work, thereby increasing long-term employee retention for the organization (A. B. Bakker et al., 2005b). Therefore, affirming the available work resources will positively impact employees, Promote career adaptation – an important factor that plays a role in increasing employees' long-term work commitment. The assertion that there exists a negative link between career needs and career adaptation of employees through mediation is pressure at work. Research indicates that if employees do not adapt well to their careers, then being under long-term work pressure physically and mentally can lead to a lack of work commitment and organizational identity from them (Xanthopoulou et al., 2007b)(Podsakoff et al., 2007)(May et al., 2004). At that time, the lack of career adaptation or weak career adaptation will lead to a negative impact on employee self-retention. (van Heerden, 2015)

Several studies have looked at employees voluntarily quitting their jobs as an act of career exploration and accepting other opportunities as part of career planning. In particular, the relationship between employee retention decisions is not as strong as predicted by previous studies. Employees don't always quit their jobs because they're unhappy with their jobs, there are other reasons that stem from family or misalignment with their personal interests. Consideration of occupational adaptation was limited in previous studies.(T. W. Lee et al., 1996)(Frye et al., 2020)(Collie & Martin, 2017)

Therefore, studies show discrepancies between study findings. Some studies give a positive relationship between career adaptation and vice versa. So this is space for future

research to clarify the relationship between job application and employee retention in organizations.

2.3. Studies on the impact of contract-type regulatory variables on the resource-on-demand relationship to faculty retention

The variable regulating the type of contract has different impacts on faculty in relation to demand-work resources and faculty retention. Some studies look at the impact of this type of contract on workers on (van den Tooren & de Jong, 2014) indefinite contracts who work for a long time and continuously at the organization and compare it to workers on (de Cuyper et al., 2008) fixed-term contracts. Research results show that, when expectations for work in the organization are not fulfilled, employees tend to violate the work contract through the intention to leave the organization. A willful breach of employment contract from an employee stems from a lack of employee satisfaction or related deterioration in employee health. Despite this, when employees continue to maintain their work contracts, committing to long-term commitment to the organization, positive effects are noted regarding the employee's work results. (Gakovic & Tetrick, 2003; ZHAO et al., 2007)(ZHAO et al., 2007)

Studies show that there exists a difference between the type of indefinite contract and the type of fixed-term contract through employee expectations. Many scholars have found that workers on (van den Tooren & de Jong, 2014) fixed-term contracts have fewer expectations for the organization than workers on indefinite contracts (Jong et al., 2009). The reason given is that workers under fixed-term contracts often have a working mentality focused on salary and bonus (economic exchange), while workers under indefinite contracts desire more than economic exchange, in them there is also an emotional attachment to the organization. Not only that, employees (van den Tooren & de Jong, 2014) with deadlines tend to be more satisfied with the work environment and corporate culture than employees indefinitely (Jong et al., 2009). Thus, the economic expectations of time-bound workers are more likely to be met than the psychological and economic expectations of indefinite workers. Besides, the difference between fixed-term contracts and indefinite contracts is related to the employee's contract mentality. Meeting work needs and managing work resources well is part of contract psychology. (van den Tooren & de Jong, 2014)(Herriot et al., 1997) Indefinite workers have more of a breach of contract mentality than fixed-term workers. (Jong et al., 2009) That includes violations due to workers' expectations indefinitely of the organization more than workers indefinitely, which is also responsible for the lack of employee retention in organizations.

Results from the previous study also indicate the impact of demand – work resources will be different for contract types. Specifically, work resources are more effective for fixed-term workers and less effective for indefinite workers. At the same time, the negative impacts of work demands: time pressure, discipline issues, high work intensity impact on employees'

physical and mental health will be reduced when employees are aware available job resources . The results of the study show that the impact of work resources will be stronger on (van den Tooren & de Jong, 2014)(van den Tooren & de Jong, 2014)long-term workers, thereby increasing long-term employee retention. The reason is that when the demand for work is high, the organization of the provision of work resources is considered a form of support for employees to address work needs. At the same time, many studies indicate that employees on fixed-term contracts have few expectations regarding support from supervisors . Deadline workers (Guest, 2011; Jong et al., 2009) in the face of high job demands have increased autonomy and environmental support, and mental health has a positive influence on motivating employees under long-term contracts to maintain their commitment to work at the organization. In contrast, employees are contracted (Gakovic & Tetrick, 2003; Johnson & O'Leary-Kelly, 2003)indefinitely because they have higher expectations for work resources, so when the demands of work increase, they expect the expectations for the organization to be fulfilled. If these expectations are not met, permanent employees tend to lack engagement with the organization. (Jong et al., 2009)

In public universities in Vietnam, lecturers also have two main types of contracts: fixed-term work contracts and indefinite-term work contracts. Therefore, in this study, the author will examine the regulatory role of the contract type in the relationship between work demand and resources to faculty engagement/retention.

3. Research gaps

First, research on faculty retention in the university setting is limited. In particular, there are currently very few studies using work-resource demand models for teacher retention in the education sector and in the Vietnamese context;

Second, studies related to career adaptation are limited Most of the studies emphasize the role of career adaptation for students when moving to a new environment, rarely do studies evaluate from the perspective of lecturers – a subject who always needs high career adaptation(Collie & Martin, 2017). . Therefore, research on the use of career adaptation is an intermediate variable in the relationship between work needs, work resources and retention of lecturers from the perspective of lecturers at Vietnamese public universities;

Third, previous studies offer multiple perspectives on measuring occupational adaptation. Therefore, the study considers and selects an approach based on two dimensions (Savickas & Porfeli, 2012; Hirschi et al, 2015) to see convergence;

Fourth, the variable regulation of the type of contract that regulates the relationship between work needs and work resources to faculty retention . However, there are very few studies using contract-type regulatory variables, particularly in the higher education sector;

Fifth, the study found that lecturers are a specific career, so degrees are an important

value that promotes motivation and dedication of lecturers. However, there are currently few studies looking at the value of degrees for public university faculty. The study expects degree variables to make a difference between groups of faculty in universities. The results of the study are a precursor to future studies further into this issue;

Sixth, other studies mostly use only single research methods: qualitative or quantitative studies, or use a combination of qualitative and quantitative stages. There are quite limited studies that use both qualitative and quantitative research methods in three qualitative – quantitative – qualitative stages to evaluate the relationship between factors to faculty retention.

4. Issues to be studied in the future

First, the study uses work-resource demand models for teacher retention in the education sector and in the Vietnamese context;

Second, research on the use of career adaptation is an intermediate variable in the relationship between work needs, work resources and retention of lecturers from the perspective of lecturers at Vietnamese public universities; The study considers and selects a career adaptation approach based on two dimensions, career planning and career exploration developed from research by Savickas & Porfeli, 2012; Hirschi et al, 2015) to see convergence;

Third, the study uses contract-type regulatory variables to examine the regulatory role in the relationship between job demand and work resources and faculty retention in public universities in Vietnam

Fourth, the accreditation study analyzes multiple groups from academic variables to verify differences between groups of faculty in universities.

Fifth, the study assesses the situation of retaining lecturers in the public university environment in Vietnam;

Sixth, the study proposes comprehensive solutions to retain lecturers at Vietnamese public universities.

5. Conclusions

The Party and State of Vietnam have always determined that the development of education and training is the top national policy, the core factor determining the success of the process of industrialization and modernization. In the Law on Education No. 44/2009/QH12, the State clarifies that "Teachers play a decisive role in ensuring the quality of education". Specifically, higher education plays the role of training and building human resources with high knowledge and qualifications, especially the ability to create new knowledge for society. It can be said that each country, each region has different perspectives and modes of education. However, the development of teaching staff is the key to the success and failure of education and training in the world. Therefore, lecturers in general and moreover university lecturers need

to meet quality and quantity standards, meeting the requirements of advanced higher education. At the same time, improve the commitment between lecturers to higher education units in order to maximize the quality of higher education.

Throughout the process of national construction and development, the Government of Vietnam has continuously issued and updated resolutions and circulars as well as formulated and supplemented laws related to human resource development such as the Law on Education, the Law on Labor, the Law on Science and Technology, etc. with the goal of bringing Vietnamese education, especially higher education and training to develop in line with the advanced trend of the times. In particular, taking the goal of developing the teaching staff as the focus and the basis for developing other goals..

According to Directive No. 40/2004 – CT/TW on Building and improving the quality of lecturers, the Party Central Secretary establishes basic objectives in building a teaching contingent that meets the criteria of quantity, quality, structural synchronization, focusing on improving political bravery, dignity, craftsmanship and lifestyle of teachers. At the 8th plenum, the State approved Resolution No. 29/2013 emphasizing the development of plans, processes for training and fostering teachers, especially higher education towards the goal of fundamental and comprehensive reform of the Government. In particular, the educational objectives are associated with the needs of socio-economic development, while ensuring national security and international integration, focusing on training high-qualified human resources, developing the qualities, capacity and creative knowledge of learners.

In the new context, the Party and State set the motto of renovating higher education towards autonomy as the core content and throughout the process of improving Vietnam's education. This motto was first clarified in article 14/2005 of the Law on Education. Specifically, the State sets out the main tasks: assigning and decentralizing educational management, building and applying autonomy along with self-responsibility for universities.

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THE WEALTH CREATION EFFECTS OF MERGER AND ACQUISITION ANNOUNCEMENTS ON ACQUIRING FIRMS IN VIETNAM

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Abstract:

This paper investigates the effects that merger and acquisition announcements exert on shareholders wealth of public acquiring firms in Vietnam in the period from 2000 to 2022. Conducting the method of event study on 289 M&A deals carried out by Vietnam firms across various industries, the paper finds evidence that acquiring firms earn significant positive abnormal returns as results of M&A announcements. The analysis further studies the roles of some deal-specific and firm-specific factors in explaining the stock performance in the periods surrounding the time M&As are announced, including payment method, target public status, acquirer and target industry relatedness and finds evidence that M&A deals with private targets create more short-term wealth to the acquirer shareholder compared to deals with private or subsidiary targets. Given the importance of mergers and acquisitions as a means of strategic corporate reorganization for firms to build resilience during times of uncertainties, this paper contributes to the literature on the wealth creation effect of M&A announcements and gives implications for Vietnamese firms when making their M&A strategies.

Keywords: *wealth creation effect, mergers and acquisitions, event study*

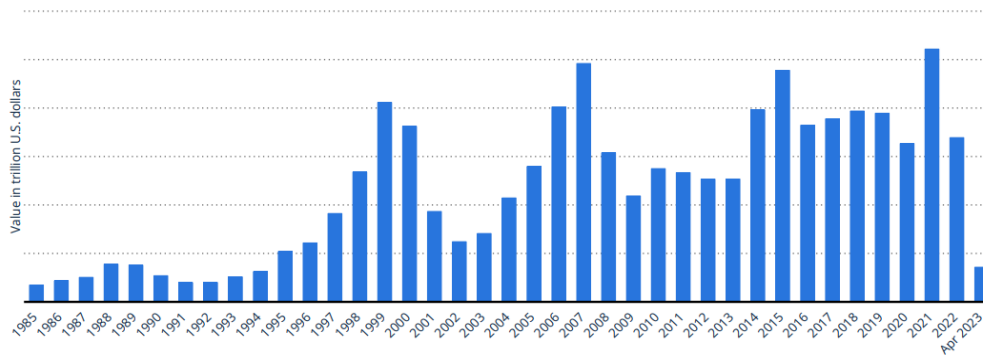
1. Introduction

The outbreak of the Covid-19 pandemic has resulted in major vulnerabilities in the business world and firms facing reduced revenue have been compelled to undertake various strategic measures, including operational rearrangements, cost-cutting initiatives, and exploration of new markets, to gain new sources of revenue (Abdelnour et al., 2020; Donthu & Gustafsson, 2020; Meunier et al., 2022). Under the pressure of a financial crisis in the uncertainty era, enterprises may restructure by acquiring new business or sell their current business to survive (Walker, 2000; DeLong, 2001). Companies on the edge of low solvency may seek investors to re-invest or purchase their business (Walker, 2000). In other words, uncertainty has the high possibility of pushing companies to practice M&A (Malatesta, 1983).

According to UNCTAD (2000), a merger happens when there is a formation of a new

legal entity from two existing firms, and this newly combined entity will be mutually owned by the shareholders of the two firms. Meanwhile, an acquisition happens when a certain percentage of stocks or assets of the target firm are acquired and controlled by the acquiring firm. Over an extended period, the global value of mergers and acquisitions (M&As) has exhibited a consistent upward trend, reflecting the confidence of business managers in the positive impact of M&As on their companies' performance (Figure 1).

Figure 1: Value of M&As transactions worldwide from 1985 to 2023 (in trillion USD)

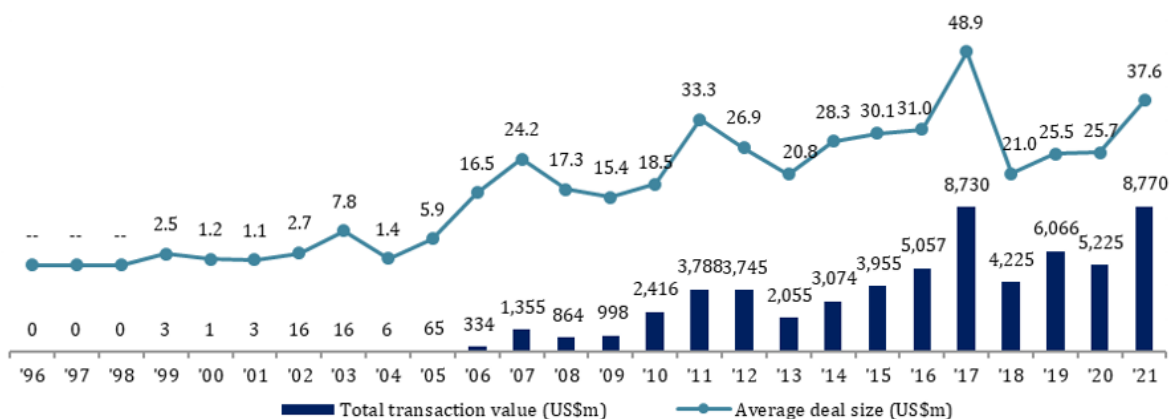


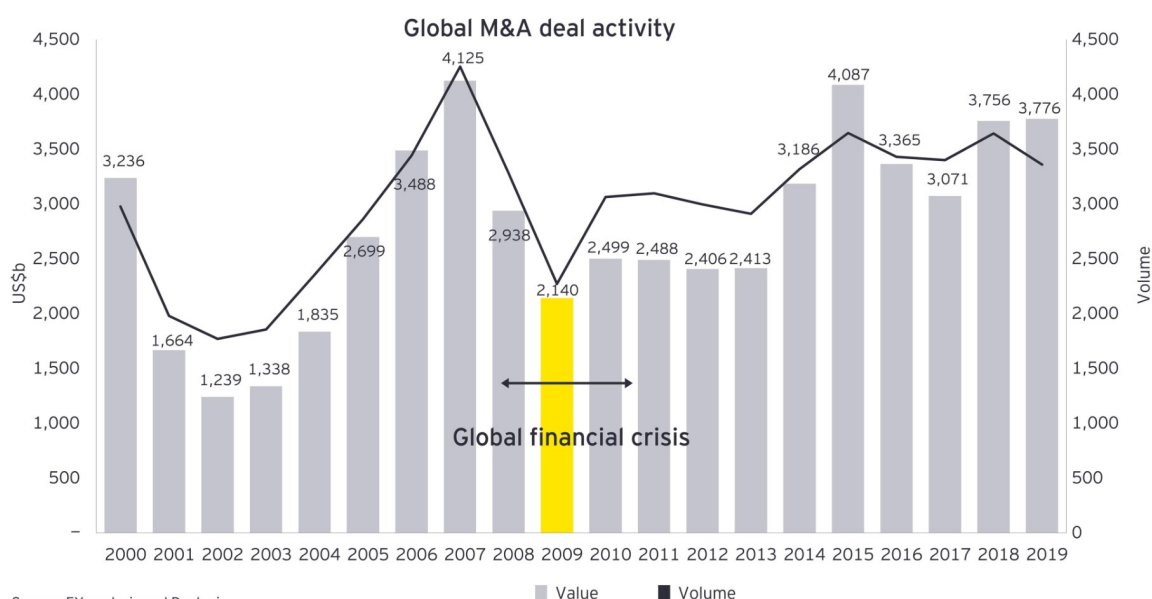
Source:

Statista (2023)

However, when examining shorter 10-year periods, the M&A landscape follows a V-shaped recovery pattern, with a decline during global crises followed by a subsequent surge in both volume and value (Figure 2). The financial crisis of 2008 serves as an example that led to expectations of a downturn in M&A activity during the COVID-19 pandemic (Salsberg, 2020a; Salsberg, 2020b). The decline in M&As in 2020 can be attributed to factors such as the gradual easing of lockdown measures and the announcement of vaccines (Kooli & Lock Son, 2021). Nevertheless, companies that engaged in M&A activities during economic crises are believed to experience significant returns compared to firms that were hesitant or had no intention to pursue M&As (Salsberg, 2020a; Salsberg, 2020b). Hence, understanding M&A as a restructuring approach can enhance a firm's agility during times of uncertainty.

Figure 2: V-shaped recovery pattern of M&A value





Source: EY Analysis and Dealogic (2020)

In line with the M&A global trend, M&A activities in Vietnam have also soared, driven by progress in equitization and market liberalization (Figure 3).

Figure 3: Vietnam M&A transaction value by year and average deal size, 1996-2021

Source: VnEconomy (2022)

When studying M&A, shareholder wealth creation as a result of M&A can be seen as an important subject study as shareholders are the controlling force, the key to measure the success of firm' strategy (Tuch and O'Sullivan, 2007; Martynova and Renneboog, 2008). Yet, while there are many research papers on the impact of M&A on the prosperity of the whole nation and the specific growth of parties involving in the M&A on the globe, M&A influence on the wealth of bidding companies remains controversial (Malatesta, 1983; Datta et al., 1992; Masulis & Swan, 2014).

Given the importance of the subject matter in the context of global uncertainties, the scant literature in Vietnam context, and the fact that the effects of M&A evolution is highly questionable and unpredictable in developing countries with transition economy like Vietnam (Vuong et al., 2009a; Vuong et al., 2009b; Diep & Anh, 2020), this study investigates the wealth creation effects of mergers and acquisitions announcement on acquiring firms in Vietnam with an aim to setting more light to the literature, helping firms prepare themselves better in the context of global uncertainties. To fully reflect the behavior of M&A activities in Vietnam and its impact on the stock market, the scope of this study covers from 2000 to 2022 as July 2000 marked the establishment of the first stock exchange in Vietnam - Ho Chi Minh City Stock Exchange Trading Centre) and the 2000s marked the acceleration of M&As in Vietnam (Trinh, 2022).

2. Literature review AND HYPOTHESIS

2.1 The theoretical rationale of the motives behind M&As

Literature on rationales behind M&A decisions have shown that generally, a merger or acquisition is carried out in the interest of either the shareholders or the managers. M&As can be conducted in order to create value for the firm based on the synergy hypothesis and the information hypothesis. In other cases, based on the rationale of hubris hypothesis and agency hypothesis, managers can make M&A decisions because of their arrogance or for maximization of their own benefits.

The idea of synergy creation as a motive for M&A activities has been supported by many early studies, for example, those of Dennis and McConnell (1986), Berkovitch and Narayanan (1993) and Andrade et al. (2001), and according to Tourani Rad and Van Beek (1999), this is the most important motive behind M&As. The hypothesis suggests that the combination between two firms will generate higher achievements compared to the sum achievements of the two separate entities. This improvement may come in the form of financial synergy, operational synergy or managerial synergy (Trautwein, 1990; Yook, 2003). The rewards from synergy are appreciated even more at the time of uncertainty, when the company faces financial distress (Ray, 2022).

Gaughan (2011) proposes that M&As can bring about capital cost cut or cash flows expansion, resulting in enhanced performance in financing activities, in other words, financial synergy. When firms conduct M&A transactions, they can lower a firm's risk and improve the firms' credit profile with the increase in the available assets and the intensified diversity within the firm. This will enable them to have access to greater bank capital at lower cost (Lewellen, 1971). After M&As, firms can also have access to capital in an efficient way by means of an internal capital market where there is less information asymmetry. Financial synergies can also be achieved when firms use the losses in one firm to offset the profits of the other one, reducing total tax payment.

The second type of synergy is operational synergy which is related to operating activities (Gaughan, 2011). With horizontal M&As, firms can have higher market share, enhance their pricing power and earn higher revenue (Stigler, 1950). Operational synergies can also be achieved when costs can be reduced owing to economies of scale and scope which are often the cases in M&As (Amel et al., 2002). When firms buy physical capital and facilities in M&As, long-term economies of scale for the combined firms will be achieved, and by depletion of duplicative tasks, they can realize short-run economies of scale (Ilzkovitz and Meiklejohn, 2006).

Another synergy motive for M&As is managerial synergy (Manne, 1965). The idea is that if a firm is underperforming compared to its potential, the reason may lie in incompetent managers. In this case, other firms can acquire it with an M&A transaction and give it a more

efficient management team.

Another possible motive for M&As is presented in the information hypothesis by Hawawini and Swary (1990). The hypothesis states that if capital markets are efficient in the semi-strong form, value creation can still exist in M&As even when there is no synergy. In this case, value is created when the acquirer can use private information to identify an undervalued target to acquire and gain from the market misvaluation.

However, M&A decisions are not always triggered for the sake of shareholders. The agency hypothesis suggests that when there is a conflict of interest between managers and shareholders, managers act for their own utility at the loss of shareholder value (Malatesta, 1983). For example, when their compensation is based on the growth in company size, some managers make M&A decisions just to increase the firm size without taking shareholders welfare into consideration (Jensens, 1986; Morck et al., 1990). Another example is when managers choose the target firm based on their technical fields to increase their importance in the firm, even if the deals exert negative effects on the shareholders (Shleifer and Vishny, 1989).

Another motive for M&As which can result in loss for shareholders is proposed in the hubris hypothesis (Roll, 1986). It is hypothesized an M&A may happen because of the arrogance of the managers. In reality, the managers may overestimate their real talent thinking that their experience and managerial skills would create gains from certain M&As deals when it is not the case. In such cases, the acquiring firm ends up in loss because of overpaying for the target, and the targets can gain from this misvaluation.

Among the four motives discussed above, gains for bidder are predicted in synergy theory and information theory while the agency theory and hubris theory explain losses for the acquirer in M&As activities.

2.2 Impacts of M&A announcements on acquirers' stock performance

A great body of empirical studies have been carried out to examine the wealth creation effects of M&As. While the target firms' shareholders gain from M&As in most cases (Datta et al., 1992; Houston et al., 2001; Billett et al., 2002; Mallikarjunappa & Nayak, 2013), the market reactions towards bidding firms appear to be mixed (Datta et al., 1992).

On the one hand, the bulk of literature suggests that bidding firm's stock values decrease or experience no change as a result of mergers and acquisitions. Malatesta (1983) found empirical results that implied the long-run wealth effect of the event sequence culminating in merger is significantly negative for acquiring firms. Later on, Houston et al. (2001) studied a sample of 41 M&A and recorded that the market value of the acquiring firms declines while noticing that most of the estimated value gains from mergers come from the opportunity to cut costs by eliminating overlapping operations and consolidating backroom operations. The event study of Papadatos (2011) also concluded that 38 cases of acquiring companies listed on the

Athens Stock Exchange show negative CAR. The evidence from these research indicates that the impact of M&A on bidding firm wealth is negative. In the later period, Arasa (2020) studied six firms listed on Nairobi Securities Exchange (NSE) involving in M&A between 1997 and 2014 to figure that M&A do not create wealth for the shareholders of the bidding entity, which aligned with the results from Mwanicha (2012) that in the period of 2001 - 2010, the gap of 12 NSE listed company performance before and after the mergers and acquisition announcements barely exists.

On the other hand, some research provides empirical evidence indicating that value creation in acquiring companies does exist as a result of M&A. According to Walker (2000), among 278 acquisitions, 56.7% of the acquiring firms earned positive CMARs following takeovers that increased market share. Tourani Rad and Van Beek (1999), Cybo-Ottone et al (2000), Beitel, Schiereck and Wahrenburg (2004) and Goergen and Renneboog (2004) reported positive CAR for acquiring banks though the results are insignificant. Jit Singh Mann and Kohli (2012) also found that 48 brand acquisitions under their scope of study have created higher value for the acquiring company shareholders. Mallikarjunappa and Nayak (2013) have affirmed once again that the shareholders of the acquiring companies gain positive returns on average.

Regarding the mixed results of acquiring firms' performance following M&A announcement and the undiscovered state of M&As in Vietnam market, the first hypothesis of the study is proposed as below:

H1. In the period 2000 - 2022, the acquiring firms in Vietnam earned positive abnormal returns in the short term as result of M&A transactions.

2.3 Impacts of deal-specific and firm-specific characteristics on acquirers' stock performance following M&A announcements

There are two main groups of factors influencing acquirers' stock performance including firm-specific and deal-specific characteristics (Carline et al., 2002; Moeller et al., 2004). The former group is composed of traits relating to a firm's structure and financial state, for instance, firm size, firm owner, bidder leverage, etc. (Malatesta, 1983; Walker, 2000; Carline et al., 2002; Moeller et al., 2004). Meanwhile, the latter group consisted of attributes concerning the deal objectives, the similarity between the two firms, and the type of acquisitions, for example, method of payment, hostile takeover or tender offer, relatedness of industry, and geographic focus, etc. (Walker, 2000; DeLong, 2001; André et al., 2004; Tuch and O'Sullivan, 2007).

Synergy hypothesis (Travlos, 1987) implies that the higher level of similarity and agreement between the two entities, the higher the return of post-merger performance. In general, buying company shareholders earn higher returns following cash offers, tender offers, and related acquisitions (Wansley et al., 1987; Moeller et al., 2004; Fuller and Glatzer, 2003).

From these hypothesis perspectives, cash payment for tender offers shall create more wealth as the M&As do not lead to chaotic scenarios of increasing dissatisfaction, rising turnover rates, disruption in companies organizational structure. However, from investment perspectives, cash offers may imply asymmetric information, tender offers may imply inefficient target firm managers or founders, who do not believe their own organization would be able to grow in their own hands (Walker, 2000). The different points of view infer that stock buyers' psychological belief plays the main role in their interpretation of the public information. In fact, the belief of investors is the critical determinant of their stock buying decision and thus, stock prices. From the viewpoint of the semi-strong form of market efficiency, Vietnam is also believed to experience such an effect on M&As wealth once the shareholders learn public M&A announcements. At the same time, the most explicit information that investors can access to make the decision are the payment method of M&A, target public status and industry relatedness (Kenny, 2020). Therefore, this research investigates the impacts of payment method, target public status, and industry relatedness on acquirers' wealth.

2.3.1 Payment method in M&As and its impact on acquirers' wealth

Generally, the payment methods of M&A can be divided into three types: cash-only, stock-only and other payment methods. Cash payment method has certain advantages as the stock is not diluted after the transaction and based on the signaling theory (Myers and Majluf, 1984), the acquiring firm will pay with cash if they think that the target firm is undervalued and pay with stock if otherwise. The market is aware of this theory and will take payment methods as a signal to gauge the real value of the target firm. As a result, they react more favorably towards deals financed with cash, creating an increase in stock price of cash-paying acquirers. Many empirical studies give supporting evidence to this theory. Martynova and Renneboog (2006) finds that on announcement day, deals financed with stocks yields 7% in its abnormal returns, which is lower compared to 12% for deals paid in cash and 10% for deals made in other payment methods and these differences are important at 1% level in all event windows. Similar results are given by those studies of Travlos (1987), Wansley, Lane, & Yang (1987), Moeller et al (2004), Fuller and Glatzer (2003). Evidence supporting this effect in the longer term (5-years period) is also given by Andrade, Mitchell and Stafford (2001).

However, the signaling effect of cash deals may be neutralized in many cases, for example, in the deals involved with private targets (Fuller, Netter and Stegemoller, 2002; Chang, 1998). Chang (1998) examines 281 takeovers that involve private target firms and finds that cash payment results in no abnormal return for bidders while stock financing leads to positive abnormal return of 2.64% in a 2-days event window.

In this study, the hypothesis to be tested will be as follows:

H2: In the period 2000 - 2022, acquiring firms in Vietnam created more wealth from deals paid in cash compared to those financed by non-cash modes of payment.

2.1.2 Target public status and its impact on acquirers' wealth

Existing literature suggests that the listing status of the target firm can determine the wealth created to the acquirer in M&A deals. Many studies such as those of Hansen and Lott (1996), Chang (1998), Fuller et al. (2002), Draper and Paudyal (2006), Mateev and Andonov (2016) show that higher abnormal returns are achieved in deals with private targets. Hansen and Lott (1996) examines 252 M&As from 1985 to 1991 and finds that acquisitions of private targets yield a 2% higher in abnormal returns for the acquirers on the announcement day. The statistically significant result of the study by Chang (1998) is that with the same payment method of stock, acquisitions of privately held and publicly held targets yield the cumulative abnormal return of 2.64% and -2.46% respectively for a 2-days event window (-1,0). Draper and Paudyal (2006) similarly find significant positive abnormal return for bidder of private firms and zero or negative return for bidders of public targets in many event windows around the announcement date. Theories are proposed to explain such results. Public targets tend to be bigger in size as to be listed on the stock market, a firm needs to reach a certain value of the market capitalisation. According to agency motives, managers of some acquiring firms may be more attracted to public targets to increase the size of their company which is closely linked to their own utility. This can lead to overpaying and the shareholders are at loss. Further, the private firms may not be as reputed compared to listed firms, so the market for M&As involving private targets are not as liquid and competitive (Chang, 1998). This gives the private target less bargaining power which results in lower premium for the deal. As a result, the acquiring firms gain more in M&A of private targets.

In addition to private and public firms, subsidiary targets represent another category of targets in M&A deals, based on the ownership structure of the target firms. While limited research has been conducted on the wealth effects specifically associated with subsidiary targets, Fuller et al. (2002) suggest that the impact is similar to that of private firms due to the influence of the liquid effect.

The study will therefore test this assumption with the following hypothesis:

H3a: Compared to acquiring firms that purchase public targets, those buying private firms gain more from the M&As transaction in the period 2000 - 2022 in Vietnam.

H3b: Compared to acquiring firms that purchase public targets, those buying subsidiary firms gain more from the M&As transaction in the period 2000 - 2022 in Vietnam.

2.1.3 Industry relatedness in M&As its impact on acquirers' wealth

Industry relatedness between two firms measures degree of correlation between their products, in other words, that is the extent to which firms' market, resources and technological expertise can be shared (Teece et al., 1994; Knoblen and Oerlemans, 2006). M&As between two banks will have higher industry relatedness compared to deals between a bank and non-bank

firm – a manufacturing company, for example. Literature shows conflicting results regarding the effect of industry relatedness on acquiring firms' stock performance.

On the one hand, most of the studies suggest M&As with focused industry create more wealth for acquirers through economies of scale, economies of scope and enhanced market power. By combining similar firms, cost can be cut from reduction of duplicated tasks, and the sharing of knowledge can reduce the cost of R&D. Moreover, being in the same industry, the acquirer can have a more precise evaluation of the target firm, so the chance of overpaying can be limited. In addition to this, acquirers that focus on its business line are less prone to many problems often found in the complex system of multi-products firms. For example, diversification may result in less aligned objectives between departments. Bureaucratic issues can occur when firms design too detailed procedures to achieve consistency and to prevent loss of control (Martynova and Renneboog, 2006).

Empirical studies like those of Travlos (1987), Moeller and Schlingemann (2005), Martynova and Renneboog (2006), DeLong (2001), Uddin and Boateng (2009) provide evidence to support this idea. Martynova and Renneboog (2006) show that compared to M&As between firms of unrelated industry, those industry-focused deals result in 0.27 percentage point higher in abnormal return. DeLong (2001) studies a sample of 280 US mergers from 1988 to 1995 and finds that compared to activity diversification, activity focus results in 2.38% higher in CAR (-10, 1) for acquirers.

However, many studies find no effects of industry relatedness on wealth of acquirers after a M&A transaction (Fuller et al., 2002; Beitel and Schiereck, 2002). Some theories propose that M&As between firms of unrelated industry bring certain advantages towards the acquiring firms, including risk reduction and the coinsurance benefit (Lewellen, 1971).

Given the divergence in studies regarding the effect of industry relatedness on acquirer wealth, the study will test the fourth hypothesis:

H4: Compared to unrelated M&As, related M&As create more wealth for acquiring firms in Vietnam in the period 2000 - 2022.

3. Research methodology AND DATA DESCRIPTION

3.1 The method of event study

To gauge the short-term market reaction towards mergers and acquisitions announcements of acquiring firms in Vietnam in the period of interest, this study uses the method of event study. Generally, this is an empirical method used to capture the effect of an event on the value of a firm by comparing the actual return a company earns in reality to the expected return that it could have earned if the event does not happen.

The method was introduced by Dolley (1933) as suggested by MacKinlay (1997), and further developed in many literatures including those of and Fama et al. (1969) and Brown and

Warner (1985), which are consistent with the method used these days. This method is conducted on the assumption that the market is efficient in semi-strong form, in other words, all past and present public information in the market is fully and timely reflected in the stock market prices (Fama, 1970).

The structure of an event study requires the following steps: definition of the event and the time frames in an event study, calculation of normal return, calculation of abnormal returns and cumulative abnormal returns, testing procedure, empirical results and results interpretation (MacKinlay, 1997). Details of each step are described as follows.

3.1.1 The event and the event date

The events of interest in this study are the announcement of the M&As. The day on which an event happens is the event date. Each M&A deal will have its own event date, and to express it in a relative scale, the event date is denoted as t_0 . Details about this day can be obtained through Eikon Thomson Reuters database or the official website of the company. Ideally, this should be the first day the market learns of the information, but in reality, it is not uncommon that the information of the event may be leaked to the market before the official event date (MacKinlay, 1997; Bradley, 1980).

3.1.2 The event window

The period surrounding the event date is the event window - the period that witnesses the effects of the events on the firms. Choosing an appropriate event window is of crucial importance in the design of an event study. MacKinlay (1997) suggests the event window should at least cover the announcement day and the day after that. It should not be too long because it may be affected by other unrelated events in the market but at the same time it should not be too short so it can reflect the whole effect of the event, for example, in case of information leakage. To examine the effect of the event from many angles and to prevent bias, this study examines many event windows with the longest one covering 21 days from day 10 before the event date to day 10 after the event date. Shorter event windows include those before the event, those after the event and those covering both the periods before and after the event.

3.1.3 The estimation window

Estimation window, usually the period preceding the event window, is the time period in which stock price behaviors are regarded as normal (MacKinlay, 1997). The stock performance in this period will be used as the benchmark to evaluate the effects of the events. For the model parameters to be unbiased, the estimation window and event window should not overlap each other. This study chooses an estimation window of 200 days from the 210th day before the event date to the 11st day before the event date.

3.1.4 Calculation of normal returns

There are many methods to measure the normal return, some common models are the

market model, capital asset pricing model, the mean adjusted returns model, the market adjusted return model and the control portfolio benchmark model (Strong, 1992). In this study, the market model suggested by Fama et al. (1969) is used. This is the most common method used in event study and can yield more efficient results compared to other models (Brown and Warner, 1980; Strong, 1992).

The model predicts a firm's normal returns as a linear function of the market return, which is calculated using the index of the stock exchange it is traded on, including the VNIndex, HNX index and UPCOM index. To present the return of the market portfolios and the securities, this study chooses to calculate the logarithmic returns instead of discrete ones as it is easier to translate a log returns of a longer periods from those of sub-period, and log returns distribution is more close to a normal distribution (Strong, 1992). Logarithmic returns are calculated as:

$$R_{it} = \ln \left(\frac{P_{it}}{P_{it-1}} \right) \quad (1)$$

Where:

P_{it} is the price of security i at the end of period t

P_{it-1} is the price of security i at the end of period $t-1$

For each acquiring firm in the sample, regress the stock return on market portfolio return during estimation window, OLS

S estimators α_i, β_i for firm i can be estimated:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \quad (2)$$

Where:

t is the day relative to the event day

R_{it} is the realized return on security i on day t

R_{mt} is the return of the market portfolio on day t

α_i, β_i are the OLS estimators of the model for security i

ϵ_{it} is the error term of security i on day t

Using parameters α_i, β_i estimated in (2), the model predicts normal returns for each security using a linear function of the market return as:

$$\hat{R}_{it} = \alpha_i + \beta_i R_{mt} \quad (3)$$

Where:

t is the day relative to the event day

\hat{R}_{it} is the expected return of security i on day t

α_i, β_i are the OLS estimators of the model for security i calculated from (2)

3.1.5 Calculation of abnormal returns and cumulative abnormal returns

$$AR_{it} = R_{it} - \hat{R}_{it} \quad (4)$$

Where:

AR_{it} is the abnormal return for security i on day t

R_{it} is the realized return of security i on day t

\hat{R}_{it} is the expected return (normal return) of security i at time t

To measure the effects of the M&A announcement on the stock performance of a firm over a period, the cumulative abnormal return is calculated. $CAR_{i,x,y}$ - the cumulative abnormal returns for security i over the event window (x, y) equal the sum of abnormal returns of security i on each day of the period (x, y):

$$CAR_{i,x,y} = \sum_{t=x}^y AR_{it} \quad (5)$$

To measure the effects of the M&A announcement on the stock performance of a portfolio of firms on a certain day, the average abnormal return for the portfolio is calculated. The average abnormal return for N firms on day t (AR_t) is calculated as:

$$AR_t = \frac{1}{N} \sum_{i=1}^N AR_{it} \quad (6)$$

Where:

AR_t is the average abnormal return for the portfolio on day t

N is the number of securities in the sample

AR_{it} is the abnormal return for firm i on day t

To measure the effects of the M&A announcement on the stock performance of a portfolio of firms over a period, the cumulative average abnormal return is calculated. The cumulative average abnormal return for a group of N firms over the event window (x, y) equals the sum of average abnormal return for N firms on each day within the period (x, y):

$$CAAR_{x,y} = \sum_{t=x}^y AR_t \quad (7)$$

3.1.5 Testing for statistical significance

To test for the statistical significance of each result of the cumulative abnormal returns, average abnormal returns and the cumulative average abnormal returns, this study uses the one

sample t test which tests the null hypothesis that the mean return is equal to 0. t-test is used in many studies using the method of event studies.

3.2 Data description

3.2.1. Data sources

To collect data for the study, two main sources are used. The first one is eikon thomson reuters database which is used to create the list of mergers and acquisitions, to obtain many deal-specific and firm-specific information as well as to obtain information about historical prices of the stocks of chosen acquiring firms and their according market portfolios. Deal-specific data include the announcement date, percentage of share acquired in the deal, percentage of share in the target firm that is held by the acquirer after the transaction, deal value, form of the deal. Firm-specific information collected from this source include the names, nations, market portfolios, the primary business and the public status of the acquiring firms and the target firms.

Where the data is not available on these two sources, the third source will be used, that is firms' official websites. Here, information about the m&a deals as well as annual reports of the firms can be found.

3.2.2. Sample selection and sample descriptive statistics

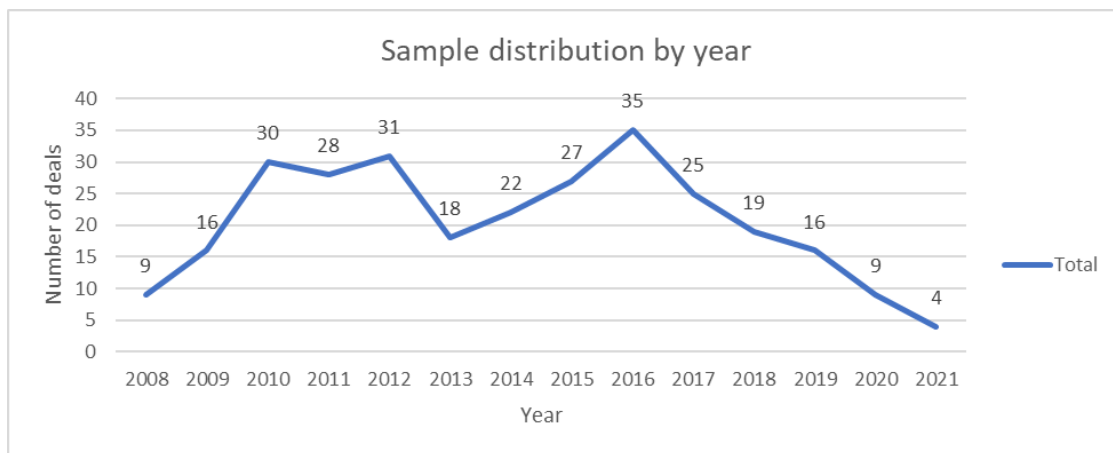
For a certain deal to be selected into the sample, it has to meet all of the following criteria:

- The acquiring firm is headquartered in Vietnam and is either a listed company on Ho Chi Minh City Stock Exchange (HOSE) or Hanoi Stock Exchange (HNX), or a public company on the Unlisted Public Company Market (UPCOM);
- It is in the form of a merger or an acquisition (acquisition of assets, acquisition of partial interest, acquisition of majority interest or acquisition of remaining interest);
- The deal was announced during the period from 1st January 2000 to 31st December 2022;
- The transaction has been completed;
- At least 5% of the target shares was acquired in the transaction and after the transaction, the acquirer owned at least 10% of the target shares;
- If a firm has a series of mergers/ acquisitions that happened within a three month interval, only the first deal is considered;
- If the deal was undertaken within 30 days prior and after any significant event (e.g. equity issue, bond issue or share repurchase (buyback)), it is also excluded from the final sample list;

- Repeated deals involving the same acquirer and target are only included once for each year;
- The acquirer must have a comprehensive trading history necessary for conducting the event study, that is, from 220 days before the announcement to 20 days after the announcement.

The final sample of the study includes 289 mergers and acquisitions in all sectors in Vietnam between 2000 and 2022. The yearly distribution of M&A deals over the period is shown in Figure 4.

Figure 4: Year distribution of sample M&A deals



Source: Authors' illustration

The sample characteristics is shown in the Table 1:

Table 1: Sample characteristics of M&A deals

Description	Sample characteristics	No. of deals	% in total
Acquiror Industry	Industrials	92	31.83%
	Consumer Staples	44	15.22%
	Real Estate	39	13.49%
	Energy and Power	29	10.03%
	Financials	26	9.00%
	Materials	24	8.30%
	Media and Entertainment	12	4.15%
	Consumer Products and Services	6	2.08%
	High Technology	5	1.73%
	Retail	4	1.38%

	Telecommunications	4	1.38%
	Healthcare	4	1.38%
Acquiror Stock Exchange	HOSE	192	66.44%
	HNX	82	28.37%
	UPCom	15	5.19%
Target Industry	Industrials	81	28.03%
	Consumer Staples	50	17.30%
	Materials	39	13.49%
	Energy and Power	33	11.42%
	Real Estate	23	7.96%
	Media and Entertainment	15	5.19%
	Financials	15	5.19%
	Consumer Products and Services	13	4.50%
	High Technology	7	2.42%
	Healthcare	6	2.08%
	Retail	6	2.08%
	Telecommunications	1	0.35%
Target Nation	Vietnam	283	97.92%
	Others (USA, China, Laos, Slovakia)	6	2.08%
Target Public status	Public	143	49.48%
	Private	100	34.60%
	Subsidiary	42	14.53%
	Other	4	1.38%
Payment methods	Cash	95	32.87%
	Stock	25	8.65%
	Others	157	54.33%
	Unknown	12	4.15%
Form of the deal	Merger	42	14.53%

4. results AND DISCUSSION

	Acquisition	247	85.47%
Percentage of shares acquired in the transaction	< 25%	137	47.40%
	25% - less than 50%	54	18.69%
	equal or greater than 50%	98	33.91%
Percentage of target shares that acquirer owned after the transaction	< 25%	93	32.18%
	25% - less than 50%	38	13.15%
	equal or greater than 50%	158	54.67%

4.1 The impacts of M&A announcements on acquiring firms' stock performance

The abnormal returns (AR) and the cumulative average abnormal returns (CAAR) for the full sample of 289 acquiring firms during the examined event windows are presented in Table 2, Table 3 and Figure 2. Overall, the findings suggest that merger and acquisition announcements in Vietnam tend to have a positive impact on the wealth creation of acquiring firms, particularly during the immediate announcement period and with a gradually increasing cumulative effect over time.

(* , ** , *** , **** , ***** ,***** indicate statistical significance at the 10%, 5%, 2.5%, 1%, 0.5% and 0.1% level respectively)

Table 2: Daily abnormal return of acquiring firms in the event window

	Value	t-statistics
AR(-10)	-0.11%	-0.562
AR(-9)	-0.44%	-2.288***
AR(-8)	0.21%	1.314
AR(-7)	0.28%	1.891*
AR(-6)	0.19%	1.120
AR(-5)	-0.07%	-0.331
AR(-4)	-0.18%	-0.939
AR(-3)	0.17%	0.847
AR(-2)	-0.22%	-1.191
AR(-1)	-0.15%	-1.020
AR(0)	0.31%	2.045**
AR(1)	0.27%	1.538

AR(2)	0.08%	0.379
AR(3)	-0.13%	-0.714
AR(4)	0.14%	0.696
AR(5)	0.44%	2.089**
AR(6)	0.21%	1.158
AR(7)	0.02%	0.102
AR(8)	-0.09%	-0.548
AR(9)	0.08%	0.419
AR(10)	-0.17%	-0.870

Source: Authors' calculations

The daily abnormal returns fluctuate during the 21 days period and the majority of them are not statistically significant, however, AR(0), and AR(5) have positive values with high absolute t-statistic, implying a potential positive impact on wealth creation.

Table 3: Cumulative abnormal return of acquiring firms

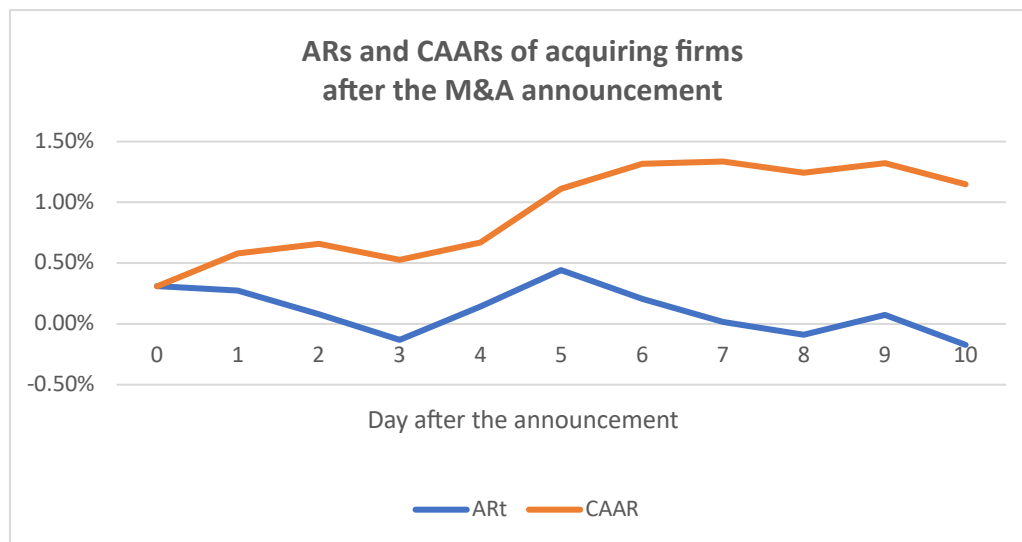
	Value	t-statistics
CAAR(-10, 10)	0.83%	0.829
CAAR(-5, 5)	0.67%	0.893
CAAR(-1, 1)	0.43%	0.975
CAAR(-10, 0)	1.15%	-0.008
CAAR(-5, 0)	-0.14%	-0.262
CAAR(-1, 0)	0.16%	0.346
CAAR(0, 1)	0.58%	15.613*****
CAAR(0, 2)	0.66%	3.054*****
CAAR(0, 3)	0.53%	1.292
CAAR(0, 4)	0.67%	1.700*
CAAR(0, 5)	1.11%	2.250***
CAAR(0, 6)	1.32%	2.705*****
CAAR(0, 7)	1.34%	2.607*****
CAAR(0, 8)	1.25%	2.184**

CAAR(0, 9)	1.32%	2.317***
CAAR(0, 10)	1.15%	1.784*

Source: Authors' calculations

The cumulative impacts of the merger and acquisition announcements over different event windows, on the other hand, are relatively positive and show a gradually increasing trend over time. Such impacts prove significant during the event windows within 10 days following the event date. CAAR(0, 1) shows a significantly positive cumulative abnormal return (0.58%) with a very high t-statistic (15.613*****), indicating a strong wealth creation effect right after the announcement. Other event windows including (0, 2), (0, 4), (0, 5), (0, 6), (0, 7), (0, 8), (0, 9), (0, 10) witness statistically important positive CAAR of 0.66%, 0.67%, 1.11%, 1.32%, 1.34%, 1.25%, 1.32%, 1.15% at 1%, 10%, 2.5%, 1%, 1%, 5%, 2.5% and 10% levels of statistical significance respectively. Figure 5 illustrates AR and CAAR during the 11 days event window following the announcement.

Figure 5: AR and CAAR of acquiring firms after the M&A announcement



Source: Authors' calculations

These results of significantly positive ARs and CAARs are strong evidence to support the first hypothesis of the study: In the period 2000 - 2022, the acquiring firms in Vietnam earn positive abnormal returns in the short term as result of M&A transactions.

4.2 The impacts of M&A announcements on acquiring firms' stock performance

4.2.1. The impact of payment method in M&As on acquirers' wealth

To test the second hypothesis which relates to the effect of the payment method on the acquiring firm's value after M&A transactions, 277 firms with disclosed payment method are divided into three portfolios, one contains 95 acquiring firms financing their transactions with cash only, one contains 25 firms financing their deals with stock only and the third portfolio

contains 157 remaining firms that use other methods of payment. Event study is conducted separately for each group and the results are presented in Table 4 and Table 5.

Table 4: Acquirers' CAARs according to payment methods

	(0) Cash-paid M&As (n=95)		(1) Stock-paid M&As (n = 25)		(2) M&As with other payment methods (n = 157)	
	Value	t-statistics	Value	t-statistics	Value	t-statistics
CAAR(-10, 10)	-0.20%	-0.110	1.57%	0.644	1.34%	0.904
CAAR(-5, 5)	0.18%	0.115	0.13%	0.070	1.31%	1.194
CAAR(-1, 1)	0.26%	0.461	0.37%	0.552	0.60%	1.143
CAAR(0, 1)	0.45%	1.025	0.47%	0.705	0.74%	*****4.35 8
CAAR(0, 5)	1.54%	*1.868	1.64%	1.350	0.99%	1.304
CAAR(0, 10)	1.14%	1.011	2.41%	1.584	1.06%	1.145

Source: Authors' calculations

Table 4 presents the cumulative abnormal returns of acquiring firms over 6 different event windows according to 3 payment methods. Almost all of the abnormal returns for 3 sub-groups are positive. Though the study finds no significant value of CAAR following an M&A deal financed with stocks, the results show significant positive CAARs of 1.54% in event windows (0, 5) for cash-paid deals and of 0.74% in event windows (0, 1) for deals financed with other payment methods. The differences between the mean of these 3 portfolios, however, are shown to be mixed and insignificant for all of the results as can be seen in Table 5.

Table 5: Differences among Acquirers' CAARs of different payment methods

	Differences					
	(1) - (0)		(2) - (1)		(2) - (0)	
	Value	t-statistics	Value	t-statistics	Value	t-statistics
CAAR(-10, 10)	1.77%	0.586	-0.23%	-0.080	1.54%	0.666
CAAR(-5, 5)	-0.05%	-0.021	1.18%	0.542	1.13%	0.582
CAAR(-1, 1)	0.11%	0.123	0.23%	0.275	0.34%	0.442
CAAR(0, 1)	0.02%	0.022	0.27%	0.393	0.29%	0.607
CAAR(0, 5)	0.10%	0.067	-0.65%	-0.456	-0.55%	-0.495
CAAR(0, 10)	1.26%	0.667	-1.35%	-0.755	-0.08%	-0.055

Source: Authors' calculations

Given the fact that the results are mixed and there is no event window witnessing the

statistically significant differences in M&A effects between different payment methods, the second hypothesis (H2: In the period 2000 - 2022, acquiring firms in Vietnam created more wealth from deals paid in cash compared to those financed by non-cash modes of payment.) is not accepted.

4.2.2. The impact of target public status on acquirers' wealth

To test the third hypothesis regarding the impact of target public status on wealth creation effect of M&As on acquiring firms, 285 firms with disclosed target public status are divided into three portfolios: one made up of 143 M&As with public targets, one made up of 100 deals with private targets and the third made up of 42 deals with subsidiary targets. Comparison of performance between three portfolios over 6 event windows are presented in Table 6 and Table 7.

Table 6: Acquirers' CAARs according to the target public status

	(0) Public target (n=143)		(1) Private target (n=100)		(2) Subsidiary target (n=42)	
	Value	t-statistics	Value	t-statistics	Value	t-statistics
CAAR(-10, 10)	0.16%	0.126	0.86%	0.511	2.46%	1.136
CAAR(-5, 5)	0.52%	0.663	1.53%	1.344	-0.53%	-0.360
CAAR(-1, 1)	0.39%	0.960	0.89%	1.645	-0.23%	-0.531
CAAR(0, 1)	0.50%	****2.818	0.95%	*****9.236	0.02%	0.040
CAAR(0, 5)	0.97%	****2.637	1.54%	**2.038	0.11%	0.094
CAAR(0, 10)	1.29%	****2.650	1.00%	0.925	0.86%	0.512

Source: Authors' calculations

While mergers and acquisitions of subsidiary targets show mixed and insignificant results, the CAARs for deals with public and private targets are consistently positive in all event windows and are significant in the event windows following the announcement. To be more specific, at 1% level of significance, acquirers acquiring public targets earn CAAR of 0.5%, 0.97% and 1.29% in the event windows (0,1), (0,5), (0,10) respectively, indicating a significant wealth creation effect during the immediate announcement period. CAAR earned by acquirers of private targets are even greater, at 0.95% and 1.54% in the event windows (0,1) and (0,5) at 0.1% and 5% level of significance respectively.

Testing the difference among deals of 3 portfolios, the study finds evidence at 5% level of significance that in the event window (0,1), gains from deals with private targets leads to better gains for the acquirers, that is 0.45% greater than gains from deals with public target and 0.94% more than gains from subsidiary targets, as can be seen in Table 7. It is noteworthy that gains from deals with private targets are consistently greater than from its partners in most other event windows, though this result is not significant.

Table 7: Differences among Acquirers' CAARs in deals with different target status

	Differences					
	(1) - (0)		(2) - (1)		(2) - (0)	
	Value	t-statistics	Value	t-statistics	Value	t-statistics
CAAR(-10, 10)	0.70%	0.335	1.60%	0.585	2.30%	0.921
CAAR(-5, 5)	1.01%	0.732	-2.06%	-1.109	-1.05%	-0.630
CAAR(-1, 1)	0.51%	0.751	-1.12%	-1.616	-0.62%	-1.041
CAAR(0, 1)	0.45%	**2.168	-0.94%	** -2.234	-0.49%	-1.100
CAAR(0, 5)	0.57%	0.675	-1.43%	-1.045	-0.86%	-0.720
CAAR(0, 10)	-0.28%	-0.240	-0.14%	-0.071	-0.43%	-0.244

Source: Authors' calculations

The results above provide evidence to support the hypothesis H3a which suggests that acquiring firms buying a private firm creates more shareholder wealth through M&A compared to those targeting a public firm. However, it is noteworthy that the effect is only short-term, within 1 day of the event announcement.

The study finds no evidence to support hypothesis H3b which proposes that compared to acquiring firms that purchase public targets, those buying subsidiary firms gain more from the M&As transaction.

4.2.3. The impact of industry relatedness in M&As on acquirers' wealth

To test the fourth hypothesis which relates to the effect of industry relatedness in a M&A deal, the full sample is divided into two groups. The first group refers to high industry relatedness between the acquirer and the target with 147 deals where the acquirer and the target share the industry. The other portfolio refers to lower industry relatedness with 142 remaining deals where the acquirer and target are not in the same industry. Conducting event study on these two groups yields the results as presented in Table 8.

Table 8: Acquirers' CAARs according to the industry relatedness level

	(0) Unrelated industries (n=147)		(1) Related industries (n=142)		Differences (1) - (0)	
	Value	t-statistics	Value	t-statistic	Value	t-statistics
CAAR(-10, 10)	0.61%	0.458	1.03%	0.769	0.42%	0.221
CAAR(-5, 5)	1.12%	1.026	0.15%	0.146	-0.97%	-0.643
CAAR(-1, 1)	0.75%	1.283	0.10%	0.268	-0.64%	-0.920
CAAR(0, 1)	0.85%	*****3.098	0.30%	1.422	-0.56%	-1.605
CAAR(0, 5)	1.15%	*1.961	1.09%	1.606	-0.06%	-0.067
CAAR(0, 10)	0.67%	0.748	1.65%	***2.372	0.99%	0.870

Source: Authors' calculations

The results show positive CAARs for acquirers in both groups of interest in all the event windows. At 1% level of significance, acquirers who announce product-diversifying M&As earn significant gains right after the announcement with CAAR(0,1) of 0.85%. CAAR(0,5) for acquirers in this portfolio is 1.15%, at 10% level of significance. For acquirers who announce M&As with a focused product line, the study finds evidence at 2.5% level of significance that in the event window (0,10), they earn a CAAR of 1.65%.

When comparing the two portfolios, it is shown that the gains for acquirers in unrelated deals are greater in most of the event windows, but the study finds no significance level supporting this result. On this account, the fourth hypothesis (H4: Compared to unrelated M&As, related M&As create more wealth for acquiring firms in Vietnam in the period 2000 - 2022.) is not accepted.

5. CONCLUSIONS

In this study, the wealth creation effect of M&A announcements on the acquiring firms in Vietnam from 2000 to 2022 is investigated. The study deals with a sample of 289 M&As and uses the methodology of event study with an estimation window of 200 days, event windows of 21 days (-10, +10) or shorter, and utilizes the market model with market benchmarks being the index of the exchanges firms stocks are traded on.

The study show statistically significant results to indicate that overall, shareholders of an acquiring firm in Vietnam will gain from an M&A announcement in the periods following the M&A announcements, to be more specific, in the event windows (0,1), (0, 2), (0, 4), (0, 5), (0, 6), (0, 7), (0, 8), (0, 9), (0, 10). The cumulative abnormal returns for acquiring firms in these event windows are reported at 0.58%, 0.66%, 0.67%, 1.11%, 1.32%, 1.34%, 1.25%, 1.32%, 1.15% respectively. These results are not in line with the bulk of existing literature on the effects of M&As on acquiring firms, but they show consistency with some recent literature including those of Cybo-Ottone et al (2000) and Goergen and Renneboog (2004).

Using the method of event study, the study then carries out univariate analysis to examine the roles of 3 deal-specific and firm-specific factors in the M&A wealth creation effects for acquiring firms. The results give evidence to support the idea that M&A deals with private targets create more short-term wealth to the acquirer shareholder compared to deals with private or subsidiary targets. Acquirers of private targets earn CAAR(0,1) of 0.95% at 0.1% level of significance, which is 0.45% higher than deals with public targets and 0.94% higher than deals with subsidiary targets and these differences are significant at 5% level of significance.

The study finds no statistically significant results regarding the impact of payment methods and industry relatedness in M&A deals on the wealth of acquirer shareholders

These results propose that M&As are a feasible instrument to create wealth for the

shareholders and give implications for Vietnamese firms in choosing their targets when making M&As decisions. Understanding the impact of M&A announcements on acquiring firms' wealth creation is crucial for investors, policymakers, and corporate decision-makers, especially in the context of global uncertainties.

It is important to highlight that the majority of the significant results obtained are focused on the short-term effects of M&A. Therefore, conducting further research on the long-term impacts of M&A is necessary to gain a deeper understanding of its effects.

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SOLUTIONS TO IMPROVE THE EFFECTIVENESS AND EFFICIENCY OF LAND MANAGEMENT AND USE IN THE NEW ERA

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Abstract:

According to regulations, building a land price bracket must be "consistent with the prevailing market price", but the reality is far different. In many localities, the price bracket is only 30-40% of the market price. This is an error that hides the risk of loss and failure of State budget revenue... Resolution 18-NQ/TW of the Central Committee of the Communist Party of Vietnam has just been issued with 9 contents. the new change requires great effort to legislate to be revised in the 2023 Land Law. One of the remarkable points of Resolution 18 is the definition of "deleting the land price bracket" but continuing to use the mechanism. "land price list", which is implemented on the basis of developing a mechanism and method for determining land prices according to market principles.

Keywords: *Land price bracket, land price list...*

1. Introduction

After nearly 10 years of implementing Resolution No. 19-NQ/TW of the Central Committee of the Party, term XI, policies and laws on land have had many innovations, meeting more and better practical requirements, step by step. create a legal corridor for the management and use of land more rationally, economically and effectively.

Land use planning and plans are implemented in the direction of an integrated, interdisciplinary approach and become an important tool for the State to unify management, allocation and use of land. Land resources are exploited and used more effectively for socio-economic development, ensuring national defense, security and environmental protection; contribute to solving social problems, creating more equality among land users; initially overcome the situation of land allocation and land lease arbitrarily and rampantly. The settlement of residential and production land for ethnic minorities is concerned. The interests of stakeholders in compensation, support, resettlement, and land acquisition, as well as the lives and livelihoods of people whose land is acquired, are better cared for and guaranteed. Rights and obligations of organizations, households and individuals using land are guaranteed and promoted, especially in agricultural land use.

The real estate market, including the land use right market, develops relatively quickly; Institutions, policies on real estate market development and financial policies in the land sector have been gradually improved. Tax incentives, land use levy exemption and reduction, and land rent have made an important contribution to attracting investment, especially in remote and

difficult socio-economic areas. The land policy on social housing achieved a number of important results. The land price bracket and land price list are built according to regulations, taking into account the common land prices in the market.

The work of inspection, examination and supervision of the implementation of policies and laws on land, settlement of disputes, complaints, denunciations and violations of the land law has had positive changes; many cases of corruption, violations of policies and laws on land were strictly handled. The capacity for state management of land has been gradually improved; The organizational system and land management apparatus have been gradually consolidated. Administrative reform in the land sector is given more importance. The first land registration, the issuance of certificates of land use rights, ownership of houses and other land-attached assets reached a high rate. The land database was initially interested in building.

However, the management and use of land is still limited. Some contents of the Resolution have not been institutionalized or institutionalized slowly and incompletely; The Land Law and a number of related legal documents are overlapping, inconsistent and synchronous. In some cases, policies and laws on land have not kept up with the rapidly changing reality.

The planning system, land use plans and land use plannings have not yet ensured the overall, uniform and synchronous character. The quality of planning is not high, lacks a long-term vision, and has not met the requirements of sustainable development. The allocation and lease of land in some places still have many shortcomings and mistakes. The settlement of residential and productive land for ethnic minorities in some places is still slow, not effective, and has not met the set targets and requirements. The compensation, support, resettlement and land recovery in some localities have been carried out slowly, not in accordance with the Resolution and regulations of the law, affecting the rights, lives and livelihoods of people. Land is recovered, causing losses to the state budget. There is no effective mechanism and no resolute handling of projects that are behind schedule or do not put land into use.

The real estate market, including the land use right market, has not developed stably, transparently, sustainably, with many potential risks; The market for agricultural land use rights is slow to develop. Administrative reform in land management is still slow and has not met practical requirements; It is still difficult for enterprises to access land, especially small and medium enterprises. The registration and statistics of land, especially the registration of land changes, have not been strictly implemented. There is still a state of harassment and trouble for people and businesses.

Financial policies in the land sector have not really encouraged economical, efficient and sustainable land use; waste and violations of the law on land have not been limited; structure of income from land is not sustainable. The methods of valuation and auction of land use rights are still inadequate and not suitable to reality. The determined land price is usually much lower

than the market price of land. The situation of land price difference in bordering localities has not been thoroughly handled. There is no sanctions to handle violations in land price determination and land use right auction.

State management capacity on land has not met the requirements. The database and land information system have not been completed. Disputes, complaints, denunciations and violations of the law on land are still complicated; petitions and letters of denunciation about land tend to increase; Many cases are slow to be handled and resolved, causing social frustration.

Land has not been exploited and used effectively to become an important resource for socio-economic development of the country. Degradation, pollution, and landslides are becoming more and more serious. The status of agricultural land and project land is still abandoned. Some problems and inadequacies related to the management and use of land originating from state-owned agricultural and forestry farms have not been basically resolved; land for national defense and security in combination with production and economic construction; land of production establishments and non-business units that have been relocated from the centers of large urban centers; religious land; Land used for many purposes.

The causes of the above limitations and weaknesses are mainly due to: There is not a high consensus on awareness about some issues related to land management and use in the social-oriented market economy. especially about the importance and significance of the entire people's ownership of land, which is represented by the State and uniformly managed by the State. Awareness of policies and laws on land is sometimes incorrect and incomplete. The awareness of a part of officials and people to obey the law on land is still limited. Land has historical, diverse, complex and sensitive origins.

Land policies and laws have many limitations, shortcomings, overlaps, and inconsistencies, affecting management efficiency, creating loopholes for many individuals and organizations to take advantage of, corrupt and take advantage of. , causing loss and waste of state property.

Some tasks have been mentioned in the Resolution but have not been well organized. The implementation of policies and laws on land is not strict. The decentralization and decentralization of land management and use rights are not reasonable, not coupled with inspection, supervision and control; unclear responsibilities between the legislative, executive and judicial agencies in the role of representing the owner and unifying the state management of land. The major relationships in land management and use have not been well handled, and the shortcomings and problems in land management and use left behind by history and new requirements of practice have not been handled well. The settlement of disputes, complaints and denunciations about land is sometimes not timely, definitive and not in accordance with the law; and the situation of pushing, avoiding responsibility. The organizational system and

apparatus for state management of land are not suitable with practical requirements; The mechanism and investment resources for the management apparatus are still inadequate.

2. Literature review

- Land is owned by the entire people and is managed uniformly by the State as the representative of the owner. The State exercises the rights of the owner through the decision on master plans and plans on land use; land recovery, land allocation, land lease, recognition of land use rights, permission to change the use purpose and stipulation of land use term; decide on land prices; policy decisions to regulate the value added from land that is not created by land users. The State recovers land to use for defense and security purposes; socio-economic development for the national and public interests in accordance with the law, ensuring fairness, publicity and transparency, and upholding accountability. Land management and use must ensure the common interests of the entire people; People are given favorable conditions to access and use land fairly, openly, effectively and sustainably.

- The State uniformly manages land according to the national territory, both in terms of area, quality, economic, cultural, social, national defense, security and environmental values; reasonable assignment of state agencies at the central level, and at the same time, have appropriate and effective decentralization and decentralization for localities and strengthen inspection, supervision, control and handling of violations.

- Land use right is a special type of property and goods but is not an ownership right; land use rights and land-attached assets are protected by law. Land users have the rights and obligations to use land in accordance with law. The State does not recognize the reclaiming of land that has been allocated by the State to others for use in the course of implementing policies and laws on land; do not adjust agricultural land allocated to households and individuals; promptly adopt appropriate policies so that agricultural land can be exploited and used with the highest efficiency.

- Institutions and policies on land must be completed synchronously and in line with the institution of development of a socialist-oriented market economy. To adopt policies suitable to each object and type of land use to arouse potentials and maximize the value of land resources; resolutely overcome corruption, negativity, complaints about land, speculation and wasteful land use.

- Improve the effectiveness and efficiency of state management of land. Modernize land management and public services. Consolidate and perfect the organizational system of land management apparatus which is streamlined, effective, efficient, centralized, synchronous and unified. Improve the role and capacity of judicial agencies in settling complaints, denunciations and disputes over land. Land must be fully investigated, assessed, statistic, inventoried, quantified and accounted for in the economy; be planned for effective and rational use with a long-term vision, harmonizing interests between generations, regions and regions, between

socio-economic development and assurance of national defense and security; development of education, culture and sports; environmental protection and adaptation to climate change; ensure national food security. Solve well the inadequacies and obstacles in land management and use left by history and new requirements of practice.

- Strengthening the leadership of the Party, bringing into play the role of the Vietnam Fatherland Front, socio-political organizations and people in formulating, implementing and supervising the implementation of policies and laws on land.

3. Solutions to improve the effectiveness and efficiency of land management and use in the new era

Firstly, perfecting regulations on land allocation, land lease, and change of land use purpose

Land allocation and land lease shall be carried out mainly through auction of land use rights and bidding for projects using land. Specific regulations on auction of land use rights, bidding for projects using land; restrict and strictly regulate the cases of land allocation or lease without land use right auction or project bidding with land use; ensure openness and transparency. There is a synchronous and specific mechanism to handle violations of regulations on land allocation and land lease, especially related to auction of land use rights and bidding for land-using projects.

Basically implement the form of land lease with annual payment and specify the cases of one-time payment of land rent, suitable to the nature and purpose of land use, ensuring a stable source of income and avoiding losses. State budget. The State shall allocate land with a limit without collection of land use levy for land used as worship facilities and offices of religious organizations. Religious organizations that use land for other purposes must pay land rent to the State in accordance with law. To stipulate conditions for land allocation, land lease, and usage limits for religious organizations in accordance with the existing land fund of the locality.

Strengthen the management and strictly control the change of land use purposes, especially land for rice cultivation, protection forest land, special-use forest land, production forest land being natural forests, and land of enterprises. State divestment, equitization and multi-purpose land use; strengthen decentralization and decentralization along with inspection and supervision, and speed up the reform of administrative procedures in land use purpose change.

Second, improve the land price determination mechanism

Remove the land price bracket. There is a mechanism and method for determining land prices according to market principles, defining the functions, tasks and responsibilities of the agency in charge of land price determination. The Central Government shall develop criteria

and procedures for inspecting and supervising localities in formulating land price lists. Provincial-level People's Councils decide, inspect and supervise the implementation of land prices. There is an effective mechanism to improve the quality of land valuation, ensure the independence of the land price appraisal council, the capacity of the consulting organization to determine the land price, and the capacity and ethics of the appraisers. pellets. Supplement and complete regulations to ensure publicity and transparency such as: Publicizing land prices, compulsory transactions through trading floors, payment via banks, non-cash; strictly handle violations...

Third, to perfect the financial mechanism and policy on land

The financial policy on land must harmonize the interests of the State, land users and investors; have a reasonable and effective regulation mechanism for revenue from land use levy and land rent between the central and local governments; Research has a policy to regulate land rent disparity, ensuring publicity and transparency. Review policies and laws on agricultural and non-agricultural land use tax, develop policies and laws on land use tax according to international practices, suitable to the level of development and specific conditions and appropriate route. Prescribing higher tax rates for users of large areas of land, many houses, land speculation, slow land use, and abandoned land. To adopt preferential policies on tax, land use levy and land rent suitable to the fields and geographical areas eligible for investment incentives; for poor households, ethnic minorities, and families of people with meritorious services to the revolution; Production planning in localities to ensure national food security and protection of forests, especially protection forests, special-use forests, etc.

Fourth, perfecting legal regulations related to the real estate market, including the market for land use rights.

Promote commercialization of land use rights. Building a real estate market information system associated with land information; adopt policies to encourage the development of the land use right market, especially the agricultural land rental market. Completing the legal basis and strengthening the implementation of non-cash payments in real estate transactions. Having a mechanism to ensure the healthy, safe and sustainable development of the real estate market; strictly control and overcome land speculation.

Fifth is to accelerate administrative reform, digital transformation and improve state management capacity on land.

Promote digital transformation in the field of land use and management; allocate reasonable resources to build and complete on schedule the national land information system and database; ensure centralized and unified management, operation, connection and sharing of information from central to local levels. Compulsory registration of land use rights and all land changes, and at the same time have specific and synchronous sanctions to prevent transactions that are not registered at state agencies.

Consolidate and perfect the system of land management agencies at the central and local levels to ensure leanness, stability, consistency, effectiveness and efficiency; promote the application of modern technology in land management. To step up decentralization and decentralization in the exercise of the right to represent the entire people's ownership of land, to unify management in the direction of improving local responsibilities and to closely inspect, supervise and control the central government; reducing focal points, reducing intermediaries, associated with administrative reform, reducing troubles and negatives. Continue to improve and improve the capacity of public service organizations in the field of land. Having an investment mechanism, remuneration policy, training, fostering and capacity building, and qualifications of cadres and civil servants in the land management sector; upgrade facilities and equipment to meet modern management requirements.

Concentrate investment resources for investigation and assessment of land resources; land statistics and inventory; monitoring land use; protect, improve and restore the quality of land in order to strictly manage the quantity and quality of land in service of land use planning and planning, as a basis for use.

Sixth is to renew and strengthen the work of inspection, examination, supervision and handling of violations; settle disputes, complaints and denunciations related to land; tighten discipline, discipline, prevent and fight corruption and negativity

Renovate and strengthen the Party's inspection and supervision, inspection, examination, supervision and control by the State in the formulation, promulgation and implementation of land-related mechanisms and policies; settle disputes, complaints and denunciations related to land; strengthen the prevention and fight against corruption and negativity in land management and use. Strengthen control over power, regularly inspect, supervise, inspect and audit the management and use of land, promptly handle violations of the land law; tighten discipline and discipline, prevent and combat corruption and negativity in the land sector. Conduct inspection and inspection of the responsibility for settling complaints and denunciations of branches and levels, implementing the motto of thoroughly resolving land disputes from the grassroots level, avoiding passing the level to the central government.

Seven is to focus on basically solving the long-term limitations, shortcomings and problems related to land use and management.

Concentrating investment resources, directing drastically and enhancing the responsibilities of central agencies and local authorities in handling limitations, shortcomings and problems in land originating from agriculture and forestry. state-owned; land of production facilities, non-business units that have been relocated from major urban centers; conduct auction of land use rights when rearranging state-owned offices and working facilities to convert to economic development purposes, ensuring compliance with approved master plans and plans on land use. ; land recovered from equitization or divestment of state enterprises;

soils used for multiple purposes; settle residential and production land for ethnic minorities according to master plans and plans on land use; problems and problems in land use and management left by history.

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THE RELATIONSHIP BETWEEN SOCIAL RESPONSIBILITY AND SUSTAINABLE DEVELOPMENT IN VIETNAMESE ENTERPRISES

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Abstract:

The past four decades have seen growing academic interest in empirical theories of CSR. CSR has become more prominent in response to society's expectations for business. CSR refers to a company's efforts and responsibilities to minimize or avoid harmful effects and maximize the long-term positive and useful impact on society. CSR has been identified as an important strategy for sustainable development in most organizations around the world. Although it is increasingly recognized and implemented in Vietnam, CSR is still a very new concept and pioneers in this field are facing many challenges in implementing CSR programs in Vietnam.

Keywords: *Corporate Social Responsibility, Sustainable Development, Vietnam*

1. Introduction

In recent years, sustainable development has become the vision and mission of most economically growing countries and even developing nations, such as those in Southeast Asia. Therefore, the Sustainable Development Goals and the concepts of corporate social responsibility (CSR) are guiding the business activities of most public and private organizations, even FDI enterprises. Clearly, the Association of Southeast Asian Nations (ASEAN) lists business responsibility as a correlated issue tied to the operations of multinational companies (MNCs) [30]. ASEAN also created the ASEAN CSR Network (ACN) in 2011, demonstrating how the association responds to and implements issues of corporate responsibility.

Subsequently, more and more studies were conducted to explore the role of CSR in relation to other features. Lai et al. [17] focused on how CSR affects brand performance in the business-to-business market, finding that CSR positively affects brand equity and brand performance. The growing importance of social issues, such as the environment, to consumers has been embraced by businesses that effectively adopt CSR activities conducted to resonate with both brands and consumers [3], thereby improving consumer perception of these corporations [2]. Ghorbani [10] also asserts that the more involved organizations are in social activities, the more effective it is to create perceived brand value. CSR activities have been given priority in developing countries. In addition, determinants of CSR performance are of interest to many researchers. For example, the determinants of CSR identified were competition [22], regulatory environment [27]; regulator perception [34] and stakeholder influence [13]. Previous studies have shown the impact of stakeholder influence on CSR activities and how it

leads to specific benefits such as financial performance, business value [36]. However, studies conducted in developed countries, these types of studies are essential in developing contexts as CSR has become more common in these contexts. It is essential that the way in which businesses formulate their business principles has an impact as far-reaching as the development of the business. Recently, sustainable development and CSR have been assessed as key issues affecting the reputation of corporations in the international arena. Several studies have explored the effects of CSR; some have assessed the importance of CSR for improving organizational performance [29], while others have focused on the importance of CSR activities for the development of corporate governance.

According to research conducted by Ruizalba Robledo et al. [26], CSR was identified as the most influential characteristic of the global economy. CSR is often implemented at both the public and private organizational levels, where technological empowerment, globalization, and growing public awareness create the need for a business model that operates and sustains social and environmental ecosystems. As an implication of improving an organization's performance internally, Terrero-De La Rosa et al. [31] demonstrated that CSR activities have a greater influence on human resource performance such as attitude surveys, communication systems, recruitment and selection systems, etc job security, career planning and teamwork. Moreover, CSR plays an important role in the external outcomes of corporate governance in certain ways. Polonsky [23] determined that "employees" and "the public" are considered influential stakeholder groups in decision-making on CSR, demonstrating a positive relationship between CSR structure and reputation in changing market share and profitability. CSR is characterized by strategic choices that incorporate evaluation into the company's business strategy and alignment with the company's brand. Effective CSR will positively influence social outcomes and be expressed through corporate communications, with the aim of informing and influencing company stakeholders in a way that is considered value addition [19]. It indicates that stakeholders have a special role to play in implementing CSR. To achieve solid values, meeting stakeholder requirements is prioritized. For example, employees want to work for socially responsible companies, customers prefer to buy from companies that meet their requirements, suppliers want to build relationships with socially responsible companies, these will create attractive benefits [9].

Most previous research has focused on the business landscape in developed countries, and this study continues to test similar research hypotheses in a developing country with a distinct culture and economic structure: Vietnam. With the fastest economic growth in the region, Vietnam strongly encourages organizations to focus on business principles; Corporate governance prioritizes enhancing sustainable development by focusing on core business values. In addition, doing business in Vietnam is characterized by opportunities and advantages arising from the strengthening of CSR practices. Vietnam is also one of the typical members of ACN. Therefore, the results of quality CSR studies in Vietnam can contribute to supporting corporate

governance on a case-by-case basis. Carroll [5] suggests that there are four main types of CSR implementation: economic, legal, ethical, and charitable responsibility. Furthermore, De Bakker et al. [8] observed that CSR can take many other forms, such as corporate philanthropy, business ethics, business stakeholder relations management, economic sustainability, environmental sustainability, corporate citizenship, etc corporate reputation, social action and social marketing.

2. Theoretical basis

2.1. Corporate social responsibility

The past four decades have seen growing academic interest in empirical theories of CSR. CSR has become more prominent in response to society's expectations for business. Many studies show that CSR activities benefit the environment and society [33]. According to Mohr et al. [20], CSR refers to a company's efforts and responsibilities to minimize or avoid harmful effects and maximize a long-term positive and useful impact on society. In addition, CSR is defined as a tool for organizations to complete their business activities, contribute to and solve social problems, and achieve commitment to society. Furthermore, CSR enables organizations to develop and deliver resources efficiently [21]. Therefore, CSR is considered the most effective means of gaining competitive advantage [24]. There are nearly 37 definitions of CSR, which generally have the same thing in common [7]. More recently, CSR activities have been considered an ethical and moral commitment, assuming that companies themselves regulate their CSR behaviors and their communication about these activities [6]. As these studies demonstrate, the importance of CSR for the development of organizations was analyzed and confirmed at the beginning of the twenty-first century.

Recently, CSR has been identified as an important strategy for sustainable development in most organizations around the world [15]. Terrero-De La Rosa et al. [31] mentioned that the advocacy of CSR in companies has accelerated through encouraging business principles that create social value, transparency, ethical behavior, and compliance among organizations. In addition, CSR creates core values that positively affect employees and communities in the areas where the business grows.

Tetrault Sirsly [32] recommends that entrepreneurs appreciate changes in CSR actions and measure them accordingly, so that unwanted publicity can be avoided leading to potential losses in reputation growth. According to some authors, CSR is one of the most notable concepts in studies on the positive impact of business on stakeholders [33]. Indeed, CSR is a strategic tool for meeting multi-stakeholder expectations [17]. This study was conducted to analyze CSR-related concerns and to confirm effective relationships between stakeholder influence, CSR practices and business reputation in Asian countries, particularly Vietnam.

2.2. Sustainable development

Corporate sustainability is a holistic approach to corporate management that maximizes long-term economic, social and environmental value. Sustainability aims to leave systems capable of continuing to exist. There are three aspects to a sustainable business model:

(1) Environment: This aspect refers to the environmental systems in which the business operates. Business activities can degrade nature and destroy ecosystems. Examples include deforestation and the burning of fossil fuels. By harming environmental systems, businesses prevent future generations from obtaining equivalent environmental value.

(2) Social: This aspect refers to the impact of a business on social systems. Such systems include society, local communities, employees, consumers, and other stakeholders. If business practices harm social systems, degrading the well-being of future generations, then such activities are not socially sustainable.

(3) Economic: For a business to survive, it must be financially stable. Economic sustainability means meeting the financial needs of businesses, financing business activities, and supporting social and environmental sustainability initiatives.

2.3. Social responsibility and sustainable development

Although the views that businesses should be accountable to their stakeholders and show concern for the ecological environment are probably as old as the capitalist system itself [4], over the past 30 years there has been an unprecedented increase in interest in CSR and sustainable development across sectors management and politics at local, national and transnational levels. Both concepts relate to the organization's relationship with its key stakeholders and indicate that the organization's policies and actions are contextually specific taking into account stakeholder expectations and that the three key points of sustainable performance are economic, social and environmental" [1]. Several factors have driven the continued rise of interest in CSR and sustainable development, often referred to as the "integration" of these two concepts, namely the following four trends:

1. CSR and sustainable development "strategizing" [12], that is, in the academic field of strategy and management, the role of CSR is gradually recognized and sustainable development is indeed an integral part of the development strategy of enterprises. This trend is related to influential scholars such as Michael Porter[25] embracing CSR and focusing on modeling the relationship between CSR and sustainable development through benefits for business stakeholders such as enhancing competitiveness or reshaping stakeholder attitudes and behaviors. The fact that CSR and sustainability have become frequent topics of discussion in boardrooms and raised by investors at joint meetings demonstrates the strategic integration of these two concepts.

2. The realization of CSR and sustainable development has emerged and developed through facilities of standards, figures, reports, insurance procedures and business frameworks designed to support those working in the field of CSR and sustainable development [12]. This facility is underpinned by regulations and by the institutionalization of CSR and sustainable development into markets [35], making the economy resilient to severe shocks such as the global financial crisis of 2007–08 and the coronavirus disease (COVID-19) pandemic of 2020.

3. CSR globalization and sustainable development reflect the increasing and continuous cross-border flow of workers and goods as well as the outsourcing of operations by multinational corporations (MNCs) across long supply chains that cut across geographical borders – at least until the COVID-19 pandemic. CSR globalization and sustainable development are also related to financialization, as more and more institutional investors export CSR and sustainability standards from developed countries (mainly the West) to other regions of the globe through the pressure they exert on their invested companies across multiple financial markets.

4. The politicization of CSR and sustainable development is shown by Matten and Crane's analysis [18] of "corporate citizenship". These frameworks show how institutional context shapes political and local understanding of CSR. They also highlight the blurred line between the roles of government and the MNC, turning de facto private organizations into political actors.[28] The politicization of CSR has become a field of study in its own right – known as "political CSR" – and has led to studies that examine the role of governments in relation to CSR and sustainable development[14][16].

All these trends have contributed to CSR and sustainability becoming inextricably linked with businesses. One of the most striking illustrations of this is the long-term institutionalization of CSR functions and sustainable development as well as the sustained growth in the number of CSR and sustainability professionals. It can be said that after the COVID-19 pandemic, there has been an explosion of CSR/Sustainable Development initiatives by leading corporations and economic companies worldwide with the aim of supporting local communities and hospitals, facilitating the production of essential products such as masks or alcohol-based gels, Retransform production lines and design new parts to help produce ventilators, while protecting worker health and safety [1]. Organizations have leveraged previous CSR/Sustainability initiatives or designed new ones from scratch in an effort to "do the right thing." Admittedly, some of these initiatives have backfired; for example, Amazon's expansion of its online grocery delivery platform to provide people living in locked-down areas with essential services, and Amazon's CEO's donation of US\$100 million to food banks in the United States resulted in the company falling into a decline in revenue.

The example of Amazon illustrates the complexity, potential, and limitations of the roles that CSR and sustainability functions as well as professionals can perform. It serves as a

3. Current situation of social responsibility and sustainable development of Vietnamese enterprises

reminder that the rise of CSR/Sustainability functions and professionals also raises legitimate questions about their practical impact in the workplace and in the wider environmental and social context of organisations. Accordingly, this report sets out to review studies on the impact of CSR functions and sustainable development as well as professionals in the workplace.

The concept of CSR has first been widely introduced in Vietnam in recent years through various activities of international NGOs and multinational companies. It's now one of the hottest topics in business, especially after some of the environmental damage caused by factories in 2010. As the public grew interested in CSR and also reacted strongly to those that did not, both at home and abroad, companies began to pay more attention to CSR. However, CSR is still a very new concept and pioneers in this field are facing many challenges in implementing CSR programs in Vietnam.

According to a CSR Survey conducted by SRI Vietnam, 90% of respondents misunderstood CSR and related issues. In fact, Vietnamese consumers' perception of CSR as well as other ethical practices is virtually unknown even though they have suffered serious consequences caused by corporations over the past few years. Nearly 40% of respondents consider CSR to be a corporate social obligation, which mainly includes community activities and events. While the level of awareness of CSR among Vietnamese remains low, media suspicion continues to add to the difficulty of dealing with the public. The lack of in-depth knowledge and professional research on CSR in Vietnam has led to incomplete information provision, which in turn becomes inaccurate news and articles, which can affect consumers and agencies. CSR programs are often considered PR (Public Relations) activities – another new media concept in Vietnam that is also often misinterpreted as negative. Therefore, the main challenge is to raise consumers' level of awareness of CSR, enhance their appreciation of CSR and link it in choosing products to buy, and relate CSR to social concerns.

On the business side, lack of resources and commitment to implement CSR is the main reason for the current situation. Many local companies resist change and still maintain their conventional thinking system, in which business performance is measured by simpler and more visible metrics. They are more motivated by short-term monetization motives, so using CSR as a branding tool is in fact more logical for them. Even for companies looking to pursue a longer-term, more sustainable approach to CSR, finding competent employees to bypass CSR activities is challenging. In Vietnam, the number of people professionally trained in CSR is very limited while the topic of CSR has not been taught or even mentioned in bachelor's programs of most universities. In addition, business attitudes are still an intrinsic barrier to CSR practice at the present time. Many businesses in Vietnam believe that "CSR is only for large, multinational corporations", or even "CSR is a luxury of developed countries, not suitable in developing countries". Therefore, it is important to change their attitude from "CSR as a cost" to "CSR as

an investment" in order to see CSR initiatives more actively in the local business community in the near future.

However, the CSR picture in Vietnam is very promising. The government and business are the two main actors in promoting CSR in Vietnam, while businesses determine the success of CSR and the government issues policies, monitors the implementation of regulations and provides information on CSR issues. The two main drivers of their growing interest in many CSR issues are public awareness and pressure from importers. Recent scandals by factories committed to causing serious pollution in the Thi Vai River, such as the Vedan company, and a series of health safety incidents such as the distribution of contaminated milk, toxic ingredients in consumer goods and pesticides in vegetables and fruits are raising greater concerns about liability social of business. among consumers. Therefore, CSR efforts related to daily life and healthcare will be more meaningful for Vietnamese consumers, regardless of their age, economic level, and education level. Along with these environmental and health issues, Vietnam's export companies also encounter certification and standards issues when foreign investors and buyers ask them to conduct business activities based on respect for human beings. community and environment. For example, the textile agreement between the United States and Vietnam includes an obligation on Vietnamese authorities to encourage exporting companies to implement CSR rules in exchange for access to the U.S. market.

The environment was a common theme of many CSR projects in 2010. The most famous campaign is Toyota's Go Green, a television educational program that provides basic knowledge about various environmental issues, along with the Go Green student club and many community events. In addition, Panasonic also launched the "Eco Ideas" campaign and Canon with the eco-bag exchange. Many other large corporations in Vietnam also play important roles in incorporating the core values of CSR into their projects. For example, Honda has its "I love Vietnam" campaign, in which it uses television to educate the public about road safety; environmental hygiene education programs for mountain children from Unilever and Topic64 IT training programs from Microsoft, Qualcomm and HP.

Looking at Japanese companies such as Panasonic, Honda, Toyota and the general feeling of Vietnamese people about CSR, it can be seen that education is probably the most reasonable approach for CSR activities at the moment. Cultural commonality and experience in education are the main advantages of Japanese institutions, allowing them to focus on both students and local businesses. Although the main channels to reach Vietnamese companies are through occasional corporate conferences and trainings, it is much easier to reach students. Educating Vietnamese students during their university years can help change their mindset early and thereby benefit Vietnamese businesses at their core values. Japanese institutions should consider both formal education through the incorporation of CSR courses in business subjects and informal forms of education such as student clubs, training programs, and communication campaigns aimed at the student community. Each channel can add value in its own way.

In a country like Vietnam, where CSR is a completely new concept even for those working in enterprises, Japanese organizations should approach the problem slowly by raising awareness through education. In addition, companies with comprehensive CSR programs and best practices should be encouraged to share their experiences and provide clearer guidance to large corporations as well as small and medium-sized enterprises (SMEs) in Vietnam.

As one of the earliest and largest investors in Vietnam, Coca-Cola Vietnam has been seriously investing in sustainable development activities here. Recently, together with 8 leading companies in the field of consumer goods and packaging, Coca-Cola Vietnam launched Vietnam Packaging Recycling Organization (PRO Vietnam) to solve the problem of single-use packaging, towards a circular economy and implement recycling. The packaging process is more accessible. Coca-Cola Vietnam also supports the provision of clean drinking water to many secondary schools in Vietnam by partnering with the Center for Family Health Counseling and Community Development to provide clean water to schools, while helping to raise students' awareness about the importance of using clean water. In 2020 alone, they invested more than \$110,000 in the program, helping 6,244 students and teachers as well as 12,488 people from surrounding areas. Together with WWF, Coca-Cola Vietnam has invested VND6.8 billion (about US\$300,000) for a talk show in Tram Chim National Park. Their excellent investment has helped 231 species of birds be protected in the park for many years. Moreover, through technological improvements, they also managed to make international business practices more efficient, for example, from 2015 to 2020, Coca-Cola Vietnam's water efficiency increased by 25%.

HSBC Vietnam's goal is not only to become one of the major banks in Vietnam, but also to build long-term business, gain the trust of customers and the community, and minimize its impact on the environment. In 2020, HSBC Vietnam has 3 ambitious targets to promote CSR in Vietnam: Sustainable finance delivery – HSBC aims to provide between \$750 billion and \$1 trillion in sustainable finance and investment by 2030, so that more and more SMEs can transition to sustainable business development; Climate solutions and innovation - HSBC Vietnam is testing new financing for nature-based climate solutions, towards innovative clean technologies; Becoming a net zero emission bank – HSBC Vietnam's goal is to achieve net zero by 2030 across all its operations and supply chain, while adjusting customers' financed emissions to the Paris Agreement target of net zero by 2050.

Honda has always been one of the best known companies in Vietnam, since first exporting 20,000 Super Cubs to Vietnam in 1967, annually accounting for about 73% of the total motorcycle market here. For the community, over the past 20 years, Honda has provided a lot of free bicycles to the police force, financial support for poor families and especially support for families affected by floods in 2015 and 2017. They have raised more than VND 2 billion, including VND 1.5 billion in cash and 23 generators. For the environment, Honda Vietnam has organized many events throughout Vietnam, including sponsoring VND

4. Conclusions

4.9 billion (8 years) to plant 506ha of forest in Vinh Kan, AR-CDM cooperating with JICA to plant 309ha of forest in Hoa Binh, etc. For the field of education, Honda Vietnam has been supporting thousands of students, Vietnamese students of all ages pursue a brighter future in Education. With the Honda Award, Honda is supporting Vietnamese students with more than 200 scholarships to study at different universities in Vietnam.

Participation in CSR can help develop capacity in regulators and public policy, free up existing resources, and leverage additional resources through partnerships, promoting sustainable development. The Vietnamese government can draw inspiration from CSR programs to promote socially responsible business practices of domestic enterprises. Many governments around the world have collaborated with funding agencies, supporting business development activities designed to promote healthy local businesses, build skills and support the formalization of informal ones. For example, competitive and fair policies in supply chain management are one way that the Vietnamese government can promote businesses to implement CSR activities. In this context, the government's efforts to support small businesses are increasingly evident and can receive a strong response from domestic businesses.

The Vietnamese government may also set up a special committee to establish new rules, guidelines and guidelines for prohibiting small business households from arbitrarily engaging in unfair practices such as selling products below cost or asking suppliers for greater discounts. Another aspect that can be implemented by the Vietnamese government is the development of initiatives that help transfer active learning and capacity building on environmental and social issues from export-oriented enterprises to non-export-oriented enterprises.

The Vietnamese government can put in place clear public policy policies and frameworks to address issues that are likely to come at the expense of economic, social and environmental considerations to better facilitate strategic decision-making. Thereby, CSR activities of Vietnamese enterprises can receive the attention of stakeholders in the richest countries in the world and create opportunities for business expansion and development for domestic enterprises.

This study contributes to the literature on CSR by providing perspectives and theories on the relationship between CSR and Sustainable Development and outlining the current state of CSR implementation in the context of Vietnam, a developing country in Southeast Asia. Previous studies have shown a valid relationship between the influence of CSR and sustainable development. There is still a long way to go for CSR to be fully applied in all businesses in Vietnam. It is important for both consumers and business owners to be more aware of the importance of CSR, while creating a positive movement in society for people to be more responsible.

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PROMOTING CORPORATE SOCIAL RESPONSIBILITY FOR SUSTAINABLE ECONOMIC DEVELOPMENT IN VIETNAM

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Abstract:

This study focuses on analyzing the potential of CSR for economic development in Vietnam. This study provides a framework to consider the existing potential of CSR implementation in mitigating the negative impact of business on communities but also to harness its potential positive benefits when combined with public policies. CSR is mainly aimed at businesses themselves, but the role of the government is also very important so that CSR policies can be implemented in accordance with the original purpose. This study draws on empirical evidence and experience from previous studies to analyze the potential of CSR for Vietnam and thereby make appropriate recommendations for the Vietnamese government to exploit the full potential of CSR for the Vietnamese economy.

Keywords: *CSR, Sustainable development, Vietnam.*

1. Introduction

The study of corporate social responsibility (CSR) is growing and becoming more complex. Various reviews of the potential of CSR implementation have been published over the past decade, including general reviews[1] and narrower reviews of specialist areas[4],[9]. The insights and conclusions drawn from these studies reinforce many aspects of CSR theory [1], but lack of diversity in analyzing the potential of CSR in emerging economies [11].

The importance of exploring CSR in each economic context has been emphasized in recent years with efforts to promote greater attention to emerging economic sectors [10], [15]. Special elements of CSR in developing countries have been addressed in previous studies but are often described in a more informal and charitable manner [10], [21]. The study of the potential of CSR in emerging economic regions such as Vietnam is supportive of arguments for transferring conclusions drawn in developed countries to developing countries [9], [14]. Gugler & Shi, [8] note that the division of CSR research according to the level of economic development is necessary in order to be able to highlight the contents, objectives, and targets of CSR in its own context, and to support its theoretical adjustment accordingly [16].

Although interest in CSR research in developing countries is increasing, the quantity and quality of CSR potential assessments for economic development in Vietnam has so far been less impressive. Therefore, the purpose of this study is to analyze the potential of CSR for economic development in Vietnam. The focus of this study is to answer two important research questions, namely: (1) how CSR in developing countries is understood; and (2) How CSR's

potential is expressed for economic development in Vietnam. In other words, this study will more accurately assess the potential of CSR in Vietnam in particular and the emerging economic region in general to provide appropriate strategic directions for stakeholders.

2. Literature review

2.1.CSR

Corporate social responsibility is one of the earliest and important concepts in the academic study of business and social relations [22]. The development history of the CSR structure is generally divided into three periods: (1) development and expansion (1950s), (2) further expansion (1960s-1970s), and (3) comprehensive development (1980s-1990s)[3]. Early studies of CSR were aimed at opposing an authoritarian economic model and emphasizing efficiency, competition, and increased productivity. The early development of CSR focused on discrete definitions of the role of businesses as managers of not only individual resources but also social resources. Until the 1960s, the focus was shifted towards evaluating corporations as an important center of power but specific decision-making has not yet been fully evaluated [3]. According to Carroll [3], the 1980s saw attempts to refine earlier concepts and the division of writing into alternative concepts and topics such as business ethics, stakeholder theory/management, and public policy, etc. In 1979, Carroll divided CSR into four types of responsibilities: economic, legal, ethical and optional.

In the trend of sustainable economic development, CSR is often focused on social issues and sustainability for environmental issues[3], [5], [18]. With this approach, CSR can include manifestations such as employee rights [13], business ethics [2], stakeholder engagement [7]. From individual small businesses to multinational enterprises, every business entity has stakeholders and impacts both positive and negative on society. The concept of CSR aims both to consider the role of business in society, and to maximize the social efficiency of business operations.

In a broader sense, CSR can be defined as the overall contribution of a business to the sustainable development of the whole economy. A minimum standard for CSR is usually the fulfillment of legal obligations or, if there is no law, the business must not cause harm to society. Businesses will do their best to contribute positively to sustainable development by addressing the impacts of their business and also through social or community investments. In fact, much of the business to date has not been categorized into specific CSR aspects in developing countries. As a result, CSR activities are often largely framed in rich countries, then internationalized and transferred to other businesses and social environments through international trade, investment, and development assistance. However, this does not mean that CSR did not previously exist in developing nations. Instead, national CSR programs in low- and middle-income countries are less internationally known and often not labeled CSR. Over the past 5 years or so, governments, companies and NGOs in many developing countries have

accelerated the adjustment of the OECD-driven CSR program through more direct participation. CSR movements and initiatives have sprung up in countries such as China, India, South Africa, the Philippines and Brazil, among many others. In many cases, these are built on a long tradition of philanthropy and concern for social justice. Despite this, the governments of some developing countries still face major societal challenges in attracting and motivating businesses to participate more in CSR activities.

2.2. The role of CSR in emerging economies

In developing nations, more and more companies are acknowledging that the CSR approach as developed regions is effective in implementing socially responsible behaviors. The greater importance of CSR for businesses in developing nations is formed including the value and role of CSR in economic development. If CSR activities in a region have reached a stage where they clearly need to be implemented in line with socio-economic objectives, then promoting CSR activities will bring huge benefits to both businesses and governments.

There are four important reasons to boost CSR activity in developing regions: boosting international trade, attracting direct investment, improving the future prospects of the economy, and other potential prospects. All four aspects are not mutually exclusive but mutually supportive.

- Promoting international trade involves minimizing images of potential adverse impacts of corporate activities on communities, the environment and local markets from the perspective of international partners or international investors.

- Attracting direct investment activities related to attracting investment in domestic economic, social, and environmental development through implemented CSR policies. CSR policies can help solve unnecessary problems of investors in the locality, thereby increasing investment capacity.

- Improving economic future prospects: CSR is seen as an appropriate policy tool to address a variety of social problems and shape long-term benefits for the economy

In developing countries, CSR programs supported by international organizations have been established to bring about real change for people. The "Let Us Learn" initiative, funded by Stefan and Susan Findel to the tune of \$20 million, partners with UNICEF to create educational opportunities for marginalized children, especially girls and children in crisis. The program is implemented in 5 countries: Afghanistan, Bangladesh, Liberia, Madagascar and Nepal. Thus, CSR campaigns become a tool to honor international commitments and rise to higher global standards.

CSR activities in developing nations are carried out through incorporating the original traditions of the countries. In Somalia, the main driver of CSR activities has been identified as having a supporting role for the integration of beliefs, religions and commitment to cultural and

personal values [17]. Despite this, CSR activities must always operate in various forms of flexibility in developing countries to best suit local socio-economic problems. CSR campaigns can be implemented through methods such as gifting and financial aid or creative methods such as employee volunteer hours. In developing countries, businesses also sometimes choose the easier route of complying with government plans and programs to fulfill their CSR requirements.

Despite playing different roles in different socioeconomic contexts, CSR activities in developing countries also struggle with a number of barriers to achieving their full impact. This may result from unreasonable expenditure of time and resources or lack of proper institutional setup and established facilities to support the implementation of CSR activities [17]. However, if well utilized, the large-scale deployment of CSR is still a potential policy for long-term economic development for developing countries. Indeed, to prevent this waste, some businesses have chosen to partner with local non-governmental organizations (NGOs) to give companies a foothold to work in unfamiliar environments and allow for a deeper understanding of the basic requirements of the community. NGOs serve as intermediary channels for companies to pursue their social work programs. The joint CSR statements of NGOs and corporations can be extremely powerful due to the added authority and trust borrowed from the NGO's own position [12].

3. Possibilities of CSR for economic development in Vietnam

3.1. Potential of CSR for international trade

Corporate rules and certification programs applied in international trade have become areas of particular interest. The implementation of these rules (based on supply chain requirements and audit regulations) can provide marketing opportunities for manufacturers and suppliers in Vietnam. However, they can also act as a barrier to market access.

Business-to-business standards are costs and benefits, they tend not to be distributed fairly along the value chain where costs are often borne by the producer while the benefits accrue to the retailer. These problems partly stem from the disparity in power between producers and buyers, where standards are a factor in price squeezing for manufacturers worldwide [20]. Similarly, certification programs often talk less about the responsibilities of sourcing companies and more about the responsibility of manufacturers to comply. For companies that source raw materials, they have to comply with many rules or face conflicting requests from different buyers.

CSR standards imposed through the supply chain can supersede domestic laws. This may be because they are more tied to trade outcomes (market access) because standards in domestic law are less stringent, or because of weak public sector capacity, they are more likely to be monitored and enforced than domestic law.

Tensions can also arise when CSR standards are designed and applied with little or no input from governments or companies in key countries. As a result, businesses may be less likely to fully implement social and environmental standards in exporting countries.

Exports in Vietnam are gradually tied to consumers' social, health or environmental concerns (such as agriculture or textiles), and governments can facilitate their manufacturers' access to markets. For example, the Zambian government is working with the WTO/UNCTAD International Trade Centre and the Utz Kapeh Foundation to improve access to high-value markets for Zambian coffee growers, in part through the creation of local inspection capacity to partially reduce certification costs in those markets. And Colombia's Mercados Verdes program, designed to encourage the production of environmentally friendly goods and services in order to make the business competitive in international markets [6]. Vietnam can learn from these case studies to develop public sector support for sustainable markets in Vietnam.

3.2. Potential of CSR for attracting foreign investment

On the direct investment side, CSR can help multinational corporations adopt best practices globally, as well as comply with Vietnamese laws. But unrealistic CSR activities have the potential to lead to or exacerbate social tensions at the local level. For example, social investment programs that focus solely on indigenous people may increase social tensions among members of that region; or these companies prioritize solving international problems rather than supporting local socio-economic development.

For developing, low- or middle-income countries such as Viet Nam, there should be scope for public sector actors in implementing CSR to achieve public policy objectives and priorities. For example, foreign investment offers the potential to transfer technical expertise to local businesses. Many large companies as well as the Vietnamese government have been interested in exploring practical mechanisms to enhance the input of local businesses and labor into their projects. This has been incorporated into regulations by several governments around the world such as laws on the scope of local operations in Nigeria or the terms of foreign investment contracts for oil sector investors in Azerbaijan. Types of CSR initiatives often combine many different areas, sometimes involving public sector actors, on how knowledge and expertise are transferred or can be combined with environmental and social issues between large and small companies. Finally, some governments are also beginning to take an interest in and study the potential to leverage CSR in benefiting overall competitiveness. The potential for CSR implementation to improve competitiveness at the national level is an important strategy worth exploring. However, its positive nature may only come into play in certain sectors and countries.

3.3. The potential of CSR to improve the future prospects of Vietnam's economy

Developing countries can gain long-term advantages for their economies by implementing CSR campaigns as complementary to joint efforts to bring real solutions to

people's lives. In countries such as China, India, the Philippines and South Africa, governments have sought the involvement of businesses and brands to promote joint efforts to eradicate major societal challenges. Vietnam is currently a country with a developing economy but faces some of the most severe environmental pollution crises in the world. Therefore, the long-term benefits of CSR campaigns can hold back the strongest impacts of economic activities on society and the environment. CSR promotion campaigns are an opportune opportunity for Vietnam to fill the gap of backwardness in dealing with environmental and social issues caused by rapidly growing economic activities beyond control. CSR campaigns are also a suitable way for localities in Vietnam to protect local communities and small economies from being usurped by larger multinational brands. Thereby promoting sustainable economic development from Vietnamese brands and businesses. The active support of CSR will bring domestic directives to the economic, social and environmental growth of countries. Therefore, the Vietnamese government can make the choice to increase the use of public policy of CSR activities towards sustainable development and take a step further to achieve the status of a developed country.

4. Conclusions

The potential of CSR is fully aligned with Vietnam's economic, social and future prospects. From a sustainable development perspective, the widespread implementation of CSR has the potential to expand Vietnam's social, economic and environmental sectors, including other complex issues such as corruption and poverty reduction. However, at the national level, due to still depending on financial and technical conditions and economic and social context, the potential of CSR in Vietnam has not been fully exploited. To achieve the real benefits that CSR can bring to the Vietnamese economy, government involvement is one of the very important aspects. The Government of Viet Nam and local authorities can work towards the following policies to harness the potential of CSR for economic development in Vietnam:

- Enhancing benefits from international trade activities
- Solving market access issues for domestic enterprises
- Promote and support socially desirable business activities of domestic enterprises and
- Align legal regulations with economic activities and public policy.

Enhancing benefits from international trade activities

The Vietnamese government may seek to adjust national trade cooperation strategies and responsible foreign investors to make CSR activities more popular in the country. In addition, local enterprises also need to receive support from these cooperation strategies by making the most of the expertise of foreign experts on CSR activities in Vietnam. In Vietnam, the government is an important intermediary in attracting investors who are able to transfer advanced technology and are responsible for the development of Vietnam's social environment. From there, supporting the economic development of both Vietnamese businesses without

affecting the environment and local communities. The overall goal of the government is to promote healthy competitiveness and sustainable development in Vietnam to improve the welfare of Vietnamese people and businesses.

Market access solutions for domestic enterprises

The government is an important party that can improve the ability of Vietnamese enterprises to meet increasingly high environmental standards and increasingly high requirements for exporting to fastidious markets. One of the core images that can be achieved is the image of businesses and countries through practical CSR implementation activities. The government can facilitate these processes by assisting domestic SMEs to meet these requirements – sometimes collaborating with larger companies in CSR activities. For the textile market, for example, the government can focus its national strategy on industry development by creating a niche market through national reputation. At this time, Vietnam's textile and garment industry will be like a trade and investment destination associated with good policies for both workers and investors.

Regulation and self-regulation

Public sector involvement with CSR includes the entire social and environmental legal body or body in any country. Other areas of law – including competition policy, investment framework, access to information and public participation in decision-making – are also favorable environments for CSR. Governments are also increasingly involved in shaping CSR's self-regulatory tools, including through participation in certification or labeling programs. Specifically, regulations and self-regulation should:

- + Minimum legal requirements: There should be regulations on command and control, to incentives for innovation at the enterprise level. For example, polluting industries are required to adopt 'the best available techniques' to achieve desired environmental outcomes. The prevailing perception of CSR — which is largely market-driven and voluntary in nature — can sometimes hinder a government's progress in setting minimum requirements for business behavior.

- + Taxes, fees and payment mechanisms: Many taxes, fees and payment mechanisms are well established in the environmental sector (e.g. the application of regulations addressing charges for polluting emissions by sector). Such approaches have significant potential to change business behaviour, but they rely on the capacity of the public sector to collect payments. A variety of tax mechanisms have also been implemented by countries that encourage various kinds of business activities for the benefit and desire of society. For example, in both Uganda and Zambia, reduced excise tax rates have been applied to a beer made from sorghum from locally sourced smallholder producers instead of imported barley. Vietnam should provide various forms of tax incentives for charitable activities or charitable contributions by businesses.

+ Negotiation and concession of foreign investment contracts: Negotiating foreign investment contracts creates opportunities for the government to set clear expectations about investors' contribution to social investment, skills and business development as well as technology transfer. The terms of these agreements (which are often not made public) can sometimes spell out companies' community and social investment strategies. Regulations on natural resource concessions in mining and oil and gas should also consider the extent to which the franchisor provides infrastructure and services (e.g., health, housing, or education) to the locality. If tax revenues are low, there may be a greater focus on providing social or other infrastructure by investors. But the capacity of public sector actors to undertake the management of services or infrastructure in due course is also an important issue to consider.

+ Environmental management: Environmental management methods should be approached in phases to improve environmental compliance, or accreditation of strict environmental management systems. Reductions in inspections may be public policy innovations but they can be controversial when it comes to breaking the rigor of regulations or reducing the scope of citizens' oversight of environmental policy implementation.

+ Agreements between the company and the community: The right to community participation has long been recognized as the main tool of sustainable development. In the field of CSR, public sector actors can compel the public to participate in activities that determine the level of private sector investment. Legislation can help ensure benefits for communities at the local level by requiring bargaining agreements between businesses and communities. If CSR initiatives are to deliver real benefits, communities need to be able to engage meaningfully as negotiating partners. Therefore, public policymakers should do more than just establish supportive policy frameworks. This is to ensure that the community is aware of their rights and capable of ensuring positive outcomes.

+ Corporate reporting: Company reports on environmental and social issues are increasingly becoming the subject of law in high-income countries. To date, there are few (if any) concrete examples of comprehensive CSR reporting requirements in low- and middle-income countries. But Vietnam can require businesses to report on specific issues, such as public health reports, charity reports, etc.

+ Labeling strategy: Government involvement in various labeling and certification programs has become one of the ways governments promote engagement with CSR. In China, for example, officials have actively endorsed plans to set standards, rather than simply 'adopters' of standards developed elsewhere. CSC9000T, a textile industry standard, was adopted in 2005 and developed within the China Textile Council and with government verification. This standard is based on Chinese law and provides a management system for enterprises to implement CSR. However, such institutional designs can sometimes be ineffective. For example, India's voluntary product labeling scheme – Operation ECOMARK – was adopted in

1991 on the initiative of the Indian Parliament. But the initiative was unsuccessful, with only 12 manufacturers applying for an Ecomark license in the 15 years since it was adopted. The reason may be that these campaigns are highly dependent on the management of government agencies, so it fails when state personnel change frequently.

Overall, the potential of CSR for economic development in Vietnam is huge and can be achieved with practical support from stakeholders such as the government. The Vietnamese government and businesses need to have plans to establish CSR programs for themselves to make the best use of what has developed so far and what the business community has to offer. But for each potential intervention, it is also necessary to assess the possible costs and benefits; risk of failure or unwanted side effects. Policy makers in Vietnam should clearly note that in order to make good use of the potential of CSR, it is necessary to properly apply the world's experiences to the local context. CSR policy choices are just as important as policies in any other social sector. From there, it can bring the desired benefits without wanting to affect local individuals or groups.

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PARALLEL SESSION 2

**SUPPLY CHAIN
& OPERATION
MANAGEMENT**

RISKS IN SUPPLY CHAINS: A FRAMEWORK AND A CASE STUDY

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Abstract.

Global supply chains have become more vulnerable with ever happening natural disasters and increasing disruptions such as geopolitical tensions and the Russo-Ukrainian War. Supply Chain Risk Management (SCRM) has increasingly been receiving attentions from professionals and the academia. Though many researchers have employed quantitative approaches to analyze risks of a supply chain, there is no attempt to quantify the financial losses from risks. This study aims to quantify the financial damages to business entities from supply chain risks. A framework, which includes Risk Index and Risk-Loss Matrix, was established to explicitly quantify financial losses from supply chain risks, and to enhance the accuracy of risk categorizing system. A semi-qualitative analysis, combining worst-case scenarios analysis with interviews and surveys, was employed to compute financial losses.

A case study was used to demonstrate the framework after in-depth interviews and surveys on a supply chain of a SME in Vietnam. From the case study, the financial damages caused by customers'/suppliers' risks, direct/indirect business partners' risks are quantified and compared.

Keywords: *Supply chain Risk Management, Risk Index, Risk-Loss Matrix, SME, Financial Loss*

1. INTRODUCTION

Recently, the supply chain is becoming more vulnerable due to the increasing disruption caused by man-made or natural disasters. In 2000, a fire occurred at a local plant owned by Royal Philips Electronics, in Holland, damaging millions of microchips and disrupting its customer – Ericsson. As a result, Ericsson lost approximately \$400 million in sales (Chopra and Sodhi, 2004). In March 2011, the triple crisis in Japan (earthquake, tsunami and nuclear power plant leakage) not only caused a drop in automotive parts manufacturing in Japan but also led to a parts shortage around the globe: for instance, Opel and Renault temporarily reduced production because they had parts coming from Japan. The damage of supply chain risk pushes companies to focus on the SCRM (Lavastre et al., 2012), which is a process of identifying, analyzing and performing necessary strategies to mitigate or reduce the negative impact of supply chain risk in order to facilitate the continuous flow of material, information, and finance among supply chain parties.

SCRM, which includes analyzing risk factors that affect supply chains and risk-mitigating strategies have been one of the key areas in supply chain research (Chopra and Sodhi, 2004, 2014; Trkman and McCormack, 2009). Various studies have investigated mitigation strategies for reducing the negative impact of risk factors in the supply chain (Ghadge et al., 2017; Tang and Tomlin, 2008; Wieland and Wallenburg, 2012). A number of papers have employed a quantitative approach to analyzing the risk of the supply chain perspective (Aqlan and Lam, 2015; He and Zhao, 2012; Lavastre et al., 2012). Numerous studies have been focused on categorizing the risk factors in the supply chain by using Likert scale (Mulyati and Geldermann, 2017; Thun and Hoenig, 2011; Tummala and Schoenherr, 2011).

Different from those researches, this study focus on developing a rational framework to quantify financial losses from supply chain risks in order to enhance the accuracy of the risk categorizing system. Based on that, the concept of Risk Index and Risk-Loss Matrix were formulated.

The remaining of this study is structured as follows. The next section reviews some empirical researches relate to SCRM. Followed by the third section which describes the research methodology and data collection processing. In section fourth, a new framework for quantifying financial losses is described as well as the concept of Risk Index and Risk-Loss Matrix. The fifth section discusses the results of a case study conducted in a small construction company. The last section provides a brief summary, critique of findings, and suggestions for future studies.

2. LITERATURE REVIEW

From a supply chain perspective, risk is an undesired event that disrupts the material flows among different components of the supply chain (Lavastre et al., 2012). Numerous studies have tried to identify supply chain risk factors which include natural disasters, accidents, terrorism, information security, intellectual property, lead time variation, product or raw material defect, and general errors in a supply chain (Bandaly et al., 2016; Finch, 2004). Based on general historical analysis, Chopra and Sodhi (2004) implemented some risk factors that are likely to occur in a supply chain such as fluctuation of demand; breakdown of the information system; increase in acquisition cost; receivable being unable to collect; damage from excess or lack of inventory; and loss from excess capacity. Chopra and Meindl (2015) added some risk factors when a company uses a third party such as lost control of process and supply chain visibility, reduced customer or supplier contact, intellectual property leakage, and negative reputation impact because of unethical behavior from the third party. Sodhi and Tang (2012) categorized supply chain risks into four types: supply risks (supplier failure, supply commitment, and supply cost); process risks (problems in design, yield, inventory, and capacity); demand risks (forecasting errors or demand fluctuations, changes in technology or in consumers, and receivables being uncollected); and corporate-level risks (financial problem,

supply chain visibility, political or social problems, IT system failures, intellectual property leakage, exchange rate or interest rate increases, environmental risk and compliance cost, and regulation compliance).

The increasing occurrence of risk events, which are harmful to supply chains, attracts more attention from academia (Aqlan and Lam, 2015). Various studies have employed simulation modeling techniques to study supply chain risk. For instance, Schmitt (2009) performed Discrete-event simulation (DES) to quantify the supply chain risk. Additionally, agent-based simulation (ABS) was employed in the study of Giannakis and Louis (2011); meanwhile, the system simulation method was employed in the study of Sidola et al., (2011). Interestingly, Wu and Olson (2008) developed three simulation models, which are performed by the Monte Carlo simulation technique, for supply chain risk evaluation including chance-constrained programming (CCP), data envelopment analysis (DEA), and multi-objective programming (MOP) models.

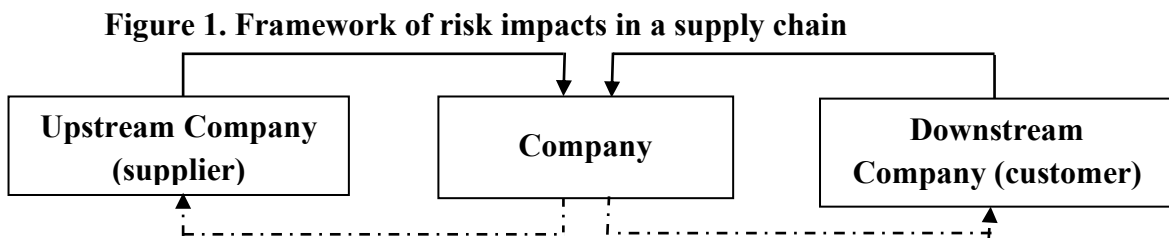
Some empirical studies have been conducted based on the theory of Mitchel (1995) who stated that “risk is a combination of probability and the significance of a loss to the organization or individual”. For instance, Tummala and Schoenherr (2011) developed a framework to classify supply chain risks which are categorized based on two dimensions: consequences and likelihood. The consequences of all potential supply chain risks are assessed according to their magnitude impact (includes catastrophic, critical, marginal, and negligible), meanwhile, the likelihood of risk factors is also assessed on the basis of four levels of probability (often, infrequent, rare, and extremely rare). Thun and Hoenig (2011) employed an empirical analysis in studying the SCRM practices of the German automotive industry. They utilized the Likert 5-point scale (range from very low to very high) to measure the risk probability and risk impact in order to construct the probability-impact matrix which aims to categorize the internal and external risk events. Recently, Mulyati and Geldermann (2017) utilized the Likert 7-point-scale to measure the likelihood (range from never happen to happen every time) and the impact (range from not relevant to very significant) of each risk event in the supply chain of Indonesian seaweed.

The categorizing system of Tummala and Schoenherr (2011), Thun and Hoenig (2011), Mulyati and Geldermann (2017) are not enough accuracy because the consequence of risk or risk impact - which is one of the crucial dimensions in risk categorizing system - is not easily quantifiable. As far as the authors' knowledge, there is no paper that developed a reliable methodology to quantify the financial losses from risks. Lacking a reliable approach to quantifying financial losses from risks is a big gap in the current SCRM literature. As Hopkin (2010) pointed out, the expected level of loss can only be estimated, even if the probability of loss is fairly accurately known. Although statistical approaches have been adopted and developed, a universally accepted approach is still not available.

To fulfill this research gap, this study is an initial effort in developing a rational framework to quantify the financial losses from risks. In particular, this study aims to quantify financial damages on companies when their business partners are disrupted, and so that contributes to enhancing the reliability of risk impact assessment.

3. RESEARCH METHODOLOGY

This study employs a semi-qualitative approach to construct a framework to measure financial losses on entities in a supply chain when their upstream (supplier) or downstream (customer) business partners get disrupted. Figure 1 describes the framework of this study: solid arrows illustrate the impact from upstream or downstream partners on the targeted company; dash-dot arrows illustrate the impact of the targeted company's disruption on its business partners.



Source: Author's design

To measure the impact of supply chain risk, this study employs the grounded theory approach (systematic literature research and review) to identify the possible risk factors in the supply chain. Then, the worst-case scenario analysis and in-depth interview with the CEO of a small construction company are conducted in parallel to establish the consequence associated with each supply chain risk factor. Those consequences are summarized and generalized into some scenarios as well as formulations to compute financial loss as described in section 4. Based on that framework, the concept of the Risk Index and Risk-Loss Matrix are formulated.

The authors also conduct a case study to evaluate the framework of measuring financial losses and the concept of the Risk Index, Risk-Loss Matrix. The entities in our case study include a targeted company (a construction company), its upstream (a steel company), and downstream (a mobile device chain store) business partners. In each entity, a survey questionnaire is sent directly to the representative who has a deep understanding of supply chain risks and enough information to evaluate risk factors. A Likert five-point scale system is used to estimate the likelihood of a risk factor as follows:

-
- | | |
|--------------------------|--------------------------|
| 1 – Not likely to happen | 3 – At least once a year |
| 2 – More than 1 year | 4 – Weekly or Monthly |
| | 5 – Daily or more often |
-

4. THE CONCEPT OF RISK INDEX AND RISK-LOSS MATRIX

Mitchell (1995) concluded that a risk factor should consider two dimensions: the

likelihood to happen and the significance of the impact on an organization or individual. Mitchell, (1995) defined the expected risk of an activity n as:

$$\text{Risk}_n = P(\text{Loss}_n) \times I(\text{Loss}_n)$$

Where, $P(\text{Loss}_n)$ is the probability of the loss (%) and $I(\text{Loss}_n)$ is the significance of the loss. As explained in Section 2, estimating $P(\text{Loss}_n)$, especially $I(\text{Loss}_n)$, are challenging tasks.

Aqlan and Lam (2015) assumed that a risk event (k) is caused by some risk factors (i), and each risk factor (i) leads to some negative consequences (j). Based on that assumption, Bow-Tie analysis was utilized to calculate the aggregated likelihood and impact of risk event k as follows:

$$l_i(t) = \sum_{j=1}^M P_j^c C_j^{sd}$$

where P_j^c is the probability of consequence j ; C_j^{sd} is the standardized value of consequence j ; $l_i(t)$ is the total impact of risk factor i (which has M consequences).

$$L_k(t) = \frac{\sum_{i=1}^N p_i(t) l_i(t)}{\sum_{i=1}^N p_i(t)}$$

Where $p_i(t)$ is the probability of occurrence of risk factor i during the planning horizon t ; $L_k(t)$ is the total impact of risk event k (which caused by N risk factors).

This study adapts the model developed by Mitchell (1995), Aqlan and Lam (2015) to compute Risk Index (R_{ij}), which measures the risk impact on company j when company i is disrupted (if i and j are identical, the index measures the internal loss of risks). The Risk Index (R_{ij}) is expressed by the following equation:

$$R_{ij} = \frac{\sum_{n=1}^N P_{ijn} L_{ijn}}{\sum_{n=1}^N P_{ijn}}, \quad \forall i, j = \{\text{company } 1, \dots, \text{company } M\} \quad (1)$$

Where P_{ijn} denotes the likelihood (from 1 to 5) of risk factor n from company i imposed on company j ; L_{ijn} denotes the amount of financial loss to company j from risk factor n . N is the total number of risk factors.

As described in equation (1), we need to identify all possible supply chain risk factors before estimating the likelihood to happen and the financial losses from those risk factors. Summarizing the extant literature, this study identified numerous supply chain risk factors which are divided into three categories as shown in Table 1.

Table 1. Risk factors in a supply chain

Supplier Risks	Internal Risks	Customer Risks
(S1) Inability to deliver on time	(O1) Equipment and operation process broken	(C1) Demand uncertain or customer not willing to share demand information
(S2) Higher procurement costs	down	(C2) Changes in technology
(S3) The quality of supplier's products is not satisfactory	(O2) Natural disasters or	

(S4) The supplier is not able to deliver the amount of materials requested	other unexpected events	or client preferences
(S5) Broken communication with suppliers	(O3) Financial viability	(C3) Broken communication with customers
(S6) Natural disaster or other unexpected event	(O4) Labor unrests	(C4) Natural disaster or other unexpected event
(S7) Collaboration risk	(O5) Tax policy, exchange rate, inflation, interest rate fluctuations	(C5) Customer financial viability
(S8) Single supplier risk	(O6) Low quality product, theft, and improper product storage	(C6) Labor unrests
(S9) Supplier financial viability	(O7) Reputation damage	(C7) Risks from customers' customer (Domino Effect)
(S10) Labor unrests	(O8) Intellectual property leakage	
(S11) Risks from suppliers' supplier (Domino Effect)		

Source: Author's compilation

To deal with the challenging task of estimating the financial losses from risk, this study performs an in-depth interview combined with the worst-case scenarios approach in order to generalize some scenarios which are most likely to occur once risk happens. Then, the financial losses from those scenarios are quantified as follows:

Scenario 1: Delaying in manufacturing or operating process

The manufacturing or operating process of organizations is delayed due to several reasons such as suppliers are not delivered material on time, equipment breakdown or labor accidents. During the delay period, companies still have to pay salaries for their workers and other payments to maintain their daily operations. Hence, the loss is calculated as follows:

$$\text{Loss} = \text{OC} \times \Delta t \quad (2)$$

Where OC denotes operation costs during delay time; and Δt denotes the length of the delay time (day)

Scenario 2: Punishment fee or Stock out

In case a B2B business contract is signed, companies cannot deliver their products as planned; hence, they should pay penalty fees according to the contract. However, in the scope of this study, authors assume that companies could work extra time to deliver on time instead of paying punishment fees. So, the loss is determined by:

$$\text{Loss} = \text{EW} \times \Delta t \quad (3.1)$$

Where EW denotes the payment for extra working time; and Δt denotes the length of the delay time (day)

In B2C business or retail industry, stock out in a company is caused by insufficient

materials or delays in the manufacturing process, leading to customers may shift to purchasing their competitor's products instead of waiting. As a consequence, that company will lose considerable profit from those stock-out demands. Hence, the loss is determined by:

$$\text{Loss} = AR_x \times r \quad (3.2)$$

$$\text{Or } \text{Loss} = DR_x \times \Delta t \quad (3.3)$$

Where AR_x is the annual profit (revenue minus cost) obtained from customer; x , r denotes the rate (%) of demand stocked out; DR_x is the daily profit obtained from customer x , Δt denotes the length of the delay time (day). However, this study use revenue instead of profit due to the availability of data collected.

Scenario 3: Increase in material price or unit cost

Material prices may escalate due to pressure from suppliers or changes in government policy. For instance, suppliers may push up their material prices because of owning a high negotiation power. Additionally, material prices may also increase due to inflation or currency exchange rate (in the case of importing material overseas). Moreover, material prices may also be pushed up as a consequence of an increase in transportation costs (caused by oil price fluctuations). Hence, the loss is determined by:

$$\text{Loss} = AMC_x \times k \quad (4)$$

Where AMC_x is the annual material cost from supplier x ; k denotes the rate (%) of increase in material price

Scenario 4: Non- quality products

In practice, poor product quality may occur when companies use low-quality materials, or there are internal production failures. Final products may also be broken during the storage or transportation process. As a result, such off-quality products cannot be sold or companies have to repair or reproduce them. Hence, that loss, which is sometimes referred to as PONQ (Price of Non-Quality), is computed by:

$$\text{Loss} = AC_x \times e \quad (5)$$

Where e denotes the rate (%) of non-quality products; AC_x is the annual total costs spent to produce the final items.

Scenario 5: Loss of good will

Company image and reputation could be hurt by postponements in product delivery, low-quality products, breach of contract, scandal, poor CSR, and other reasons. Customers may stop doing business with the company or avoid purchasing the company's products. Hence, the loss is computed by:

$$\text{Loss} = AR_A \times h \quad (6)$$

Where h denotes the rate (%) of customer leaving; AR_A is the annual profit margin from all customers.

Once the financial losses from risk become quantifiable, we are able to calculate the Risk Index (R_{ij}) by applying equation (1). The Risk Index is then utilized to construct a Risk-Loss Matrix (Table 2), which demonstrates the global image of financial losses from disruptions in a supply chain. In Table 2, each Risk Index illustrates the average financial loss to a targeted company j due to disruptions on its suppliers, customers, and itself. Managers can use this square matrix to decide supply chain risk mitigation strategies.

Table 2. Risk-Loss Matrix

Supply Chain Entities		Company j			
		Company 1	Company 2	...	Company M
Company i	Company 1	R_{11}	R_{12}		R_{1M}
	Company 2	R_{21}	R_{22}		R_{2M}
	...				
	Company M	R_{M1}	R_{Mj}		R_{MM}

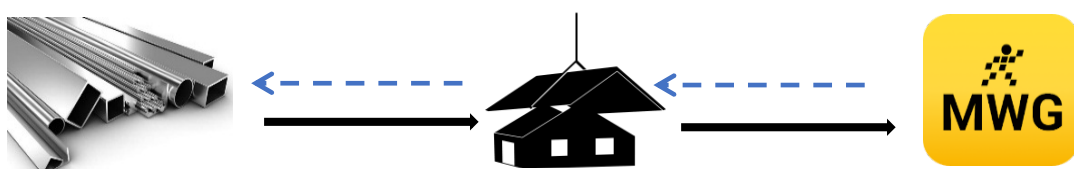
To evaluate the concept of Risk Index and Risk-Loss Matrix, a case study of a small construction company is conducted as described in section 5.

5. CASE STUDY: A SMALL CONSTRUCTION COMPANY

5.1. Overview of the supply chain of the targeted company

This study investigates a supply chain consisting of a small construction company (called N.P Mechanical), its supplier (a steel firm namely M.L Steel) and its giant client (MWG - a mobile device chain store). Overall, after receiving an order to build a mini store from its client, N.P. Mechanical sends an order to the steel supplier and it takes one day for materials delivery. Next, N.P Mechanical spends around 10 days constructing each mini-store, which will be put into operation after decoration. On average, each mini-store can generate a revenue of \$4,400 per day.

Figure 2. The supply chain structure of N.P Mechanical



Source: Author's design

Figure 2 shows the supply chain structure of N.P Mechanical who spends approximately \$660,000 to purchase materials from M.L Steel and generate a revenue of \$870,000 from

MWG. Table 3 provides basic financial information of three entities in the targeted supply chain.

Table 3. Financial information of M.L Steel, N.P Mechanical, and MWG

Information	M.L Steel	N.P Mechanical	MWG
Revenue	\$870,000	\$870,000/year	\$4,400/store/day
Revenue from key customer	\$660,000	\$870,000	N/A
Total material costs	\$792,000	\$660,000	N/A
Annual operation cost	\$28,600	\$150,000	\$500/store/day
Capacity	N/A	5 buildings per time	N/A
Time to fulfill an order	1 day	10 days	N/A
Operating days/year	300 days	300 days (30 orders/year)	360 days

Source: interviews and surveys data

5.2. Financial losses to the targeted company from internal/supplier/customer risk factors

In Table A-1, column 1 shows the code associated with each internal risk factor for easy reference. Column 2 lists all internal risk factors summarized (see Table 1). Column 3 links each internal risk factor to one or two scenarios identified in Section 3.2. For example, O1, “*Equipment and operation process broken down*” is linked to scenarios 1 and 2 because when Equipment and operation processes are broken, the manufacturing or operating process of a company will be delayed (scenario 1) and stock out could also happen (scenario 2). For N.P Mechanical, when O1 occurs, the construction process will be delayed approximately 2 days. Therefore, N.P Mechanical has to work extra time to catch up with the timeline. In Column 4, financial loss is computed by using equation (2) (for scenario 1) and equation (3.1) (for scenario 2). Column 5 lists the likelihood of each internal risk factor that obtained from questionnaires. Finally, the value in column 6, which is computed by multiplying the Loss Value with the Likelihood, is used for computing Risk Index following the equation (1) described in section 4.

Among the internal risk factors, the magnitude of loss from financial viability (O3) is very high because it can stop a business immediately once happens. Nonetheless, the likelihood is extremely low. Similarly, the magnitude of loss from reputation damage (O7) is also very high. In contrast, the loss values from equipment breakdown (O1), natural disaster (O2), or government policy (O5) are relatively low, however, their likelihood to happen is higher. According to the manager of N.P Mechanical, IP leakage (O8) is likely to occur almost every year and its impact on N.P Mechanical is significant. In fact, most SMEs are not fully aware of the importance of IP protection, and their business models can be easily imitated. Our study shows that this may cause significant losses to SMEs. As the manager of N.P Mechanical mentioned: “*In 2017, we lost approximately 30% of annual demand due to the leakage of IP to*

our rivals". The average financial losses to the targeted company from all internal risk factors amount to \$164,477.

Table A-2 illustrates the financial losses from supplier risk factors. According to the manager of N.P Mechanical, material cost (S2) is a major risk factor that should be considered because it is frequently increased due to inflation. In general, the likelihood of risk from suppliers is relatively low and the impact is insignificant. Hence, the average financial loss to the targeted company from all supplier risk factors amounts is around \$14,180.

Table A-3 shows the financial losses from customer risk factors. Compare to supplier risk factors, the repercussion caused by customer risk factors is much heavier. According to the manager of N.P Mechanical, MWG is able to switch to cooperate with other construction firms, even though unlikely to happen in the short-term. If this happens, N.P Mechanical would nearly bankrupt because the business of N.P Mechanical totally relies on MWG. Hence, changing in preference of the giant client (C2) becomes the largest risk factor. Similarly, customer financial viability (C5), can also stop the business of N.P Mechanical immediately. Luckily, this is unlikely to happen because MWG is the largest electronic distribution company in Vietnam and its business is still growing. Overall, the average financial losses to the targeted company from all customer risk factors could reach \$239,667.

5.3. Financial losses of business partners

In the case of N.P Mechanical's partners, this study performs similar analyses as shown in Tables A-4 and A-5. In specific, Table A-4 expresses the average financial loss to the steel supplier of N.P Mechanical. It can be clearly seen that risk factors such as N.P Mechanical's changing in preference (C2) or bankruptcy (C5) would cause enormous damage to the business of the steel supplier. However, the likelihood of those risk factors is very low.

Based on the evaluation from M.L Steel's owner, customer risk factors such as communication with customers (C3), natural disasters (C4), and labor unrest (C6) are not likely to happen but their effect on M.L Steel should be noticed. Overall, risks from N.P Mechanical cause average financial losses of \$163,778 in the business of M.L Steel.

Table A-5 reveals the financial loss to the customer (MWG) when N.P Mechanical's operation is disrupted. According to the evaluation of MWG, the highest risk from N.P Mechanical is the ability to fulfill MWG's orders (S4). In fact, N.P Mechanical is a small construction company so it may not be able to handle all orders from MWG because of restrictions in its capacity. Other risk factors such as quality of construction (S3) and financial viability (S9) also have significant impacts. Overall, risks from N.P Mechanical cause average financial losses of \$103,521 in the business of MWG.

5.4. The Risk-Loss Matrix

Disruptions in a company not only affect itself but also its business partners in a supply

chain. A new concept named risk-loss matrix is developed (see Table) to illustrate the loss caused by a disruption occurring in the supply chain.

As can be seen from Table 4, risks from N.P Mechanical’s supplier (\$14,180) cause a much smaller financial loss than its internal risks (\$164,477), meanwhile, the financial loss from customer risks (\$239,667) is the highest. Moreover, Table 4 reveals that when N.P Mechanical is disrupted, it causes a financial loss (\$163,778) to M.L Steel, which is much smaller than the financial loss caused to MWG (\$103,521). Such an imbalanced relationship between neighboring entities exists at other stages of a supply chain.

Besides, the loss caused by direct suppliers/customers is heavier than by indirect suppliers/customers. In specific, the risk from the direct supplier of MWG (\$103,521) is more serious than from the indirect supplier (\$29,650). In addition, the repercussion caused by the disruption of M.L Steel's direct customer (\$163,778) is more serious than those from the indirect customer (\$22,000).

Then, a risk-loss matrix is developed (see Table 4) to summarize those financial loss:

Table 4. Risk-Loss Matrix of N.P Mechanical

Unit: USD

Supply Chain Entities	M.L Steel	N.P Mechanical	MWG
M.L Steel	NA	14,180	29,650
N.P Mechanical	163,778	164,477	103,521
MWG	22,000	239,667	NA

Source: Author’s design

In short, it can be seen from the risk-loss matrix that the financial loss caused by the downstream business partner's disruption (green boxes) is higher than that by the upstream business partner’s interruption (grey boxes). Moreover, in the supply chain, the consequence of direct business partners' risk is heavier than that of indirect ones. These findings demonstrate that disruption to a company may cause sizeable damage to the business of all other entities in the supply chain whether they are doing business with the disrupted company directly or not.

6. CONCLUSION

There were more than 73,000 Vietnamese firms that had to stop their business in 2016 and most of them are SMEs (VCCI, 2016). The closure of those large numbers of SMEs has caused an enormous negative impact on the Vietnam economy. The authors believe that supply chain risks are one of the top crucial factors leading to the closure of numerous SMEs. As far as the authors’ knowledge, this study is the first research to quantify financial losses from supply chain risks..

This study developed a rational framework to quantify the financial losses from risks. Thereby, upgrading the accuracy of categorizing risk factors in supply chains. New concepts, Risk Index and Risk-Loss Matrix, are developed to measure financial losses from supply chain risks and to draw a clear picture of disruptions' impact on supply chain entities, which is extremely supportive for supply chain managers.

Once applying those new concepts to analyze the supply chain risk of an SME in Vietnam, our findings divulge that financial loss from downstream business partner risks is higher than that from upstream business partner risks. It is a common understanding that the impact from direct suppliers/customers is heavier than that from indirect ones.

The scope of this study can be further expanded in some ways. The five loss scenarios developed in Section 3.2 may not be able to cover all business situations, thus, diversification of the loss scenarios should be deeper investigated for future research. In addition, for the sake of simplicity, this study just focuses on a small and simple supply chain, hence, it is worthwhile to expand the scope of the study by performing such analysis on a more complex supply chain, especially, a global supply chain. Last but not least, finding out an acceptable methodology to estimate the actual probability associated with each risk through company interviews or market research will enable us to compute the expected financial loss from supply chain risks more accurately.

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APPENDIX

Table A-1. Financial losses to N.P Mechanical from internal risks

Code	Internal risk factors	Lost scenario & Assumption	Lost value (L)	Likelihood (p)	p×L
O1	Equipment and operation process broken down	Scenarios 1 & 2: When any equipment or operation process is broken down, the construction process will be delayed (2 days ⁽¹⁾). Hence, overtime is mandatory to catch up with the plan.	Loss = $OC \times \Delta t + EW \times \Delta t = \$500 \times 2 + \$500 \times 1.5 \times 2 = \$2,500$	3	7,500
O2	Natural disasters or other unexpected events*	Scenarios 1 & 2: In case of natural disasters, the construction process has to be halted for a period (5 days ⁽²⁾). As a result, overtime is necessary to fulfill the client's contract.	Loss = $OC \times \Delta t + EW \times \Delta t = \$6,250$	3	49,875
		Scenario 4: When buildings are destroyed, N.P Mechanical has to reconstruct them (5 mini-stores ⁽³⁾ ~ 3.3% of annual revenue).	Loss = $AC_A \times e = \$27,000$		
O3	Financial Viability	Scenario 2: Company will lose all revenue as a result of bankruptcy	Loss = $AR_A \times r = \$870,000$	1	870,000
O4	Labor unrests	Scenario 2: the construction process will be delayed (5 days ⁽²⁾). Thus, overtime is necessary to fulfill the client's contract.	Loss = $OC \times \Delta t + EW \times \Delta t = \$6,250$	1	6,250
O5	Tax policy, exchange rate, inflation, interest rate fluctuations	Scenario 4: The total operation cost (excluding material cost) of N.P Mechanical will increase in case of a high inflation rate (4% ⁽⁴⁾).	Loss = $(AC_A - AMC_A) \times 4\% = \$150,000 \times 4\% = \$6,000$	3	18,000
O6	Low quality product, theft, and improper product storage	Scenario 4: Company has to reconstruct non-quality buildings ⁽³⁾ (3.333% of annual demand ⁽³⁾)	Loss = $AC_A \times e = \$27,000$	1	27,000
O7	Reputation damage	Scenario 5: Clients may stop doing business with company	Loss = $AR_A \times r = \$870,000$	1	870,000
O8	Intellectual property leakage	Scenario 2: There are some potential revenue will be lost as the result of IP leaked (30% of annual revenue ⁽¹⁾)	Loss = $AR_A \times r = \$261,000$	3	783,000
Risk Index					164,477

AC_A: Total annual cost (include material and operation cost) of N.P Mechanical (\$810,000/year)

AR_A: Total annual revenue of N.P Mechanical (\$870,000/year)

OC: Daily operation cost (\$500/day)

AMC_A: Total annual material cost (\$660,000/year)

(1) Those numbers are the estimation of the CEO of N.P Mechanical through in-depth interview. The cost for overtime (EW) is 50% higher than daily operation cost

(2) The authors assume that natural disasters or labor unrests cause a halt in the business of the company. It takes nearly 1 week for the company to return normal operation.

(3) N.P Mechanical can construct 5 buildings at the same time. Therefore, the authors assume the risk factor will cause a negative effect on those 5 buildings (or 3.333% of annual revenue).

(4) The inflation rate of Vietnam in 2018 is 4%.

(*) Take the average value of two possible scenarios

Table A-2. Financial losses to N.P Mechanical from supplier risks

Code	Risks from M.L Steel	Lost scenario & assumption	Lost value (L)	Likelihood (p)	p×L
S1	Inability to deliver on time	Scenarios 1 & 2: The construction process will be delayed for a period (1 day ⁽¹⁾). Hence, overtime is mandatory to catch up with the plan.	Loss = OC×Δt + EW×Δt = \$1,250	3	3,750
S2	Higher procurement costs	Scenario 3: The increase in raw material price, transportation cost, taxes, and duties lead to raised procurement costs (4% ⁽⁴⁾).	Loss = AMC _A ×k = \$26,400	3	79,200
S3*	The quality of supplier's products is not satisfactory	Scenarios 1 & 2: Company has to take some time to re-order non-quality materials(1 day ⁽¹⁾). Thus, overtime is necessary to fulfill the client's contract.	Loss = OC×Δt + EW×Δt = \$1,250	1	14,125
		Scenario 4: In the worst case, low-quality materials will cause some buildings to have to be reconstructed (3.333% of annual revenue ⁽³⁾).	Loss = AC _A ×e = \$27,000		
S4	The supplier is not able to deliver the amount of materials requested	Scenario 2: When company suddenly increases the order amount (increase double ~ 3.333% of annual revenue (3)), it may lose some extra revenue because of raw material shortage.	Loss = AR _A ×r = \$29,000	1	29,000
S5	Broken communication with suppliers	Scenarios 1 & 2: Company may not have enough raw materials as planned. So, the process will be delayed (1 day ⁽⁵⁾) and overtime is mandatory.	Loss = OC×Δt + EW×Δt = \$1,250	1	1,250
S6	Natural disasters or other unexpected events	Scenarios 1 & 2: Supplier may not deliver raw materials on time because of natural disasters, hence, the construction process will be delayed (5 days ⁽²⁾), and overtime is necessary to fulfill the client contract	Loss = OC×Δt + EW×Δt = \$6,250	1	6,250
S7	Collaboration risk	Scenario 3: Company cannot receive any discount from its supplier, therefore, the material cost will be higher than expected (4% ⁽⁴⁾).	Loss = AMC _A ×k = \$26,400	1	26,400
S8	Single supplier risk	Scenario 3: Supplier will have higher bargaining power because of monopolization, the material cost will be higher as a result (4% ⁽⁴⁾).	Loss = AMC _A ×k = \$26,400	1	26,400
S9	Supplier financial viability	Scenarios 1 & 2: Operation process will be halted (around 5 days ⁽⁶⁾) because company cannot find another supplier instantly. So, overtime is necessary.	Loss = OC×Δt + EW×Δt = \$6,250	1	6,250
S10	Labor unrests	Scenarios 1 & 2: Company has to halt its operation until materials become available (around 5 days ⁽²⁾). Overtime is necessary to catch up with the plan.	Loss = OC×Δt + EW×Δt = \$6,250	1	6,250
S11*	Risks from suppliers' supplier (Domino Effect)	Scenarios 1 & 2: When the suppliers of M.L Steel cannot deliver their products on time, M.L Steel also cannot deliver its products as planned. N.P. Mechanical's construction process will be delayed (1 day ⁽¹⁾). It also has to work extra time to catch up	Loss = OC×Δt + EW×Δt = \$1,250	1	13,825

		with the plan.			
		Scenario 3: When the suppliers of M.L Steel increase their product prices, M.L Steel will also increase its product price. Hence, N.P. Mechanical's material cost will be increased (4% ⁽⁴⁾).	Loss = $AMCA \times k$ = \$26,400		
Risk Index					14,180

(5) The authors assume that the communication system between two companies will halt for one day before problems solved.

(6) The authors assume that it takes approximately 1 week to find an alternative supplier.

Table A-3. Financial losses to N.P Mechanical from customer risks

Code	Risk from MWG	Lost scenario & Assumption	Lost value (L)	Likelihood (p)	p×L
C1	Demand uncertain or customer not willing to share demand information	Scenario 2: When MWG increases its orders suddenly, N.P Mechanical cannot handle that excess demand due to capacity limitation (<i>demand per order increase double~3.333% of annual revenue</i> ⁽³⁾).	Loss = $AR_{MWG} \times r$ = $\$870,000 \times 3.333\%$ = \$29,000	3	87,000
C2	Changes in technology or client preferences	Scenario 2: If MWG stops doing business with N.P. Mechanical, N.P Mechanical will lose all revenue from MWG.	Loss = $AR_{MWG} \times r$ = \$870,000	2	1,740,000
C3	Broken communication with customers	Scenario 2: Company will lose that potential orders from its client – MWG (<i>3.333% of annual revenue</i> ⁽³⁾).	Loss = $AR_{MWG} \times r$ = \$29,000	1	29,000
C4	Natural disasters or other unexpected events	Scenarios 1 & 2: MWG may stop operation for a period because of natural disasters. Company have to halt its construction process (<i>5 days</i> ⁽²⁾) and lose some orders from MWG (<i>3.333% of annual revenue</i> ⁽⁷⁾).	Loss = $OC \times \Delta t + AR_{MWG} \times r$ = \$31,500	1	31,500
C5	Customer financial viability	Scenario 2: When MWG is bankrupted, N.P Mechanical will lose all revenue from its giant client.	Loss = $AR_{MWG} \times r$ = \$870,000	1	870,000
C6	Labor unrests	Scenarios 1 & 2: MWG has to halt its business, which causes N.P Mechanical to lose some potential orders (<i>3.333% of annual revenue</i> ⁽⁷⁾).	Loss = $OC \times \Delta t + AR_{MWG} \times r$ = \$31,500	1	31,500
C7	Risks from customers' customer (Domino Effect)	Scenario 2: When customers of MWG change their demand, MWG will also adjust its orders to N.P Mechanical (<i>demand per order increase double~3.333% of annual revenue</i> ⁽³⁾).	Loss = $AR_{MWG} \times r$ = \$29,000	3	87,000
Risk Index					239,667

AR_{MWG} : Annual revenue (of N.P Mechanical) from MWG (\$870,000)

⁽⁷⁾ The authors assume that MWG usually requires N.P Mechanical to construct 5 mini-supermarkets in one order. The authors also assume that MWG cannot issue orders when natural disasters or labor unrests occur.

Table A-4. Financial losses to M.L Steel from customer risks

Code	Risk from N.P. Mechanical	Loss scenario & Assumption	Loss value (L)	Likelihood (p)	p×L
C1	Demand uncertain or customer not willing to share demand information	Scenario 2: When N.P Mechanical increases its orders suddenly, M.L Steel may not handle that excess demand (<i>demand per order increase double ~ 3.33% of annual revenue from N.P Mechanical</i> ⁽³⁾).	Loss = $AR_{N,P} \times \Gamma$ = $\$660,000 \times 3.33\%$ = \$22,000	3	66,000
C2	Changes in technology or client preferences	Scenario 2: If N.P Mechanical stops doing business with M.L Steel, M.L Steel will lose all revenue from N.P Mechanical.	Loss = $AR_{N,P} \times \Gamma$ = \$660,000	1	660,000
C3	Broken communication with customers	Scenario 2: M.L Steel will lose some potential revenue (<i>3.33% of annual revenue from N.P Mechanical</i> ⁽³⁾).	Loss = $AR_{N,P} \times \Gamma$ = \$22,000	1	22,000
C4	Natural disasters or other unexpected events	Scenario 2: N.P Mechanical may halt its construction process (<i>5 days</i> ⁽²⁾) due to natural disasters. M.L Steel will also lose some orders (<i>3.333% of annual revenue from N.P Mechanical</i> ⁽⁷⁾).	Loss = $AR_{N,P} \times \Gamma$ = \$22,000	1	22,000
C5	Customer financial viability	Scenario 2: When N.P Mechanical is bankrupted, M.L Steel will lose all revenue from N.P Mechanical.	Loss = $AR_{N,P} \times \Gamma$ = \$660,000	1	660,000
C6	Labor unrests	Scenario 2: N.P Mechanical has to halt its construction process (<i>5 days</i> ⁽²⁾) because of labor unrest. Hence, M.L Steel also will lose some potential revenue (<i>3.33% of annual revenue from N.P Mechanical</i> ⁽³⁾).	Loss = $AR_{N,P} \times \Gamma$ = \$22,000	1	22,000
C7	Risks from customers' customer (Domino Effect)	Scenario 2: When MWG change its demand, N.P Mechanical will also adjust its orders to M.L Steel (<i>demand per order increase double~3.333% of annual revenue from N.P Mechanical</i> ⁽³⁾).	Loss = $AR_{N,P} \times \Gamma$ = \$22,000	1	22,000
Risk Index					163,778

$AR_{N,P}$: Annual revenue (of M.L Steel) from N.P Mechanical (\$660,000)

Table A-5. Financial losses to MWG from supplier risks

Code	Risk from N.P. Mechanical	Loss scenario & assumption	Loss value (L)	Likelihood (p)	p×L
S1	Inability to deliver on time (complete construction on time)	Scenarios 1 & 2: If N.P Mechanical cannot finish 5 mini-stores on time, those mini-stores cannot operate as planned (<i>delayed in 2 days</i> ⁽¹⁾) that lead to waste operation costs and some potential revenue.	Loss = $OC \times \Delta t \times 5$ + $DR_A \times \Delta t \times 5$ = $\$500 \times 2 \times 5$ + $\$4,400 \times 2 \times 5$ = \$49,000	3	147,000
S2	Higher procurement costs	Scenario 3: The construction cost will increase (<i>4%</i> ⁽⁴⁾) due to the increase in raw material price, labor cost, taxes, and duties.	Loss = $ACC \times k$ = \$34,800	3	104,400
S3	The quality of supplier's products is not satisfactory	Scenarios 1 & 2: N.P. Mechanical has to reconstruct those non-quality buildings. Therefore, MWG has to delay the operation of mini-stores until the construction completed (<i>10 days</i> ⁽¹⁾).	Loss = $OC \times \Delta t \times 5$ + $DR_A \times \Delta t \times 5$ = \$245,000	2	490,000
S4	The supplier is not able to deliver the amount of materials requested	Scenario 1 & 2: N.P Mechanical cannot handle that sudden excess demand (<i>in double</i> ⁽⁷⁾). Thus, MWG will waste potential revenue and also operation costs from those mini-stores for a period (<i>10 days</i> ⁽¹⁾).	Loss = $OC \times \Delta t \times 5$ + $DR_A \times \Delta t \times 5$ = \$245,000	3	735,000
S5	Broken communication with suppliers	Scenarios 1 & 2: MWG will not have enough mini-stores to operate as planned (<i>delay in 1 day</i> ⁽⁵⁾). That mean MWG will waste operation cost and potential revenue during that period.	Loss = $OC \times \Delta t \times 5$ + $DR_A \times \Delta t \times 5$ = \$24,500	2	49,000

S6	Natural disasters or other unexpected events	Scenarios 1 & 2: N.P Mechanical cannot complete building mini-stores on time (<i>delay 5 days</i> ⁽²⁾). Therefore, those mini-stores make MWG wastes some potential revenue and operation cost for a period.	Loss = $OC \times \Delta t \times 5 + DR_A \times \Delta t \times 5 = 1$ \$122,500	1	122,500
S7	Collaboration risk	Scenario 3: MWG will not receive any discount from N.P. Mechanical. Therefore, the construction cost will be higher (<i>4%</i> ⁽⁴⁾).	Loss = $ACC \times k =$ \$34,800	1	34,800
S8	Single supplier risk	Scenario 3: The construction cost will be higher (<i>4%</i> ⁽⁴⁾) because of pressure from monopolization.	Loss = $ACC \times k =$ \$34,800	1	34,800
S9	Supplier financial viability	Scenarios 1 & 2: MWG does not have mini-stores to operate until it finds another construction firm (<i>10 days</i> ⁽¹⁾). MWG will lose some potential revenue and waste operation cost during that period.	Loss = $OC \times \Delta t \times 5 + DR_A \times \Delta t \times 5 = 1$ \$245,000	1	245,000
S10	Labor unrests	Scenarios 1 & 2: N.P Mechanical might halt its construction process (<i>5 days</i> ⁽²⁾), hence, MWG has to postpone those new mini-stores.	Loss = $OC \times \Delta t \times 5 + DR_A \times \Delta t \times 5 = 1$ \$122,500	1	122,500
S11*	Risks from suppliers' supplier (Domino Effect)	Scenarios 1 & 2: N.P Mechanical cannot complete buildings as planned because of its supplier's disruption, which in turn led to the delay in MWG's mini-stores operation (<i>1 day</i> ⁽¹⁾).	Loss = $OC \times \Delta t \times 5 + DR_A \times \Delta t \times 5 =$ \$24,500	3	88,950
		Scenario 3: When the supplier of N.P Mechanical increases its material price, N.P Mechanical will also increase its construction cost (<i>4%</i> ⁽⁴⁾).	Loss = $ACC \times k =$ \$34,800		
Risk Index					103,521

DR_A : daily revenue of MWG (\$4,400/day)

ACC : Annual construction cost of MWG (constructed by N.P Mechanical) (\$870,000)

POLICY ENHANCEMENT AND APPLICATION OF THEORY OF CONSTRAINTS FOR PRODUCTIVITY IMPROVEMENT OF A TEXTILE SUPPLY CHAIN IN SRI LANKA

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Abstract

Handloom industry, though very important in Sri Lanka, India, Bangladesh and many other developing countries, which has significant social, economic impact and huge potential to develop, in the past 40 years, has been shrinking because of open economic policies, and the direct competition from powerloom industry. This study strives to find ways to improve the productivity of the handloom industry so that it becomes competitive in Sri Lanka and in the world. In the literature, many studies have been conducted in the field but the operational issues that have significant impact on productivity received little attention. This research fills the gap.

This research is based on a case study on CPDTI (The Central Provincial Department of Textile Industries), where the first author was working in and is facing challenges such as low productivity and inefficient policies. The research identified supply chain and operational inefficiencies of CPDTI and issues pertaining to the policy making. Detailed analysis on CPDTI supply chain applying the Theory of Constraints (TOC) was conducted. Bottlenecks leading to low productivity were identified. Recommendations on debottlenecking are provided. The research further analyzes policies for the handloom textile industry in Sri Lanka.

Keywords: *Handloom Industry, Theory of constraints, Supply chain, Bottleneck*

1. INTRODUCTION

1.1 The Handloom Industry

Textile goods have been produced using a range of technologies. Hand loom is a machine or device which is made from wood and some portion of iron and used to produce woven fabric (Khan, 2013). Hand loom runs without any electrical motor, its urn by man's hands and foot combination (Khan, 2013). Accordingly, it is a labor-oriented industry which is being run on skills and competencies of weavers. Electric power looms have been designed for mass production of cloths, taking into account the efficiency and productivity factors that are needed to meet high demand. Despite this, the handloom industry continues to play a significant role in developing countries such as India, Bangladesh, and Sri Lanka, for a variety of reasons including product quality issues, economic and social concerns, and so on.

Sri Lanka's handloom textile industry is one of the country's oldest industries (Ministry of Industry and Commerce, Sri Lanka 2012).

The Sri Lankan textile industry structure now comprises three major players: private (companies, individual entrepreneurs, self-employed), government (production centers controlled by provincial councils), and co-operative societies (Ministry of Industry and Commerce, Sri Lanka, 2012). Currently, the key player in the handloom sector is provincial departments. These provincial departments are actively involved in the industry and promote it through other players such as private entrepreneurs, corporations, and cooperative societies.

The Central Province is one of the nine provinces of Sri Lanka (Central Province, Sri Lanka, 2021). It is the 6th largest province by area and is home to 2.5 million people (Central Province, Sri Lanka, 2021). The Central Provincial Department of Textile Industries (CPDTI) is the area's leader in the handloom industry.

The department owns and maintains its own dyeing, spinning, and sales facilities. Approximately 920 rural women are employed in handloom textile production in 140 centers administered by the CPDTI. Raw materials, machinery, and consultants are provided by the department to the centers. Weavers are working in weaving centers to produce fabric. They are compensated based on the amount of work they do. There are fifteen distribution centers, each of which is operated by a department, where goods can be purchased.

1.2 The Importance of the Handloom Industry in Sri Lanka

Each sector's technology has advanced to a distinct upper tier as a result of modernization. Technology is also progressing rapidly in the textile industry. Hand looming is an ancient and traditional technique. In comparison to power loom, performance is substantially lower. In such situations, certain obvious problems arise that must be discussed. First and foremost, why is it necessary to grow the handloom industry? Second, why is it difficult to convert the entire industry to power looms, despite the fact that they are more efficient? Third, who stands to benefit from the handloom industry? The answers to all of these questions can be found in the following explanation.

In terms of volume of production and market share, the handloom industry in Sri Lanka is no longer competitive (Market share was 10% in 1997 as Gunathilake stated). Clearly, power looms are at the forefront of the industry. Even under such conditions, the hand loom industry has a large room to expand because of its eightfold strategic advantage as follows:

The first is products of the hand loom industry are still competitive with respect to many aspects other than the volume of production. In terms of production volumes, hand loom industry is not competitive. But in terms of quality, unique design, product customization the hand loom industry is still competitive. So that it has very good potential to grow.

With that above-mentioned competitiveness, the second is existence of strong market demand for handloom products. It mainly consists of niche market demand while significant demands available from the other markets as in following explanation. It had never encountered problems with sales and marketing due to various information available in CPDTI. Similar scenarios were reported in interviews with a few other provincial department heads. Even

though Gunathilake (1997) argued for the importance of demand side considerations, the current problem is about supply side as it is unable to meet consumer demand in each provincial council's respective departments due to information given by governmental officials. Significant local markets in urban and rural settings were identified by the Ministry of Industry and Commerce, Sri Lanka (2012). The high-end niche market (Exclusive Boutiques, Department Stores), the middle level (basic clothing and house hold textiles), and the tourism industry (Tourist Hotels and Tourists) are all included in the urban category, while the middle and lower level are included in the rural category (basic clothing and house hold textiles). Furthermore, the export market has been divided into two categories: direct exports (high-value-added products driven by design) and indirect exports (low-value-added products driven by design) (catering to both high end and lower segments). As a result, there is potential for the hand loom industry to develop to meet all of these needs. The main explanation for such high demand from different markets is the unique consistency that is derived from specific designs. It is difficult to create such designs with power looms, or else highly sophisticated machine equipment is needed if such designs are to be produced with power looms. Consumers in developed countries, according to Gunathilake (1997), are moving away from mass-produced products and toward differentiated and exclusive things as their income rises. Similar things can happen in the domestic market as income levels rise, increasing demand for hand loom products that are differentiated by their specific quality. The demand for hand loom products that arises as a result of their distinct quality can be viewed as an opportunity for the industry to develop.

The third is the possibility of using underutilized labor with creativity and traditional skills. This can be done by establishing weaving centers in rural areas. The overwhelming majority of the Department of Textiles' weaving centers are located in rural areas. The use of underutilized labor in such areas can be viewed as a potential source of growth for the handloom industry. Creativity and previously unexploited technologies can be put to good use as the market grows.

The fourth, Hand loom industry is consumed insignificant amount of energy. Weaving centers can be run with a limited amount of electricity. Lightning and day-to-day tasks require power, but production operations do not. In other words, output does not necessitate the use of electricity. Since electricity is costly in Sri Lanka, it drastically reduced production costs.

The fifth, hand loom industry is a zero-emission industry. Ministry of Industry and Commerce, Sri Lanka (2012) emphasized that the handloom industry is an environmentally friendly industry. When it comes to pollution-reduction measures, the handloom industry can be included in the scope of such efforts. Handmade and ethnic goods, according to Gunathilake (1997), represent “back to nature” and environmental movements in the developed world, also in the export market. As a result, there is the opportunity to grow industry as a pollution-free, environmentally sustainable industry.

The sixth is flexibility of the hand loom industry. Openness to innovations and

adaptability to market requirements are also defined as industry characteristics by the Ministry of Industry and Commerce, Sri Lanka (2012). In terms of innovation, each weaving center under the CPDTI is run as a separate entity. Each weaver is free to experiment with new ideas. With the demands and improvements of the market, it is possible to shift toward creativity. It does not contain any extra costs.

The seventh is supply chain marketing channel seems to be promising in hand loom industry. Inside the channel, there is no middleman. Since the textile departments in each province have their own distribution outlets and sales forces, it is able to market these goods. As previously mentioned, there is a strong demand. As a result, increasing the amount of output will be needed for the industry's growth. In a niche market, the unique product can be held as a competitive advantage.

The eight, as Gunathilake (1997) points out, hand loom producers in the state sector benefit from non-price subsidies in terms of fixed and operational costs, which helps them compete. As a result, even under liberal economic policies, the Departments of Textile Industries in each province can be considered as top competitors to the industry. It can also be viewed as a potential for industry growth through government textile departments in each province.

According to the aforementioned facts, the industry has a tremendous potential for growth and can be considered significant. Studies have also been conducted to determine the industry's constraints. Previous studies have established several policy-level and operational-level problems. Weerakoon and Thennakoon (2006) have done a case study to evaluate the effect of trade liberalization on hand loom industry. Gunathilake (1997) has done a comprehensive study on problems and prospects of Sri Lanka's handloom industry. Dissanayake, Perera and Wanniarachchi (2017) have done a case study on applicability of sustainable and ethical manufacturing concepts on hand loom industry.

However, the main concern, which is a decline in output volume, continues in the hand loom industry. Comprehensive analysis to find factors behind such declining has been hardly done. This study is intended to consider a manufacturing supply chain and, as a result, recognize organizational and policy-level loopholes, as well as make recommendations for such issues.

1.3 Challenges in the Sri Lankan Handloom Industry

As previously mentioned, the handloom industry in Sri Lanka is important from a variety of perspectives. Government participation has formally organized the industry in various ways. The provincial departments, which are administered under each provincial council, are the main organizational structure that has been established for the industry's survival.

Despite such a well-established industry structure, several big problems are harmful to the industry. The CPDTI reports that production volume has been declining year after year (Table 1). As a result of measures taken from 2018 the production volumes have started to increase. But when it compares to the figures in 2014, the increase is not adequate.

Table 2: Yearly production volumes under CPDTI

Year	Total production of the province in meter
2014	290239.23
2015	222006.51
2016	175297.36
2017	170296.59
2018	181383.93
2019	203293.78
2020	201573.84

Source: CPDTI

Officials in CPDTI claim that current output levels are insufficient to meet market demand.

As a result, the government could be losing a potential revenue source through CPDTI. It may also have an effect on work prospects in rural areas. It can also be a source of wasting traditional knowledge, creativity, innovation and labor. In light of these concerns, the following research problem was formulated in this paper:-

Research problem: Why does the production of hand loom textile decline?

In addition to the above research problem, the following research questions were also addressed:-

Question 1: What steps can be taken by the CPDTI to increase the productivity of handloom production?

Question 2: What would be the future strategy for the hand loom industry?

1.4 Data and Analysis

This study is based on case study research method. Since the dependent variable and the independent variables that caused the changes in dependent variable have been identified the analytical methodology is descriptive. The causal mechanism is mapped as describing the relationship between the dependent variable and the independent variables.

1.4.1 Data Collection

Both primary and secondary data were used for the research. Available data in the Department of Textile Industries, Central Province was the main secondary data source. Accordingly, data available in dyeing centers, weaving centers, and sales outlets were gathered.

Primary data were collected through focus group discussions. The first focus group was department heads of provincial textile departments. The second focus group was division heads of Department of Textile Industries, Central province. It was included the manager of dyeing plant, respective heads of small-scale dyeing plants, procurement manger (Accountant), instructors of weaving centers. Third focus group was weavers. Randomly selected 25 weavers out of 940 weavers were included in it. Interviews were conducted virtually with all

abovementioned focus groups to gather data on identified variables.

1.4.2 Analysis

This research is based on case study research method. Spatial variation of the case is limited to the hand loom textile industry of central province of Sri Lanka.

Dependent variable of the research is the declining of hand loom textile production in central province of Sri Lanka. This phenomenon is caused by two major reasons. These major reasons were considered as the independent variables of the study, as follows.

1. Supply chain and operational inefficiencies of the industry
2. Issues pertaining to the policy making regard to the handloom industry

1.5 Contribution of the study

According to the literature and the empirical observations it was understood that the operational and policy aspects of the issues of hand loom textile industry has not been addressed extensively. This article intended to fill this gap in the existing body of knowledge by this research.

As a pioneer attempt to address the above issues, certain areas could not be covered in this study due to the special issues of the reach report requirements. The findings make imperative implications for future research on hand loom textile industry in Sri Lanka.

2. LITERATURE REVIEW

2.1 Policy Level Facts

In several nations, the hand loom industry is a traditional industry. It plays a significant role in the economy and rural jobs in South Asian countries such as Sri Lanka, India, Bangladesh, and Pakistan. As a result, several studies on industry have been performed by various academics in these countries. These studies were conducted from a variety of viewpoints. Some of them have discussed economic reality, while others have established the industry's social significance. Some of the other marketing elements of the sector have been discussed. However, in order to ensure the industry's long-term viability, it is also necessary to resolve issues with the industry's supply chain in particular country.

Gunathilake (1997) looked at the consequences of changes in economic policy on the handloom industry. Prior to the open economy, she claims, government policies and subsidies protected the industry's growth. For instance, due to provisions in the Industrial Policy Act of 1949, all textile importers were forced to buy a certain amount of locally manufactured handloom products in the 1960s, according to Weerakoon and Thennakoon (2006). In 1977, open economic policies were introduced to Sri Lanka. It was allowing power looms to compete openly with the handloom industry, according to Gunathilake (1997). As a result of that production declined dramatically.

Also, in an open economy, the government has taken some actions/decisions to improve the industry. As Gunathilake (1997) stated, some of these initiatives included developing export production through the Export Development Board in the early 1980s, looking at industry as a part of rural development and rural employee generation in the 1990s, and promoting the export of hand-woven goods. As identified by Weerakoon and Thennakoon (2006), the government's decision in 1989-1994 to use handloom items in state-owned offices was also such an initiative, and it was the reason for the relative boom.

For the industry, Gunathilake (1997) clearly defined supply and demand determinants. The handloom industry supplied 10% of domestic textile demand in 1992. She explains government intervention on price differentiation of products could control prices as it can be competed with power loom products. Price, durability, ease of care, design, and quality are all factors that influence demand, according to her explanation based on Gunawardhane's (1992) findings. Due to her explanation, supply constraints included a declining workforce, difficulties sourcing wool, a lack of design capacity, and obsolete technology.

Weerakoon and Thennakoon (2006) posed an interesting point about policy formulation in the Sri Lankan textile industry. Accordingly, stakeholders in the handloom industry were not consulted during policy creation. They claimed that it was due to a lack of feedback from one of the most relevant sectors during policy development. They go on to say that, from the standpoint of the supply chain, high costs and volatility in the supply of primary raw materials have also hampered the industry's development and harmed the capacity to achieve comparative advantages in the handloom market. According to their clarification, the state handloom sector's productivity is very poor, and as a result, establishing a strong textile base to supply the rapidly growing export garment industry has been a serious challenge for the local textile industry. Many of the constraints they identified, such as technical issues, innovation and design issues, a shortage of talent, and others, have an effect on the supply chain of hand loom products, either directly or indirectly. Based on estimates from the Ministry of Textiles, Gunathilake (1997) described some production problems, such as extremely low capacity utilization. It's fair to think that these issues allowed imports to compete vigorously in the market. This point implies that the industry's supply chain was inefficient back during its golden age. Ministry of industry and commerce (2012) shows lack of information regarding the existing looms and estimated that it can be 6500. Further it has been noticed that payment structures in the industry are not motivated weavers to continue performing in the industry. It has been identified some other constraints discussed earlier through some of other studies and been done some recommendations under sectors such as marketing, human resource development, technology improvements and entrepreneurship development.

In the Indian handloom industry, Samala and Anumala (2017) addressed the effect of supply chain management practices on production quality. In their research, they discovered some supply chain management issues and practices in the Indian handloom industry, demonstrating that the above-mentioned policy concerns and supply chain management issues

are closely linked. Despite the fact that the handloom industry in Sri Lanka and India differs in certain ways, such studies may suggest that interrelated supply chain and policy problems exist in both countries.

2.2 Theory of Constraints (TOC)

Goldratt and Cox (2014)'s Theory of Constraints (TOC) is a significant philosophy that provided a management version for the manufacturing process. To make such a management view, TOC provided some different meanings for some common words such as throughput, inventory, and operational expenses. As a result, the rate at which the device generates money through sales has been described as throughput. Inventory is described as all of the money that a system has spent on items that it plans to sell. Further operating expenses are described as all of the money spent by the system to convert inventory to throughput (Goldratt & Cox, 2014). A bottleneck is described as a resource whose capacity is equal to or less than the demand placed on it, according to the theory of constraints. In the case of production plant, capacity of the plant is equal to the capacity of bottleneck element or resource according to the theory. A non-bottleneck resource is one whose capacity exceeds the demand placed on it (Goldratt & Cox, 2014). Further, Goldratt and Cox (2014) demonstrated the importance of managing the mechanism and the likelihood of transforming non-bottlenecks to bottlenecks. The most important aspect is the description of the five-step mechanism that has been proposed for system change and called Process Of On-Going Improvement (POOGI). Identifying bottlenecks is the first step in this process. The second step is to describe how to exploit those bottlenecks. The third stage entails subordinating all other decisions to those made in step two. The bottlenecks in the system are being elevated by Forth. Fifth, if a bottleneck was broken in a previous stage, return to step one. The implementation of these measures in the supply chain was explained by Simatupang, Wright, and Sridharan (2004). As a result, the bottleneck is discussed in terms of supply chain members. Chopra and Mendil (2007) describe strategic fit as a term that is close to theory of constraints. Understanding the customer and supply chain uncertainty, understanding the supply chain capabilities and achieving strategic fit are the three steps to achieving strategic fit. Uncertainty arises as a result of the bottleneck according to his explanation.

3. DISCUSSION AND FINDINGS

3.1 Material Flow

The detailed material flow of CPDTI supply chain is shown in Figure 1. The abbreviated structure of CPDTI's supply chain shown in Figure 2. As can be seen in Figure 2, CPDTI supply chain consists of five main elements which can be further divided into three tiers for ease of study. Tier 1 includes outside vendors. Yarn, dyes, and appliances such as Perns, Bobins, and other items are often purchased from outside suppliers.

Suppliers are usually registered at the end of the year to supply yarn chemicals and other

necessary equipment for the following year. The procurement process is driven by national procurement guidelines issued by the Sri Lanka's Ministry of Finance. Open market bidding mechanism which has been defined under procurement guidelines is used as a law in some situations. The following are the key steps in the procurement process (Table 2). In most cases, specifications are estimated at the start of the year. When unexpected requirements arise suddenly, this long procedure makes some troubles to the supply chain. Accordingly, procurement process takes significant time (approximately 73 days).

Tier 2 includes the transformation of raw materials into finished and consumable goods (textile products). It primarily entails coloring raw yarn, weaving and sawing for some unique items, and delivering finished goods to sales centers through finished goods inventory. Raw yarn and other necessary materials and aspects are manually registered and stored in inventories after they are received.

Table 2: Steps of procurement process

Step	Usual time consumption
Preparation of newspaper article to make aware suppliers	3 Days
Publishing newspaper article	7 Days
Issuing applications to suppliers and allowing them to bid	28 days
Bid opening and technical evaluations	21 days
Bid awarding, Preparing performance bond, Agreement	14 Days
Making orders and Receiving goods	

According to requests, certain inventories are issued from the raw material inventory to dyeing plants or weaving centers. Figure 3 shows some photos of the dyeing process.

Most of dyeing takes place in the main dyeing center. However, in some cases, small-scale dyeing plants are used to meet the needs of weaving centers. Dyeing mechanism can be briefly explained as follows:

Boiling: Raw yarn is boiled in a chemical solution (10l water for 1kg Yarn, Sodium Hydroxide 1kg for 100 kg of Yarn, Detergent 1 l for 100 kg of Yarn, Hydrogen Peroxide 2 l for 100 kg of Yarn, Sodium Silicate 1 l for 100 kg of Yarn). It takes around 2 hours on average. Boiling is done in 140 kg batches, depending on available capacity.

1st washing: After boiling, the temperature of the boiled yarn is gradually reduced over an hour. The yarn is then washed in clean water. In average it takes 1 hour per batch.

Dyeing: The yarn is dyed after it has been washed. It is performed in either manually or by a machine. On average, each batch takes 1 hour and 30 minutes.

2nd washing: Following the application of dyes, the dyed yarn is washed again to

eliminate any leftover dyes and chemicals. It takes about 30 minutes per batch on average.

Fixing: The dyed yarn is then treated with chemicals that act as fixatives (10l of water per 1kg of yarn and 2 ml of fixing agent per 1 l of water). It takes about 30 minutes per batch on average.

Drying: Dyed yarn is machine dried after it has been fixed. The maximum capacity of the drying machine is 20 kg. As a result, the entire dyed yarn batch is split into many smaller batches for drying. It takes 5 minutes for each batch. A batch of 140kg takes an average of 35 minutes to dry.

Figure 1: The Supply chain of CPDTI

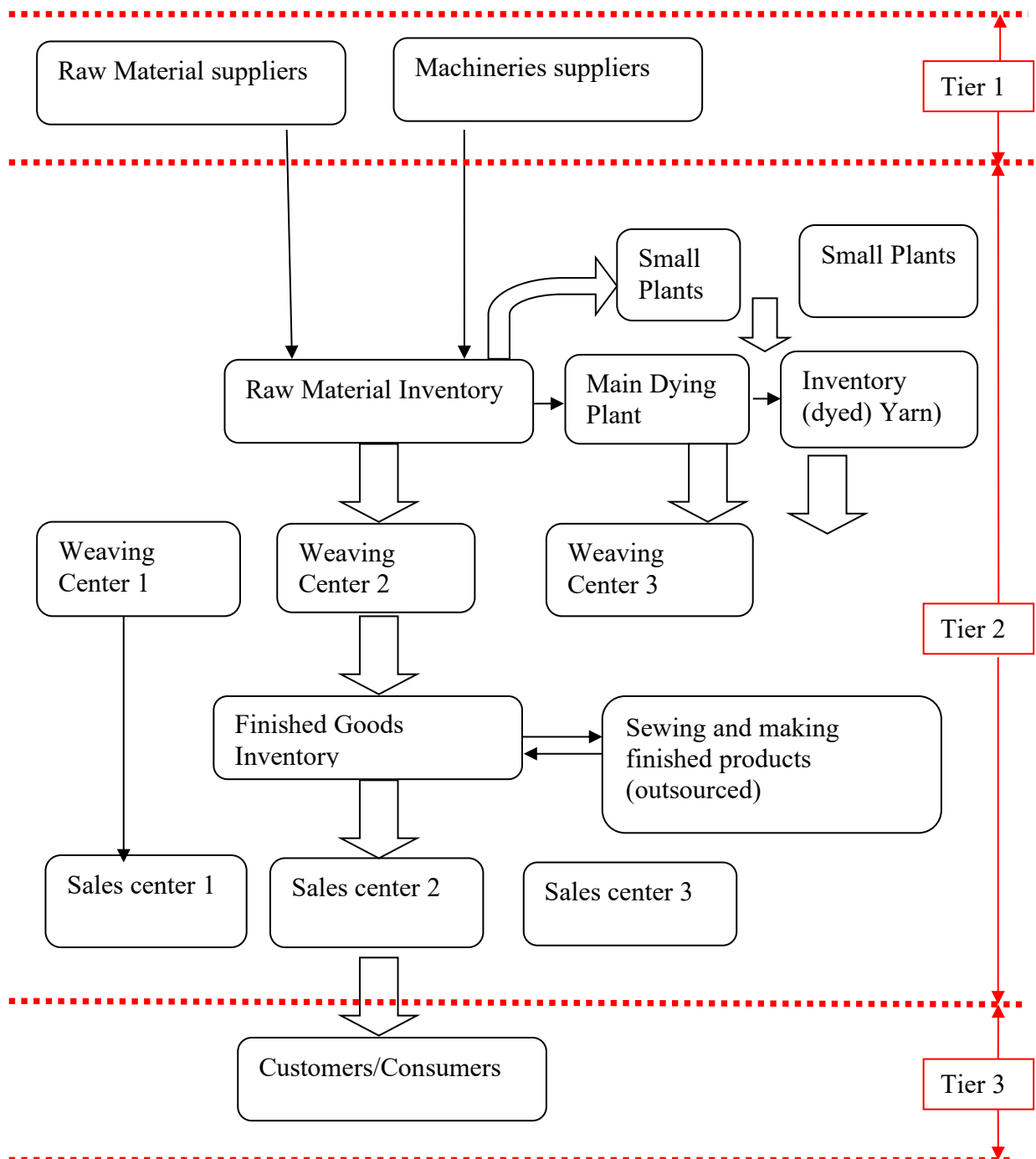
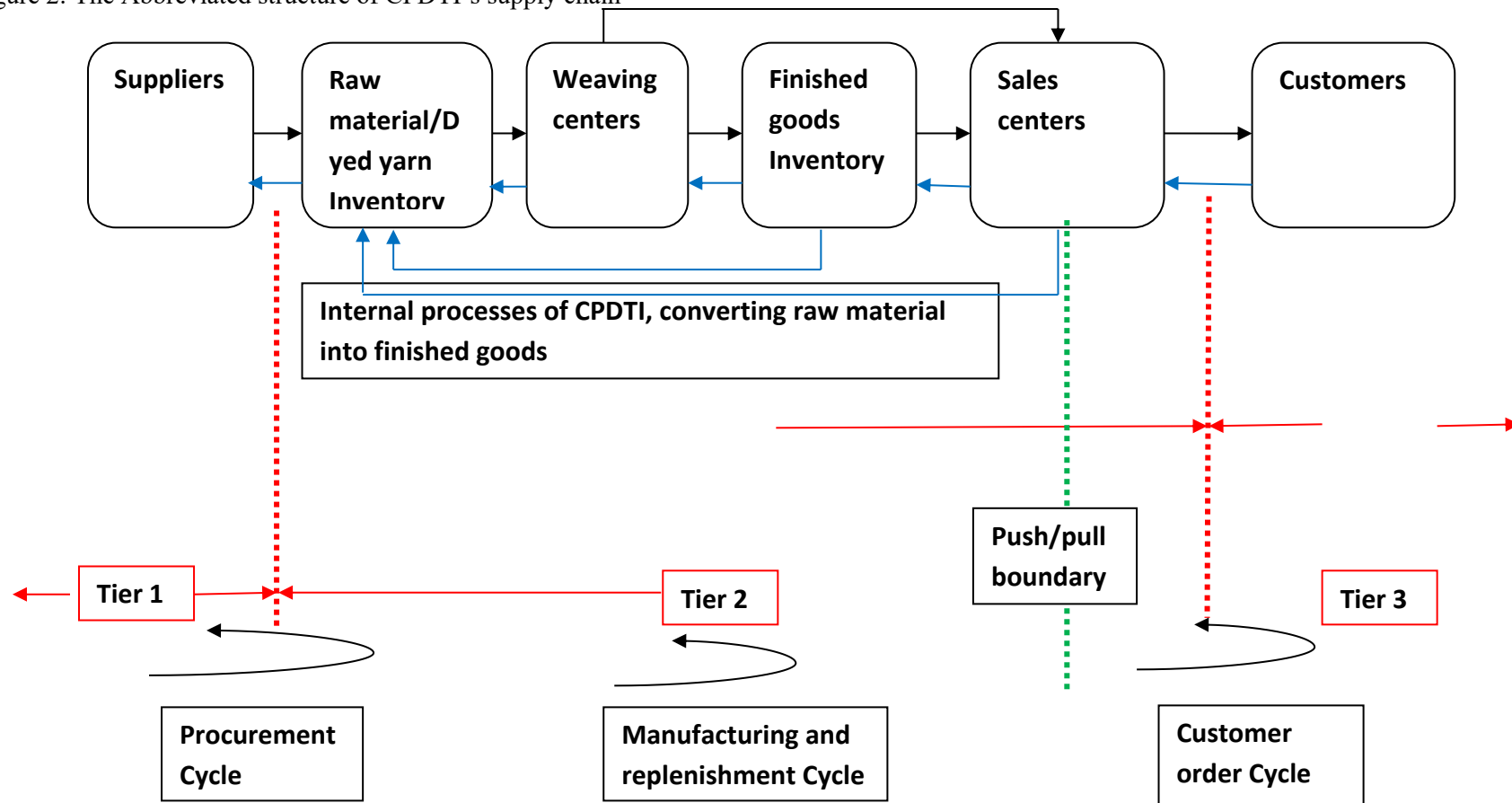


Figure 2: The Abbreviated structure of CPDTI's supply chain



According to the above steps, a batch of 140kg takes an average of 365 minutes (6.083 hours) to complete the dying phase. A typical working day is 7 hours and 45 minutes long. Since partial completion is not feasible, the main plant can only dye one batch of 140 kg per day.

Dyed yarn is distributed to weaving centers from the dyeing plant through dyed yarn inventory. There are weaving centers all over the province. Trucks take different amounts of time to deliver.

Weaving centers weave cloths, and the process of a weaving center can be summarized as follows. Typically, one batch or unit contains 90 meters of fabric. Because it's difficult to compare yarn supply with the number of meters of cloth woven, we compared yarn supply with yarn consumption in each weaving center in kilograms. Figure 4 shows some photos of the weaving process.

Preparation of Yarn: At first, yarn should be correctly inserted into perns and bobbins. It is usually done since 90 meters of fabric can be generated continuously. It takes an average of three days to complete. Electric machines have been introduced to some weaving centers, resulting in a significant increase in the efficiency of this stage.

Figure 3: The dying process



Source: CPDTI

Warping: The yarn should then be fed into the machine, which will weave it. It would take two people to accomplish this. It takes an average of one day to patch a 90 m warp.

Weaving: After that, the weaving is done by hand. Weaving 90 meters of fabric takes about 20 days on average.

Following weaving, items are sent to finished goods inventory and, on occasion, to

distribution centers directly. Then from the finished goods inventory, items are shipped to consumers via sales centers. Sawing is needed in some cases. For certain goods, sawing services are outsourced to outside laborers.

Customers form Tier 3. Customers purchase goods from sales centers, and the sales center manager will detect demand trends by looking at their requests.

Figure 4: The weaving process



Source: CPDTI

3.2 Information Flow

The information flow begins at the customer's end. Despite the lack of a well-established system for recording demand, sales center managers may get a general understanding of demand patterns at any given time. For example, the most popular color, product, and so on can be defined. The manager of finished goods inventory will determine the colors that yarn should be dyed, the items that weaving centers should make, and so on by gathering certain specific details from sales centers and demands. The information is then passed on to the appropriate parties, and production-related steps are taken as a result. However, a proper system for collecting and analyzing demand data has yet to be developed.

The blue line in Figure 2 shows the information flow of CPDTI's supply chain.

3.3 Making Production Decisions

The finished products inventory manager makes decisions based on information

obtained from sales centers. Weaving centers make demands for their specifications from the raw material inventory and the dyeing plant based on these decisions. The dyeing plant manager determines which color, yarn type, and other factors. Inventory managers must make decisions in order to meet the demands of dyeing plants and weaving centers. When yarn stocks fall below a certain threshold or unexpected needs arise, inventory managers notify the accountant (procurement manager), and the procurement process begins. Through informal coordination, the inventory manager considers inventory stock levels with his inventory level, as well as inventory levels and requests made by weaving centers or dyeing centers. As a result, the department uses P and Q inventory decision systems to make inventory decisions.

3.4 Analysis of the Supply Chain

The supply chain of the CPDTI can be analyzed using push/pull view as well as cycle view.

From a push/pull perspective, the push/pull boundary is on the element "sales center". As previously mentioned, the department lacks a proper system for recording demands. As a result, the entire supply chain is run on shaky, incorrectly obtained data. As a result, even after taking steps to improve the supply chain's performance, a lack of sufficient data and analysis can lead to supply issues. Further, it is obvious that supply chain does not meet the demand. Without sufficient data and review, the direction in which marketing efforts should be conducted cannot be determined until established current demands have been met.

When viewed from the perspective of cycles, this supply chain primarily consists of three cycles. The first is the procurement cycle, which depicts the relationship between suppliers and the CPDTI. The second cycle is the Manufacturing and Replenish cycle, which includes the manufacturing process as well as the replenishment of finished products to sales centers. The third cycle is the customer order cycle, which connects customers to the organization. The smooth operation of the supply chain necessitates the convergence of all of these cycles.

3.5 Bottleneck of the Supply Chain

Some important findings through considering yarn consumption data of each weaving center and the process of the dyeing plant is tabulated in Table 3. In table 3, Average daily production capacity was identified using above mentioned steps of process. In actual scenario averagely 140 kg is dyed and due to capacity of boiler it can further be considered as maximum capacity. In other terms dyeing plant is averagely run with maximum capacity. Average daily yarn consumption of all weaving centers was calculated based on collected data from each weaving center. First, monthly yarn consumption data for each center was collected for consecutive three months (since it should be average value). By using that figures, the average value for the total monthly yarn consumption was calculated. That value was divided by average monthly working days to calculate the average yarn consumption of all weaving centers.

According to Table 3, the capacity of the main dyeing plant (140kg per day) is insufficient to meet the regular demand for yarn processed by all weaving centers (143.5621kg per day). Small-scale dyeing plants are helping to keep the supply chain running smoothly. As a result, the dyeing plant is the constraint for rising output in general. As Eliyahu Goldratt and Jeff Cox (2014) pointed out, the supply chain production necessitates increasing bottleneck production. As a result, it is possible to increase production by increasing the dyeing plant's output.

Table 3: Identification of bottleneck

Average daily production capacity of dyeing plant	140 kg
Average daily yarn consumption of all weaving centers	143.5621 kg
Total number of weavers	920
Total number of hand loom machines	1048
Number of centers with excess labor	17 (27 labors)
Number of centers with excess hand loom machines	72 (157 machines)

3.5.1 Bottleneck of the Bottleneck

It is necessary to investigate the system's bottleneck in greater depth in order to discover ways to exploit it. The bottleneck of the bottleneck, in other words, should be identified. Since the overall capacity of the boiler is limited to 140 kg of yarn per day, the dyeing plant's capacity is limited to that amount when considering the process described above. Working on a few batches in a row on the same day is impractical because the number of operators with expert experience is insufficient. Thus the boiler is the bottleneck of the bottleneck.

3.5.2 Potential Bottlenecks

Assume that the found bottleneck's capacity has been increased, and consider what will happen next. The supply chain's non-bottlenecks can then be turned into bottlenecks, as Eliyahu Goldratt and Jeff Cox (2014) explained. It is necessary to consider the supply chain elements that have the potential to become bottlenecks.

In all weaving centers, the average daily yarn intake is 143.5621kg/day. It means that the total average capacity of weaving centers is 143.5621 kg of fabric. If the ability of the dyeing center is increased, the weaving centers will eventually be unable to complete the weaving process. As a result, it can be thought of as a possible bottleneck. And, as previously said, the customer element is where the push pull boundary exists. It means that as operating efficiency improves, more and more goods will flow to sales centers, and if the supply exceeds the

demand, sales centers can become a bottleneck in the supply chain.

The scenario can be broken down into five stages, as described by Eliyahu Goldratt and Jeff Cox (2014), which include a series of actions that fix bottlenecks, non-bottlenecks, and possible bottlenecks.

Then, the first step would be to locate the system's bottleneck, which in this case was the dyeing plant element of the supply chain.

The second step will be exploiting the bottleneck. According to Eliyahu Goldratt and Jeff Cox (2014), the change agent can get as much capability out of a constraining part as possible without undergoing costly changes or upgrades. The bottleneck of the bottleneck should be identified in order to accomplish this. To exploit the bottleneck in this situation, the ability of the boiler should be increased at the same time as the number of experts capable of handling the dyeing operation. However, at this point, low-level improvements to supply chain elements that do not incur significant costs are incurred.

Step 3 will include subordinating all other decisions to those made in step 2. The system's non-constraint components must be set to a level that allows the constraint to run at maximum efficiency. In other words, decisions on all other elements of the supply chain should be made with the aim of increasing the dyeing plant's production. Human resource management decisions, acquisition decisions, marketing decisions, and so on are examples of such decisions. Following that, the overall system is assessed to see if the restriction has moved to another aspect.

If the constraint is no longer a problem, the change agent moves on to step 5, which is a repeat of step 1. In this situation, after making certain improvements, such as introducing a shift schedule for the boiler, it is necessary to assess if the dyeing plant's performance has improved, and thus the system's efficiency has improved. If it is increased, it is necessary to begin the process of finding bottlenecks all over again, as non-bottlenecks can become bottlenecks.

The step 4 will be to elevate the system bottleneck. It refers to doing whatever it takes to get rid of the constraint. This move is only taken into account if steps two and three have failed. At this point, major improvements to the current structure are considered. In this situation, the capacity of the boiler could be accomplished by adding new boilers and hiring new operators. However, such acts can come at a high cost. Step 5 will be to continually apply the bottleneck efficiency enhancement mechanism to the system. Potential bottlenecks should be given more attention in this step.

Steps such as procurement that adhere to national procurement standards that were implemented as a result of government policy decisions. The organization's production operations cover the making aspect. The dyeing and weaving processes are part of the manufacturing process here. Sales operations are carried out by selling centers as part of the element deliver. Policies also limit the element's delivery. For example, if it is aiming for a

global market, it must adhere to lengthy protocols outlined in procurement guidelines. Accordingly, some of the tier 2's key components are constrained by policies as well as organizational aspects. Tier 3 customers are found by the organization's products.

3.6 Identification of Issues

Many problems can be discovered using the detailed review presented above. Some are more applicable at the organizational stage, whereas others are more policy-relevant.

One major issue in the sector is the lack of formally collected data, knowledge, and research. When making decisions about the industry, particularly demand records are crucial. Such information will be useful at the organizational level when making production decisions. In this case, production decisions are made based on ad hoc information. High-risk decisions may be made as a result of uncertainty. From a policy standpoint, it is clear that accurate data is needed to shape industry-related policies.

Another issue in the industry is inefficient supply chains caused by constraints/bottlenecks. Potential bottlenecks, as found through the analysis bottlenecks, may have a direct impact on the industry's operational level, since it causes a decrease in production and, as a result, a reduction in product supply on the market. Product supply is a factor to consider when making policy decisions aimed at developing and popularizing the handloom industry, so it can have an indirect impact on policy.

As previously mentioned, the bottleneck in this case was the dyeing center. Similar supply chains and operations are used in all nine provincial textile departments, according to information provided by department heads. However, in order to detect bottlenecks, each supply chain must be thoroughly examined. Using Eliyahu Goldratt and Jeff Cox's (2014) theory of constraints, the idea will be to improve the performance of the bottleneck while also increasing the system's efficiency. These provincial departments are currently the industry's key players, as discussed under the industry's structure. Increasing the productivity of these supply chains would increase the output of the main player, which could be considered an increase in the capacity of the entire industry.

Another problem that should be addressed is supply chain risk. As previously mentioned, the entire supply chain is dependent on indiscriminately collected data and forecasts, which entails a high level of risk. Furthermore, both ends of the supply chain (suppliers and consumers) are external to the organization and are outside its control because their conduct is influenced by policies and macro-level factors.

The industry's inventory management can also be an issue. As previously stated, the supply chain's push/pull boundary is located near the element consumer. It means that production is done on a make-to-stock basis, even though demand cannot be predicted accurately. So far, it hasn't had a negative impact because supply hasn't kept up with demand. If production is increased, however, such a process may be applied directly to excess inventory. Making inventories as bottlenecks in the system can have a detrimental impact on the supply chain.

Another question may be the length of mandatory procedures. The procurement process, which was previously discussed, is the best example. It's a lengthy process, and it's difficult to schedule other elements of the supply chain with it because business conditions, demands, and prices can change in a short period of time.

Labor related issues are also could be identified through the analysis. In this case 172 excess machines and 27 excess labors were in the supply chain. It means the labors are insufficient for some centers. Weerakoon and Thennakoon (2006) as pointed out by many stakeholders, irregular and the unstable nature of the payment system associated with loss making production is a major reason discouraging a younger generation from entering into the labor force of the handloom sector as weavers. Most females prefer to work in large scale garment factories due to the attractive nature of the garment industry with relatively higher level of social and economic status. Unattractive working conditions and environment have further worsened the situation. However, as revealed by some of the weavers interviewed, unlike employment opportunities available in the garment industry, the relative freedom and flexible working arrangements, less stressful working environment that can be enjoyed in the textile industry can attract a young generation if the industry was to become a profit-making industry. However, in operational level this issue can lead to declining production while in policy level it can be a constraint for the development of the industry.

Issues related to resource utilization are worth to address. Excess resources, such as machines in weaving centers, indicate underutilization of resources, which can lead to lower output because those resources aren't contributing to it. In this case there were 172 underutilized machines.

A lack of enthusiasm for technical advancements may also be considered a problem that must be addressed. Many stakeholders have stated that the value of hand loom products will continue to exist as long as traditional technology is used. Innovations can be implemented while maintaining the traditional theme. Weaving, for example, can be achieved with traditional technology, while other steps can be completed with modern technology. However, such demotivation has had a negative impact on the entire supply chain by lowering productivity.

Marketing-related issues must also be taken into account. Typically, government agencies in Sri Lanka do not prioritize profit. As a consequence, improvements to the sector are discouraged. If marketing practices are not adequately handled, it is likely that distribution outlets may become a supply chain bottleneck in the future. From an operational standpoint, it discourages output enhancements, whereas from a policy standpoint, it slows the industry's growth.

4. RECOMMENDATIONS IMPLICATIONS

4.1 Recommendations

By taking all the findings and judgments made under the findings and discussion following recommendations can be made. It is hard to separate those recommendations as policy level and operational level since both levels are highly interrelated.

First, the Department of Textile Industries in Central Province should define structured data collection and analysis criteria. Demand data, as previously mentioned, is obviously critical when making production decisions and formulating policies. Not only demand data, but also market data (new products, competition, alternatives, complements, and so on) should be formally collected and accurately evaluated in order to forecast future developments and prepare the supply chain and the industry. Such data and research will be beneficial to desirable approaches from a policy standpoint. As mentioned in the introduction, the Department of Textile Industries' goal is to not only participate in production but also to promote the industry in collaboration with other stakeholders. Data and knowledge will be an essential tool in achieving this goal.

Second, the POOGI, as described by Eliyahu Goldratt and Jeff Cox, is recommended (2014). Debottlenecking would be a major action which should be taken under that. Initially introducing a shift mechanism to increase the output from the boiler, increasing experts for the dyeing process can be done. As discussed in the findings and discussion section, the method can be used to continuously improve supply chain quality and thus output volume. Furthermore, ideas such as postponement may be used to help the industry grow. As a result, production should be more in line with demand. However, this argument requires accurate data collection and analysis once again. It can be viewed as a solution to the case's key issue, and since it is a continuous process, it can also be viewed as a supportive process for the industry's long-term viability. During the introduction of the mechanism, additional policy-level loopholes can be discovered.

Third, a more efficient inventory control system should be implemented. Push or pull systems can be used as needed. As previously stated, demand data should be mapped first, and then push or pull systems can be implemented within the supply chain through the most appropriate way. Furthermore, the principle of postponement may be used as a mechanism for improvement. This concept can be applied to a dyeing plant in this case. As a result, yarn can be dyed and stored in inventory in accordance with market demand patterns, and then released into weaving centers as required. In this case, also accurate market data, would be needed.

Fourth, it is suggested that current lengthy protocols be tweaked. A collection of laws should be followed by government agencies. Some of these laws, however, are incompatible to the Department of Textile Industries since it is a business and not like traditional government agencies that are not profit-driven. Rather than the traditional government agency in Sri Lanka, this organization should have some autonomy. To put this recommendation into action, policy changes are required.

Fifth, it is suggested that a proper human resource management system be developed. This is something that should be discussed at the policy level. The handloom industry is a labor-intensive industry. As a result, human resource management will be more essential than in any other field. Acquiring and retaining employees has become a problem in the current human resource management system. The presence of a number of excessive looms may be used as

evidence. As a result, it is essential to develop a modern human resource framework that supports the industry's growth. This system should be capable of acquiring and retaining industry skills, as well as maximizing the use of existing talent.

Sixth, it is suggested that underutilized physical resources be used as much as possible. There were excess equipment and labors in the supply chain, according to the findings. It demonstrates that the department is not making the best use of its resources. These resources must be mobilized and allocated to different supply chain elements so that they can be fully utilized.

Seventh, modernization is recommended for certain areas of the industry as it do not have a negative effect on the handmade concept, which is the industry's key value proposition. For instance some piece of processes like preparation of yarn in weaving centers can be modernized using simple machineries.

Eight, it is suggested that to concentrate more on the marketing side. Since government agencies aren't focused on profit, marketing considerations aren't given enough weight. However, it is essential to concentrate on this in terms of long-term sustainability. If this is not the case, the industry will lose value and be threatened by substitutes such as power loom cloths. Government regulations affecting the industry should be revised to include a marketing component in order to ensure the industry's long-term viability.

Ninth, it is suggested to utilize marketing tools. Most of the above-mentioned problems can be mitigated with the use of marketing tools. If producing for demand peaks is difficult, certain tools can be used to modify demand peaks. For example, offering discounts for transactions made during off-peak periods. Strategic marketing, which builds on business intelligence principles, can be used to ensure the industry's long-term viability.

4.2 Limitation of the study

The study was primarily focused on the Department of Textile Industries, Central Province, a Sri Lankan government agency. In Sri Lanka, government agencies are not usually profit-driven. As a result, the study's financial perspective was unable to be carried out. The descriptions of throughput, inventory, and operating expenses provided by Goldratt and Jeff Cox (2014) could not be applied because the financial performance of the organization was not clearly stated.

5. CONCLUSION

In Sri Lanka, the handloom textile industry is a significant traditional industry. As a conventional industry, the sector is significant from an industry standpoint because it has a lot of potential for development. It is also significant from a social standpoint because it can be grown as a source of jobs in rural areas as well as for disadvantaged groups in society. From an economic standpoint, it can be seen as a source of income for both rural households and the government.

Many studies have been carried out regarding the industry. Majority of them address policy level aspects and their impacts on the industry. Some of them addressed the social contribution from the industry. However, the main issue in the sector, which is inadequate supply, has not been addressed and comprehensive analysis to find factors behind such declining has been hardly done. This study was done to fill the gap through addressing both operational and policy level issues which are impacted on industry.

Spatial variation of the case is limited to the hand loom textile industry of central province of Sri Lanka. Dependent variable of the research was the decrease of hand loom textile production in central province of Sri Lanka while the independent variables were Supply chain and operational inefficiencies of the industry and Issues pertaining to the policy making regard to the handloom industry.

Issues such as bottlenecks, underutilization of resources, inadequate data collection and analysis, poor management practices in terms of inventory management, supply chain management, industry planning issues, procedural issues, labor-related issues, marketing issues, and modernization issues were reported as a result of the study's findings. Some of the problems were operational in nature, while others were policy-related.

With the theoretical context in mind, recommendations were made for the identified issues. These suggestions are made at both the operational and policy levels.

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RISK ASSESSMENT OF IT/OT CONVERGENCE SYSTEM FOR SECURE SUPPLY CHAIN SYSTEM

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Abstract

In 2015, the German government launched Industry 4.0, which aims to increase the productivity and cost efficiency of the manufacturing process. Industry 4.0 has combined information technology (IT) and operational technology (OT) to enable the construction of supply chains from factories to service provision. However, cyber risks are exposed in such IT/OT convergence systems because they use Internet-based connectivity or generic equipment. Furthermore, there are also concerns about non-cyber risks stemming from operational and other aspects of IT/OT convergence. However, risk analysis, including the non-cyber risks in IT/OT convergence system, has not been sufficiently considered. In this study, we conducted a risk assessment of IT/OT convergence system from both cyber and non-cyber aspects. First, risk factors of IT/OT convergence system were identified. Specifically, a total of 16 risk factors were identified, including failure isolation (cyber side) and safety management (non-cyber side). Next, we analyzed these risk factors using the risk matrix method and proposed the introduction of monitoring software as the main countermeasure on the cyber side and security training as the main countermeasure on the non-cyber side. Furthermore, we evaluated the risk values before and after the implementation of the proposed countermeasures and clarified the efficacy of the proposed methodology to assess the effectiveness of the countermeasures. Consequently, this would help reduce risk in the IT/OT convergence system and contribute to the formation of a secure supply chain system.

***Keywords:** Operation Technology, IT/OT Convergence, Supply Chain System, Cyber Risk, Non-cyber Risk*

ROOT CAUSES AND PROPOSED SOLUTIONS OF FOOD LOSS AND WASTE IN VIETNAM FOOD SUPPLY CHAIN: A QUALITATIVE RESEARCH APPROACH

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Abstract.

Food Loss and Waste (FLW) was introduced long ago and became a matter of concern for the whole society. This issue is also a research topic in many countries around the world, including Vietnam, and has received much attention from all members of the food supply chain as well as from Government, non-governmental and non-profit organizations. This research discusses the root causes of FLW in Vietnam to compare with the causes of waste coming from other countries. From those causes, some potential solutions are suggested to reduce loss and waste. Data were collected from documentation and eighteen in-depth interviews with members of some main food supply chains in Vietnam. After analyzing transcriptions, some major themes were established including the causes of waste from each member, how they deal with surplus products, and suggested solutions from the interviewees. The results indicate that long – terms solutions such as planning, organizing, and managing the food supply chain as well as training for members to enhance their awareness about FLW together with the awareness of product’s value and preservation issues are urgent needs. Moreover, important measures offered to reduce FLW are the horizontal and vertical integration of chain members through the food chain, the support of modern technology such as cold chain logistics technologies to achieve information transparency, and the elimination of food waste throughout the chain. Therefore, it has opened up new research directions on managing and building integration models among members of the food chain to reduce food waste

Keywords: *food supply chain, food loss, and waste, root causes, integration model.*

1. INTRODUCTION

The food supply chain (FSC) is one of the most complicated chains with some distinctive characteristics. Temperature can be the most important factor that influences food products and shelf life (Aung M. M., Chang Y. S., 2014). Food quality and nutrition can be reduced along the supply chain by internal factors like the perishability of products and external factors such as temperature, humidity, and dynamic stresses (Rekesh K. S., Nepal S., 2005).

Because of the distinctive characteristics, the food supply chain has to face many challenges coming from the complication of operations, volatility in customers’ demand for food quality and quantity, and the short life cycle of the products. Agriculture products need to be kept in the proper temperature control and time management (Montanari, 2008). Research finding root causes and effects of FLW (FLW) has recently become popular. However, there are differences between developed and developing countries in the reasons for FLW. In other

words, depending on the context of each country, the causes of FLW will be different and the solutions to reduce this problem will also be very dissimilar. While food losses can come directly from the food itself such as landfill, animal feed, incineration, and plagues. Some others argued that losses can be viewed from the perspective of economic loss including discount price, sold to processors, self-consumption, and donation (Heike A. et al, 2021). Over 50% of the production losses raises from poor handling techniques after harvesting and poor control of temperature preservation (Miles, S.B., Sarma S. E. and William, J.R., 2008). Therefore, in order to control FLW, the food needs to be preserved in cool or cold warehouses to assure fresh food quality (Ma, G., Guan, H., 2009).

Causes of FLW in the supply chain all over the world and in Vietnam have some similarities, but agriculture products, as well as members' behavior in the food supply chain in the countries, have some different features. Vietnam is one agricultural country with a large number of agricultural products exported and contributes to food trade all over the world. Although ranked 17th in the world for exporting agricultural products, Vietnam only accounts for 1.95% of the world's import value for agro-forestry-fishery products. The reason is pointed out that the value of exported agricultural products through processing only reaches 20 - 30% (Nguyen, 2021). Asia Development Bank researched the horticulture value chain in Vietnam and showed the reasons for FLW. In their reports, FLW mainly comes from local material packages, inadequate cold warehouses that meet only 5% of the volume of vegetables in the country, participation of many intermediaries who do not bring value for products but they control the retail price of agriculture products and ineffectively of wholesales markets system (ADB Bank, 2019). At retail stores, the rate of edible food elimination was still high around 15-20%. Other reasons come from inbound and outbound transportation or handling risks (Q. Do et al, 2019).

Although there is some research on the food industry, the most significant drivers of FLW have been studied in a rather limited way. There is a shortage of theory-driven studies on the elements influencing the generation of FLW, especially in the context of Vietnam.

The objectives of the article are to find out more drivers of FLW and try to analyze the different factors influencing FLW at the divergent stages of different FSCs. By synthesizing the causes of FLW through qualitative research based on structural investigation, the paper takes the main chain activities including planning, sourcing, making, distribution, and consuming as the backbone for uncovering the different factors that influence the generation of food waste. From those causes, potential solutions are also mentioned to reduce FLW.

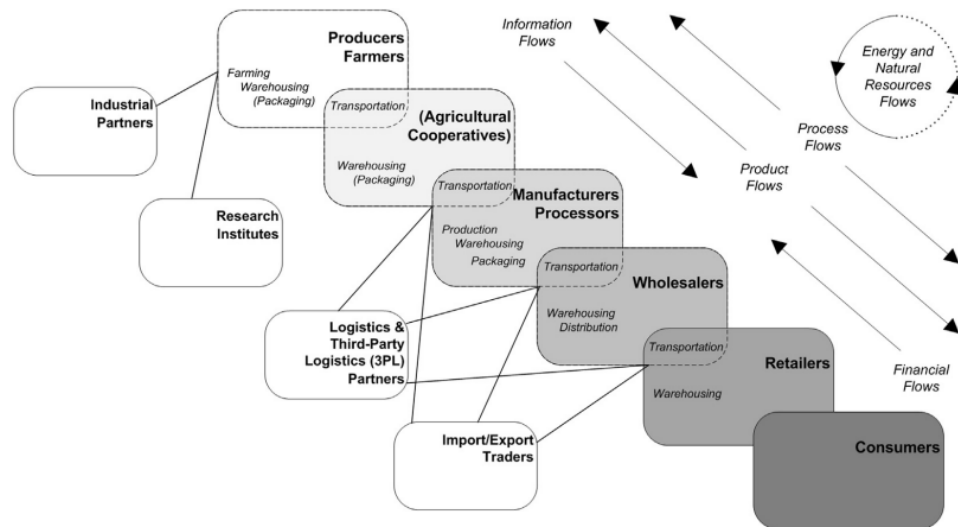
2. LITERATURE REVIEW

2.1. Distinctive features of the food supply chain

There are many types of research on supply chains in contemporary days because of the significance of this issue (M.Zareia, M.B.Fakhrzadb, M.Jamali Paghalehc, 2011). A food

supply chain is one of the chains that need to be considered from a “farm to the fork” and this supply chain has many members from farmers, processors, inspectors, packages companies, warehouses, transport service providers, wholesalers, retailers, and marketing agencies (Iakovou et al., 2012). Tsolakis N. et al (2013) established a conceptual framework for an agri-food supply chain which includes main members and partners with five flows of information, product, process, finance, energy, and natural resources (Figure 1).

Figure 1: Agri-food supply chains member



Source: (Tsolakis et al., 2013)

The characteristics of this chain were distinguished from different supply chains in term of quality which changed continuously and significantly throughout all the stages of the supply chain (Jacqueline M. Bloemhof and Mehmet Soysal, 2017). So FSC was very difficult to manage because of its complication (La Scalia, G. et al., 2016). The design for FSC was also different from others (Antonella Meneghetti & Luca Monti, 2015):

- + Always considering the shelf life constraints, and the role of FSC was trying to lengthen the shelf life of the products.

- + The need for integration among members in the FSC to assure of supplying the materials at the right time, right place, right quality, right quantity together with the right condition.

- + The role of logistics service providers needs to be emphasized to enhance the value of the food products and help prolong food’s shelf life.

Due to the distinctive characteristics above, the main aspects have been researched on the food supply chain such as finding risks of the supply chain, simulation models to quantify

the influences of alternative configurations and other management concepts, food losses, and waste causes. Moreover, how to deal with FLW, how to measure the quantity and quality of FLW as well as the application of information technology on the food supply chain, how the food supply chain coped with Covid-19, and the sustainability of the FSC because of the effects on human being and develop the social sustainably globally (Prokesch, 2010). Markley and Davis also show that supply chain sustainability is the competitive advantage in terms of price, responsiveness, high quality, flexibility, and dependability (Melissa J. Markley, Lenita Davis, 2007). Another aspect that was researched in recent years was logistics and cold chain to help to reduce food loss. Many case studies in the context of each country were used to support those studies.

However, this research focused much on each member rather than optimizing the efficiency of the entire food chain. Although, there was research on the development of methods for multiple objectives including quality and environmental aspects of the supply chain (Radhika K.A. et al, 2005); the researches on root causes of FLW in the entire chain, as well as the organization and management the food supply to overcome the short shelf life constraint, are still limited.

2.2. Food Loss and Waste

There are five stages of food supply chain including agriculture production, handling for product and warehousing, processing and packaging, delivering and consumption and loss or waste can happen at any stage of that food chain. However, there is no common definition of the term “FLW”. According to FAO (2019), there are many definitions of FLW but they are different across dimensions such as food classification, edible food considering, and other purposes for treatment surplus like animal feed or stages that FCS examines (FAO, 2019). Despite this, FAO had defined FLW as follows:

“FLW is understood as the decrease in quantity or quality of food along the food supply chain” (FAO, 2019)

Buzby and Hyman defined Quantitative FLW as the decrease in the mass and volume of food for human consumption measured by the reduction in weight or volume (Buzby, J.C. and J. Hyman, 2012). *While qualitative FLW is the decrease in food's chemical/physical and/or organoleptic characteristics for human consumption (Ishangulyyev, R.; Kim, S.; Lee, S.H., 2019).*

Although there were different opinions about FLW, most articles had the same ideas as FAO in terms of decreasing the quantity and quality of the products with more detailed explanations. Chauhan et al recognized that five dimensions generated the definition of FLW including FSC stages, human edibility, food quality, nature of use, and food destination (Chauhan, Dhir, Akram, & Salo, 2021). Many scholars revealed that developed countries usually have food waste at the consumption stage while developing countries have food loss

from the very first stages in the supply chain (Ishangulyyev, Kim, & Lee, 2019).

Causes of FLW: finding the causes of FLW throughout the supply chain is an important step to contribute to understanding the root causes and finding the solution for preventing and mitigating FLW. Mena and co-authors analyzed FLW causes and divided these causes for “fruit and vegetable and meat” waste into 2 main groups: supply-demand management causes together with controlling of quality and processing management (Carlos M., Leon A. T., Lisa E., 2014). Canali et al divided FSC into 7 segments and examine food waste sources including technological, institutional and social contexts (Massimo Canali 1, Pegah Amani, Lusine Aramyan, Manuela Gheoldus, Graham Moates, Karin Östergren, Kirsi Silvennoinen, Keith Waldron, Matteo Vittuari, 2017). *The lack of infrastructure in many developing countries and poor harvesting/growing techniques were likely to remain major elements in the generation of food waste. Less than 5% of the funding for agricultural research was allocated to post-harvest systems (Kader, 2003) and yet the reduction of these losses was recognized as an important component of improved food security (Nellemann C. et. al., 2009).*

There may be many research articles on the problem of food waste in the world but the author cannot cover all of them. However, very few articles mention the similar causes occurring at all stages of the supply chain or the interplay between the causes from members to have a greater effect on waste. Besides, some research has shown that some effects of FLW such as greenhouse gas emissions and climate change, water footprint or nutrient loss, sanitation, ecological impacts, and economic factors (Dr Sarika Jain, David Newman, 2018). Those are the reasons why we have to measure FLW in each stage of the food supply chain.

The causes of food waste and its consequences have been widely studied. However, it is difficult to estimate FLW that was shown by few reports on retail food loss and they had a tendency to attribute to producers and customers or because of not many reports on farm stage loss and waste (Quentin D. Read et al., 2020). Loss in farmer, post-harvest handling and preservation or processing stages due to lack of facilities, infrastructure and inadequate market system (Dr Sarika Jain, David Newman, 2018). The research from Kurmar revealed that lacking integration among farmers horizontally, inadequate support from the government together with poor pre-harvest management are the significant reasons for poor sustainable food supply chains (A. Kumar et al, 2019).

In Vietnam, people mainly used FLW for livestock feeding (pig, cow or other animals). Pigs need cellulose, protein, nutrients, hemicellulose and other chemicals contained in food waste to develop significantly. Pigs become one of the most important animals that is consuming much FLW in Vietnam. Vietnamese Government were making an effort to cope with the environment causing by FLW like sourcing, collecting, reusing, renewing and treating with modern technologies (Le T.T.H., J. D. Cesaro & G. Duteurtre, 2015).

In the process of studying FLW and solutions to prevent this problem, *there were few*

kinds of research on food loss at the very first stages such as manufacturing, processing, or relevant services sectors like distributing and restaurants in the supply chain (Bagherzadeh, M., M. Inamura and H. Jeong, 2014). *At the same time, there were not much research on the causes of FLW at the first stages of the food supply chain in Vietnam.*

3. METHODOLOGY

The qualitative method is used for long time ago and it proved to be persuasive to readers and audiences because of its legitimacy. Qualitative research can be defined as “a exploratory study of a complex social phenomenon carried out in a natural setting through observation, description and thematic analysis of the behaviors and perspectives of researchers for the purpose of explaining and/or understanding the phenomenon” (Crawford, 2020, p. 83). Qualitative methods illustrated different approaches to academic inquiry than quantitative methods. Simultaneously, this method required comments from researchers about their responsibility and reflection themselves as well as the type of strategy used for qualitative research (John W. Creswell, J. David Creswell, 2018).

There are many approaches to the qualitative method, interviewing is a process in which a researcher and interviewees engage in a conversation focused on questions related to a study. These questions typically ask participants about thoughts, opinions, views, or descriptions of specific experiences (Roulston et al., 2003). In-depth interviews are suitable to do qualitative research on the supply chain because of the variety in members and their important role to make the chain operate smoothly. Each member has their own problem in different aspects to contribute or limit FLW. For instance, the farmer which is the first member of the chain is responsible for growing or feeding food, the processor will manufacture and process the raw material coming from farmers. After that, the wholesaler can buy finished products from processors to distribute to retailers and customers. Each member is a puzzle piece of the supply chain, and all of them are generating a big picture for the food supply chain.

During two months, 19 semi-structured interviews were conducted one-on-one basis. After that, all the transcriptions were recorded and translated into English. The duration of each interview lasted 45 to 60 minutes, interviewees were asked to answer the open-ended questions that were prepared in advance. The objective of the interview was to identify the causes and problems of food loss, food waste and the solutions as well as experiences of companies in the food supply chain. However, each member had its' different role in the food supply chain, the questions can be changed flexibly to be suitable to each member as long as they can help to achieve the objective of the research. Although the questions can be replaced or changed, all the interviewees were asked to answer the questions that are related to the main topic of food loss and food waste. The answers were collected completely based on the meaning and the perception of the interviewee in terms of FLW without any influence from the interviewer. They were motivated to talk about their own experiences and their ways of seeing problems in

the food supply chain and the method of dealing with these problems

An interview guide was designed based on three main themes and one additional theme: food supply chain, FLW, solutions of companies in reducing loss and waste, and sustainable food supply chain. Each theme has 5 to 9 questions around the issue of FLW and waste reduction measures. The guide proceeds from broad questions to more specific ones (Kvale 1996). There is a mixture of open-ended questions, probing questions, and a selection of structured or closed questions so that a full range of information regarding the four main themes above.

The pilot case interviews were used to provide an adequate structure for subsequent interviews (Stokes & Perry, 2007). Based on the results of the pilot interviews, the number of questions and the interviewer's guide were refined and used as tools for the next interviews.

The interview started with some preliminary propositions in order to find new directions for shaping the knowledge when the interviews are in progress. Each interview consisted of an introduction, an opening question, following up on specific issues, probing questions, an invited summary, and a closure of the interview (Rao & Perry 2007). At the end of the interview, a summary of the main issues discussed was made (Carson et al 2001). Finally, the interviewer thanks the interviewee for his or her time

After having all transcriptions, information was collected and analyzed. All the information will be put into a table including columns organized as the codes, themes, subthemes and verbatim. From these points of view, a number of themes were established an inductive way.

The samples consisted of individuals who are managers of companies which are the members of the food supply chain. They were purposely selected in the study in order to identify FLW in Vietnam. These samples were variable to assure the coverage all the members in the food supply chain from farmers, traders, processors, wholesalers, retailers, and also some associations as well as non-profit organizations. The products that these companies focused on also diversify from fruit and vegetable, livestock, poultry, aquatic products, processed products, distribution, and logistics services. The interviews took place by phone, Zalo, Google meet and face-to-face, because of the geographic distance. The advantages of interviewing through phone, zalo or google meet are: fast to connect, saving time to transport, and geographic coverage.

The selection of most interviewees depended on their experiences in the food industry or services that support to food domain. Most of the interviewees are belonging to top managers of the enterprises or are in their business. This choice was implemented through two steps: the first stage was finding their personal information such as name, position, and the company that they are working for. The second stage was conducted by asking for the network and relationship of the current interview, the snowball sampling technique was used.

The size and the types of business also vary from Groups to Small and medium enterprises, from State-own firms to limited liability companies, joint stock companies, and households. Some organizations are non-profit organizations, as well as associations, are also selected to have an overview of the situation of the food industry for each product category.

The table bellows summarize the characteristics of the samples being chosen:

Table 3. Characteristics of samples

No.	Role in food supply chain	Position of Interviewee	Name of companies	Products are focused on	Location
1	Farmer	Owner of the farm	Mr Vinh's farm	Pig	Dong Nai Province
2	Farmer	Owner of the farm	No name	Dragon fruit and shrimp	Long An Province
3	Farmer and trader	Owner of the farm and Director	No name	Fruit and vegetable	Lam Dong Province
4	Farmer and trader	Owner of the farm and Director	Khanh Hoa Phat company	Mango	Khanh Hoa Province
5	Trader	Owner of the stores	Oanh Ron	Fruit	Ha Noi capital
6	Processor	Transport coordinator of the South of VN	TH True Milk	Milk	HCMC
7	Processor	General manager	Intimex	Rice and Coffee	Dak Lak and HCMC
8	Processor	Director	Neto	Seafood	Kien Giang
9	Wholesale market	Market manager	Binh Dien market	Vegetable, seafood, poultry	HCMC
10	Wholesaler	Owner of the store	No name	Pig	HCMC
11	Retailer supermarket	Head of the supermarket	Winmart+	Food	Ha Noi capital
12	Retailer	Owner of the shop	Thanh Van	Food	HCMC
13	Cooperative	Vice President of the Cooperative	Hoa Le Cooperative	Dragon	Binh Thuan Province
14	Non profit organization	Chairman of the organization	Ha Noi Food Rescue	Food	Ha Noi capital
15	Association	Association President	Vegetable Association	Vegetable	HCMC
16	Association	General Secretary of the Association	Vasep	Seafood	HCMC
17	Cold - storage	Sale manager	AJ - Total	Service	Long An Province
18	Cold chain logistics	Vice president	Hoang Ha Logistics company	Service	HCMC
19	Researcher	Lecturer		Mango	Can Tho Province

Source: Author complied

The number of interviews was spread evenly among all members to ensure adequate coverage of the participants in the food supply chain. A variety of food products were included in the study to ensure diversity and to understand the differences between different foods in the food chain.

Table 4. Number of interviewees in each chain of FSC

No.	Role in the food supply chain	Frequencies	Main aspect
1	Farmers	3	Livestock and fruits, vegetables
2	Traders	3	Food and vegetable
3	Processors	3	Milk, rice, coffee and seafood
4	Wholesaler	2	Vegetable, seafood, poultry
5	Retailer	2	Fresh food and processed food
6	Cooperative	1	Dragon fruit in fresh and processing
7	Non – profit organization	1	Processed food
8	Association	2	Vegetable and Seafood
9	Logistics service	2	Warehouses and transportation
10	Researcher	1	Mango Post-harvest preservation

Source: Author complied

The interviews begin with an introduction, types of questions give the interviewer opportunities to engage the interviewees in the interview and improve rapport. As the interview proceeds, more specific questions are asked. Probing helps the interviewer obtain clarification from the interviewees about their responses (Carson et al 20010). By using probe questions, the interviewer also has a chance to listen to more clarification from the interviewees for the responses that are difficult to understand. The number of probe questions will increase when more information is obtained, as long as the interviewer has more interviews.

During the interview, all answers were recorded by handwritten notes and the interviewer encouraged the interviewees to share his/her experience with FLW at their companies. There are some interviews that were recorded by phone recorders but still had written notes. Then, each interview was transcribed as a note to combine with others' transcription to code and summarize as subthemes and themes.

After collecting enough 19 interviews, all the transcriptions were scanned, and all information was sorted and arranged based on the sources that information came from and belong to the themes in the semi-structured interview guide. All the information from the transcription was read very carefully. After reading, the coding of the data started with the support from excel, the data then were segmented and arranged into categories called as subthemes. Some subthemes with the same category will be added in themes, the number of

themes was suitable enough to establish the model and analyze the data for organizing and managing the food supply chain in the context of Vietnam. It is assumed that themes were analyzed across all the transcription.

4. DATA ANALYSIS AND FINDING

The result based on the answers of the interviewees during semi-structured interviews. After analyzing the transcriptions, the research were organized in 3 main themes: the food supply chain characteristics, the root causes and effects of FLW in the context of Vietnam, and finally, the solutions that were suggested by different members of the supply chain. The interview guide illumined the main elements in the food supply chain and the main reasons causing food loss and food waste in Vietnam, the first theme discussed on types of products and characteristics of this food, the number of members joining that food supply chain, and the way they transfer information, and the recommendations for the highlight of Vietnamese food. The second theme focus on the perception of interviewees about FLW causes of FLW arising from members in the food supply chain, the consequence of food loss waste, and how the waste is being treated currently. The third theme analyzed the solutions from the perspective of interviewees. The next section of the research will present each theme deeply.

4.1 The food supply chain in Vietnam

After 19 interviews, the food supply chain can be generalized by the following figure. Food, seed and pesticides for plants and animals will be provided to farmers to plant trees and feed animals. Finished products will be bought by traders or brokers, and then will be sold to processors or gone directly to customers in the supply chain.

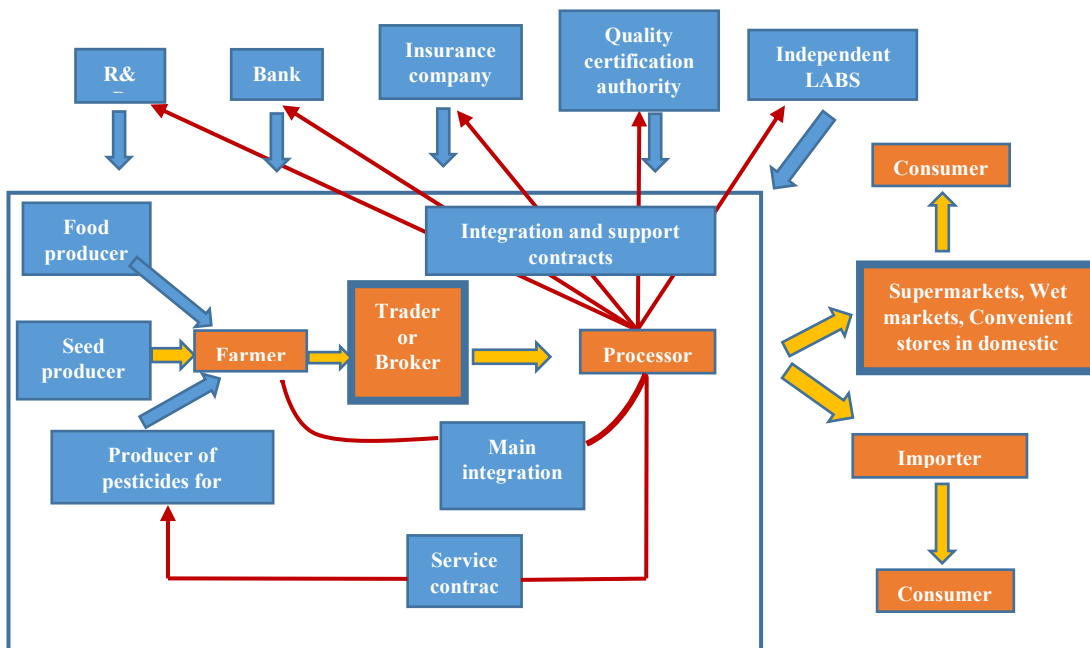


Figure 2: Food supply chain in Vietnam

Source: author compiled

4.2 The determinants of cause on FLW in the context of Vietnam

To find out clearer about FLW, the research divided into some subthemes: the first subtheme deals with the perception of members in food supply chain about FLW, the second subthemes asks for the method of measurement FLW in food supply chain. The third subtheme focus on the causes of FLW and some possible consequences of FLW.

In the first subtheme, many different views on FLW had been shared, some subcategories appeared. The first awareness of FLW was that food could not be consumed by customers due to some reasons: the bad apparent of the food, food is scratched or food get disease, spilled food or product had been expired. Most of these types of food could be thrown away and were not sold out.

FLW means we cannot use it and have to throw it away (Trader number 5)

Some organizations recognized FLW happened when there is a food surplus at families, hotels, canteens, and restaurants. That means if people cannot eat everything that they prepare in advance, that food can be thrown away and become food waste non-profit organization in Hanoi (interviewee number 14) stated that:

That is the case that food is excessed at families, hotels, canteen, and restaurants, everyone cannot eat all the food

The table bellows described the coding process for the perception of FLW in the Vietnam food supply chain.

Table 5: Data analysis about perception on FLW

Verbatim	Initial code	Subthemes 1	Sub themes 2	Themes
<i>Weight or volume loss + quality loss</i>	Volume loss and quality loss	Food intrinsic problem	Perception of FLW	Determinants of cause on FLW
<i>The vegetable can loose weight if do not be kept in cool warehouses Loss in weight, waste when we have to throw them away. Loss in weight after transportation</i>	Weight loss			
<i>FLW is bad food that can not be used and must be damaged the item or throw it away depending on the characteristics of the item FLW means we can not use it and have to throw it away. Food waste means "throw-away items because they don't sell out, we often call it "é"</i>	Thrown away	Product abandonment behavior		
<i>Food loss is food that can not be sold and have to throw away.</i>	unsold product	No output		

<i>Sometimes, they are still edible, and sometimes inedible. Spilled food is wasted food. Damaged unsold vegetables are also a form of waste</i>				
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Source: author compiled from in-depth interviews

The second subtheme was related to the method of measuring FLW. During the interview period, organizations or companies gave the researcher statistics number to measure FLW such as the Vegetable association or Vietnam Association of Seafood Exporters and Producers. For instance, post-harvest loss was different among types of products:

In Vietnam for nuts, the postharvest loss is 10%, for tubers, it is 10-20%, for vegetables, it is 10 - 30%. The average annual loss is 15%, so tens of thousands of tons of food can be enough to feed millions of people. The loss of tuberous crops is 20%, with the output of 2 million tons of sweet potatoes, 722,000 tons of potatoes and 3.1 million tons of cassava, about 1.15 million tons annually, equivalent to 80 million. For corn, the annual loss can be up to 100,000 tons, equivalent to 13-14 million USD. The loss of vegetables, beans and other agricultural products is not included. (Vegetable Association)

Seafood by-products is wasted around 10.6% to 12% equal to 1 million metric tons. If we can take advantage of 1 million MT of by-products, the revenue can take 4-5 billion USD (Vasep Association)

Some opinions said that ¼ of manufactured food is lost before it reaches the processing plant or distribution center. Many companies measure FLW during harvesting and post-harvesting. For the processing stage, a big company has damaged up to 10% - a large number of FLW happens. Trader number 3 said: *the damage rate and loss rate are around 10%.*

In the third subtheme, the research focused on the causes of FLW. The causes of FLW may happen at every stage in the supply chain, even at the supporting service activity. Based on the activities of the food supply chain, the research tries to analyze the root causes from the perspective of members to be interviewed in March and April with many different viewing angles.

It is quite difficult to list all the food loss causes in just one picture, fish bone model was used to describe the main causes from the awareness of farmers, traders, processors and wholesalers, or retailers in the food supply chain. The consumers were the people whom the research did not have an interview with, but they were playing an important role and affecting the way that other members created an FLW in the food supply chain. After coding the data as same as table 6, the causes of FLW in Vietnam can be summarized in the figure bellows:

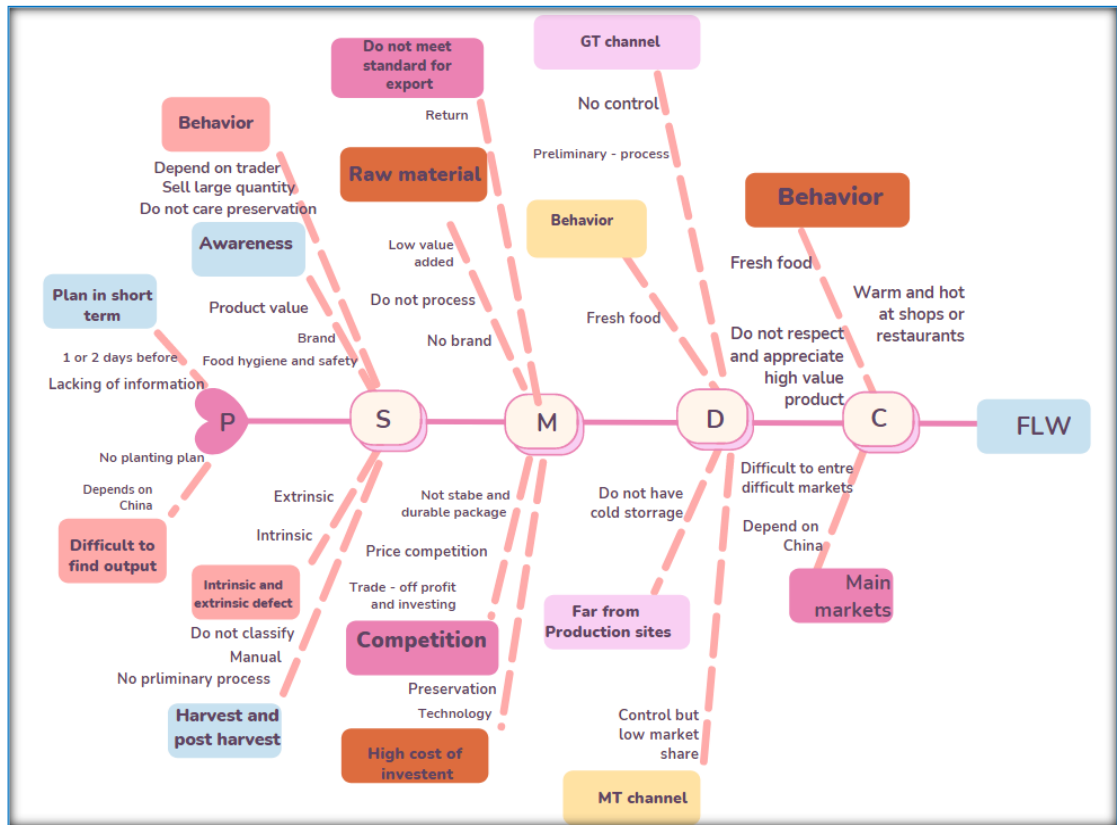


Figure 3: Causes of FLW in supply chain synthesized from interviews

Source: author compiled from interviews

4.2.1 Planning

Intimex and Hoa Le cooperative complained: “It is difficult nowadays, because Government do not plan flower plan, vegetable plan, fruit plan in Buon Me Thuot in particular”. (From processor number 7)

Without any plan to plant scattered crops leading to the surplus when harvesting (Cooperative number 13)

The plan almost in short term, with some companies were interviewed, the plan was conducted in 1 or 2 days before, for example, the traders or broker bought from farmers, they did not have contract but just call for farmer in order to prepare 1 day before, Oanh Ron trader said that:

I plan the number of products to sell one day before. I buy products based on orders from cargo owners. (Trader number 5)

The short-term plan of this member becomes a problem for other members in the supply chain due to the volatility of the demand. Lacking information makes forecast become difficult to predict especially in the food supply chain where the product is perishable and the shelf lives are very short. Farmers do not know about the planting areas from Government, they also do not know the information of the end users. That was the reason why they were planted by the

masses causing a surplus of food in the market.

Besides, many companies, especially farmers are not active in finding new markets to export to and do not focus on the domestic market. The main market for food and vegetable in Vietnam is still China market. Khanh Hoa Phat emphasized:

Vietnam always has to rescue fruit, because we export a large number of fruits and agricultural food to China, and we depend on them too much. When covid-19 happens, the zero-covid policy was established, products are exported to China with difficulty, and the surplus in the market is too high. (Trader number 4)

When the output is not planned carefully with clearly committed contracts, food loss, and waste happen easily, especially when China does not want to buy products anymore as farmer number 1 said. One more trader – Oanh Ron answered that: because of Covid-19, a full container of dragon fruit could not be exported to China, after 10 days, the fruit became musty and they had to throw away a whole container

4.2.2 Sourcing

The second subcategory of the causes comes from farmers who provide a source of not only raw materials but also products to the processing or consuming markets. The first reason that needs to be considered was the intrinsic problem of fruit and vegetable. Many interviewees agreed that agricultural products themselves are perishable goods. As Vasep Association commented: *“Foods that have a short shelf life and are very perishable, fruit and vegetable tend to turn into waste the most”*. The foods have their own natural loss and hidden disease as Khanh Hoa Phat said about the loss in weight: *“IMT fresh mango, after the time of storage, the weight can be 970kg”* or– a trader number 3 complained *“Japanese beans becomes drier and starts to lose weight. Not to mention the possibility that if one MT mango with the disease can spread out to nine remaining metric tons causing a total loss for one container”*– Ms. Hoa reported. Some products were also easily attacked by mold or evaporation as AJ Total found.

Another characteristic of agricultural products is seasonal, farmer number 3 expressed: *“when the season of harvesting comes, there are too many goods on the market, the market cannot consume at the same time”*. The farmers have to follow the season and consider the market at the same time, but the season of the product can not change, each type of product will have its own harvest season, the surplus and waste can happen when products are in a bountiful season.

The loss also can come from extrinsic defects including transportation and handling after harvesting, *“farmers usually use three – wheeler or motorbikes to transport food to gathering area, at that point, workers poured on the ground floor strongly”*. That can conclude that the loss does not come only from the inside of the products but also from outside factors, especially from logistics service.

The intrinsic and explicit loss was expressed in the bellow table as mentioned during an interview with a researcher (number 19) in agriculture products:

Table 6: causes of FLW in quantity and quality

	Causes	
Weight or Volume Loss	Respiratory process	Quality Loss
	Growing	
	Growth of fungal bacteria	
	Insect development	
	Self – heating process	
	Rat infestation	
	Bird infestation	
	Mechanics	
	Trauma, broken	
	Drop	
	State of falling	

Source: Interviewee number 19 provided

A researcher (number 19) noted that: *“harvesting methods determine the degree of mechanical damage of agricultural products, post-harvest handling and storage measures play an important role because it can protect quality, otherwise, it can make the product vulnerable to environmental influences and harmful microorganisms attack and lack of specific guidance for farmers about the right time of ripeness for harvesting”*. According to Vegetable association: *“food waste and food loss after harvesting is 35% for fruit and 40% for vegetable due to logistics and post harvest technology”*.

The profit for agriculture is too slow to classify at the farm. On the other hand, many traders do not want to buy products which has been classified already due to price bargaining power to the farmers as a researcher (number 19) argued: *“farmers will care about profit and did not have much time to classify products at their farms”*. Besides, it was very popular for traders to buy as “bucket” method in Vietnam, the traders will sort and filter both satisfactory and unsatisfactory afterward. At this stage, there was a number of FLW recognized because there were unripe fruits that were harvested at the same time as ripe fruits such as avocado, cashew, or pepper (researcher number 19). Binh Dien wholesale market added more information that: *“the farms do not want to do a preliminary process, because it takes time, reduces the weight, does not protect products during transportation and handling. Traders buy products from farmers is just VND 4000/kg for vegetables, this is a very cheap price and the farmers do not want to do preliminarily processing at their place”*. Or in another case from Hoa Le cooperative: *“dragon fruits were scratched or crushed due to overlapping, or in the process of harvesting, loading and unloading into the warehouse”*.

The last cause arises from farmers’ behavior. During the interview, it was recognized that with precarious, unplanned output, the farmers would not invest in the technology of

preservation or post-harvesting. Moreover, the price of products was quite unstable, the farmers had to suffer from those risks and people could abandon their achievement after cultivation time. Farmer number 1 said that “*Farmers feel bored with growing dragon fruit, sometimes selling at the price of VND 1000/kg which is not enough to pay the salary for workers on harvesting fruits*”. The same situation happened at Hoa Le cooperative, many farmers could not export their products during Covid-19, they had to cut the trees down to reduce the operation cost for their farms. Another situation was when Khanh Hoa Phat had to leave mango at the root because the cost of labor to harvest, transportation and warehousing to sell products could not be covered by low price. Therefore, FLW can come from many reasons, but at the views of farmers, they are not motivated, they are willing to abandon their trees and find other types of product. The problem will continue if farmers do not change their attitude toward their products.

4.2.3 Making

Moving to the next stage of supply chain: making. There were 4 interviewees (number 15, number 17, number 8 and number 1) said that the export products sometimes do not meet the requirement of export countries and be returned to Vietnam and causing loss. For instance, agriculture products export to EU need irradiation before 2 or 3 days, check chemical residues like SGS, Bureau Veritas and Eurofin together with packing and cold storage requirements. While products exported to the US need irradiation, planting area code, and quality check. Japan and Korea also have their own requirement such as not exceeding microbial content, no eco li bacteria or no wrong size: “*importers will ask us to take products back or destroy products*”. According to Vegetable Association, the product is returned back mostly because of quality reasons like residue still exceeding the allowable amount. There were some consequences were revealed such as a container of bananas from AJ Total being returned due to not adopting the requirements of the export country. A large number of products are exported to China, but traders export mainly in the form of unofficial due to the tax exemption policy without a contract of sale which poses a huge risk of loss.

As mentioned about trade-off, not only package or processing technology has to take into account, the preservation technology also a huge investment to traders or processors: “*technology for preservation product is not good comparing to other countries, but if a company invest money in the technology of preservation the cost will increase*”. The competitive advantage of the company in the Vietnamese market mainly comes from price competition. Any investment but costs will be considered for a long time and if the enterprise invests in technology, the price will increase and the ability to sell goods will be reduced.

Food loss can be reduced if we can take advantage of communication. However, the perception of communication on an agricultural product is not appreciated highly by farmers and traders and lacks prompt direction from Government. Therefore, the information usually comes late, the case of Khanh Hoa Phat: “*mango can be sold to juicer factories in case of*

sluggish sale. We sold to Tay Ninh juicer factory, in 2021 they buy around 200 – 300 MT, but the communication was too late, they buy at the end of the season, at that time the mango fruit is almost spoiled, the fruit was very bad”

4.2.4 Delivering

A distribution channel is very important for agricultural product. General trade and Modern trade are discussed at the same time with wholesale market manager and supermarket store manager to understand deeply about distribution channels in Vietnam for agriculture products. As can be seen clearly after the interviews modern trades were more controlled than general trade. Food loss and food waste have a private policy to destroy retail stores. The store manager must follow the canceling process, Head of one Winmart+ store explained: “Food must be *canceled from the system, then being chopped into small pieces and bleaching pour into the products later*”. In some cases, the suppliers would come and witness the cancellation process. However, according to the manager of the supermarket store Oanh Ron: at a supermarket like Winmart+, little food waste occurs.

Winmart+ also said about the fault of refrigerators in the store, because the old fridges ran out of gas that the staff did not pay attention. Meat in that case was not kept in the right temperature, the quality was affected and leading to the shorter shelf lives of products.

In terms of traditional trade, wholesale markets were interviewed, and they recognized that: “*because the harvest is not preliminarily processed at the farms, it is transported to the market and market becomes a space for preliminary processing*” (interviewee number 9). That is the reason why at the wholesale markets there is a huge amount of outer layers of vegetable, and fruit roots and layers of stamped products after transportation are discarded as waste. This interviewee said that the farmer did not want to do preliminary processing due to time and cost, and traders at wholesale markets forced to do it before selling to customers. The figure of food waste is 3 to 4 metric tons comes mainly from the inedible food, not from the planning of the traders. Because traders are very good at predicting the demand of the market, they also know exactly the way to process products that cannot be sold in fresh to cover their costs. Another aspect comes from the retailer’s behavior, a seller at the wholesale market (interviewee number 10) revealed that: “*many retailers, if they know that wholesalers keep the pork in cold storage or cold warehouses, they will return pork immediately*”. The behavior to purchase fresh food put time pressure on traders or wholesalers to “*keep the pork fresh without low-temperature preservation*”

In small cities and rural areas, traditional markets are still the main trading place of the majority of the population for many reasons: habits, the convenience of spacious space, distinct cultural characteristics, and community communication space - something that only traditional markets have. However, those reasons gradually lose value over time and the development of the urbanization process will gradually decrease. The future of traditional markets will now

face a number of inevitable scenarios: disappear or change to be more similar to modern markets, in order to compete better; or become another function - specialized for culture – tourism (Nguyen Thu Quynh, Nhien Anh, Nan Minh, 2021)

Because of Covid 19, many agricultural products could not be delivered to export countries, especially China. In December of 2021, thousands of agriculture products trucks got stuck at the borders and had to transport back to consume at domestic markets and hundreds of tons of products need to be rescued and to be sold at the price of 1/3 of the normal price. Means of transport were cold trucks, but the cost was too high to store for a long time. Some traders who could not suffer from this high cost have to accept throwing the products away.

Through the above analysis, the dependence on China market and the form of unofficial export is increasing the risk of loss and damage to goods when the inventory is not resolved. The cause could be the far distance from the processing factory or consolidation centres to the market. Besides, a shortage of cold warehouses at the border prevents traders from keeping products for a longer time.

4.2.5 Consuming

The people who dominate activities and create food waste in the food supply chain are consumers. In the scope of the research, there was no interview with consumers. However, the understanding of consumer behavior from other members in the supply chain helps to explain the to them.

The first factor affecting to food supply chain was the behavior to consume fresh food of Vietnamese consumers. Retailer number 12 and wholesaler number 10 commented that:

Customers want to have fresh food, we have to take freshly slaughtered pork from companies within 12 hours and delivery directly to customers (interviewee number 10)

Vietnamese do not want to eat frozen products. This habit has a bit change now, but not too much. I think that the customer behavior for warm and hot products of Vietnamese will not change for a long time (interviewee number 12)

That was the reason why cold warehouses were not popularly invested at wholesale markets or at retail points. They did not used a lot of processed food or keeping material in the cold storage for a long time. If there is one day, the surplus of product happens or cannot be consumed, all these products must be treated as thrown away food.

One more issue arises from consumers that interviewee number 8 from Neto responded:

“Consumers do not seem to respect our clean products, meanwhile foreigners test carefully and they appreciate our products. There are few Vietnamese people appreciate safe and healthy food products”

This comment shown that a large number of Vietnamese consumers still care more

about price than safety and healthy food. The low value of product, as mentioned in some parts above is one of cause for FLW. Food consumers themselves also have the same attitude that low value products can be wasted without regretting.

For export consumption, the output and the source are very far from each other while food products are perishable. Therefore Vietnam always choose China as the best market to enter into, difficult markets are still very potential but need more research and uniform plan from the State as well as need more investment on cold chain logistics.

The trust of customer with company who plant or processed product was not high. The communication was a double-edged sword, one-sided to helped customers better perceive products, but if customers were not well trained, they would misunderstand about scientific preservation methods as residues which brought profits of farmers or processors, turning farmers and processors into people who didn't care about consumers' health :

“Farmers and traders dip chemicals to ripen simultaneously. If not dipped, there is not enough quantity to sell, if the fruit is too ripe, it will not be able to reach consumers on time. However, there is some allowed chemical to use for food, but a lot of people want to share clips on “dipping chemicals” and propagating that these chemicals are toxic and affecting the purchasing power of consumers, causing the price of agricultural products to drop significantly”

In summary, the root causes of FLW in Vietnam mainly come from unstable output and loosely integration system which has low commitment and mutual trust among member in the food supply chain from planning to consumption stage.

4.3 The solutions for FLW

There is a high consensus of members in the supply chain to enhance the awareness of each link in the FSC. Same to part 4.2, 5 main pillar were used to suggest the solutions at each stage of the food supply chain. The figure bellow shows the potential measures that were synthesized from 19 interviews of members in the food supply chain

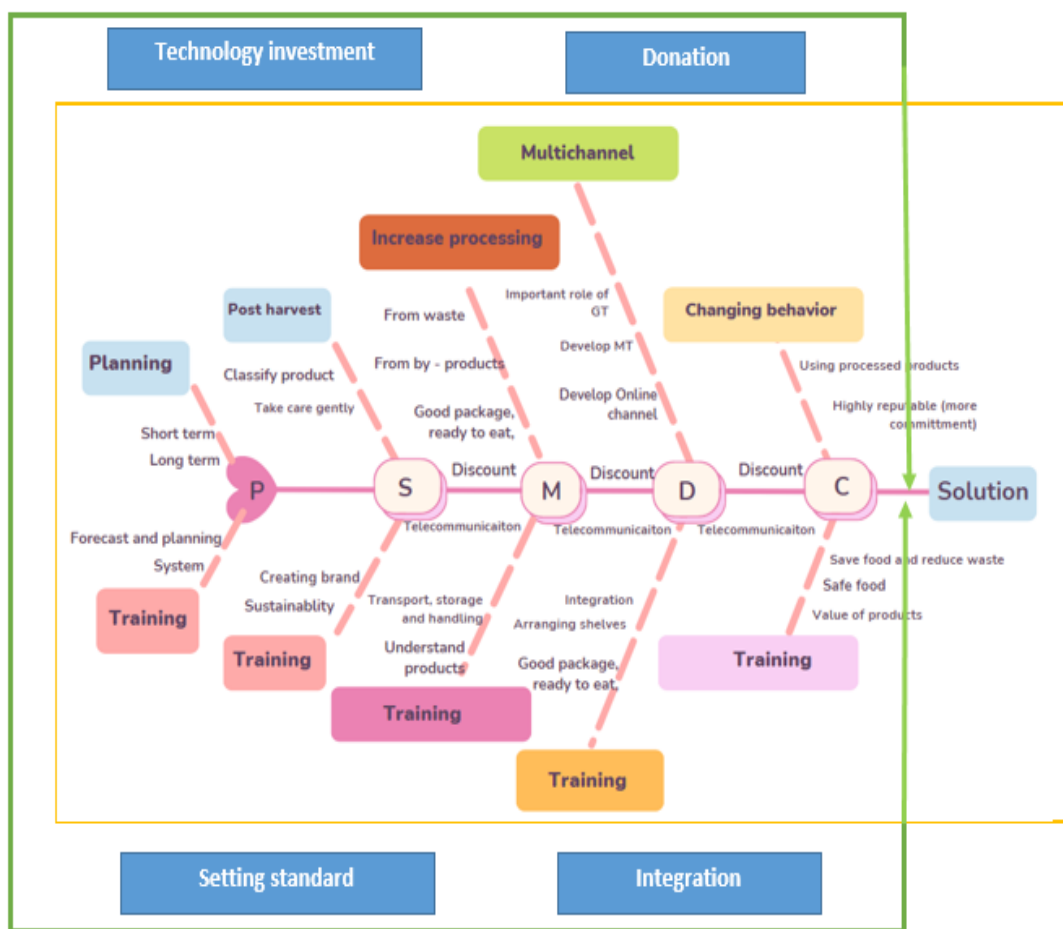


Figure 4: potential measures of FLW in supply chain synthesized from interviews

Source: author compiled from interviews

Training on planning is not enough, farmers should also be trained on the sustainability and reliability. Farmer number 3 mentioned that: *“training on responsibility with the customer, with the nature, environment and next generation. The farmers has to be trained about clean agriculture products and how to get VietGap or other certificates”*. Interviewee number 18 emphasized: *“it is very important that every members in the supply chain should be trained on value of product, how to reserve products, how to communicate for products and how to marketing for products”*. He added more:

Farmers need to know that their farm as the bed, and have to try to extend the time of the goods (shelves – life).

This was also the idea of farmer number 3 when talking about value of products: *“farmers have to know the value of the product, know how to call the name of the product and know how to cherish the products made by them. Especially, they should know how to preserve their products to lengthen shelf life of agriculture products”*. Hoa Le cooperative also motivated farmers that *“farmer should understand that the dragon fruit is very suitable with soil in Binh Thuan, do not have the thought of planting – cutting and cutting – planting”*. More importantly,

farmers themselves should find difficult import markets actively, their output will become more stable and reduce the dependence on Chinese market. Besides enhancement of product value, starting with the registration of copyright protection for the product was one of the effective solution.

One more work that farmers should do in order to increase value for products is the classification of products or preliminary processing before selling to the processors or traders. The product only reaches a certain degree of taste when it is picked at maturity. The form of bucket picking for sale reduces the quality and includes the drifting goods in the sales volume and when harvesting, workers as well as farmers should take care gently products to have the 1st class products to sell to customer (from interviewee number 15 and farmer number 1).

For traders and processors: training on knowledge of the product. For example, at TH True milk (interviewee number 6), they organize and build website for training “*staff must understand about characteristics of each product, driver knows how to transport product in accordance with the regulations, stevedore know how to stack and preserve each type of goods in accordance with regulations*”. At the same time, training on the role of communication as well as how to use communication and advertising to promote selling product can be good solutions.

One more solution that got consensus from a lot of people in FSC was using discount price when they could not sell food to customer as interviewee number 10 said “*discount policy: from 10h30 am, the price can be cheaper 10 – 20%. A part of port can be sold to street vendors, or for small food processing companies*” or farmer number 3 commented that: “*I witnessed a lot of sellers, selling product from 4 – 7 am. in the morning and after that they have to reduce 20 – 30 even 50% to sell remaining goods because they know that up to afternoon, the remaining products will become waste*”. Using discount can solve inventory but for long term, this solution will affect to perception of the customer on agriculture product as the low value and always need discount and to be rescued.

Another better solution for processors or traders is increasing processed products more than just selling or exporting in fresh and raw material. During interviews, it is recognized that some enterprises have to invest in technology for processing product, especially to solve the problem of inventory, interviewee number 13 from Hoa Le cooperative said that: “*the cooperative built one warehouse and one pre-processor factory (VND 2,5 billion) for solving the problem of damaged or cannot be sold dragon fruit*”. They had learnt a lot to experiment different types of processed - products from fresh dragon fruit like: wine, beer, juice, jam, cake, and event dragon fruit ice-cream.

Vegetable also can be processed to some processed - products, interviewee number 10 told that: “*1000 kg cabbage can produce 500kg kimchi, 500kg can be cleaned and packaged and brought to supermarkets. Or tomato cannot be sold, people completely use them to make*

ketchup. There are a huge demand of this products especially for products that have product procedure clearly and transparent in terms of time". However, some companies complained that they have to find the markets for these type of products. Hoa Le is very intelligent when they try to combine with tourist companies to sell product, or bring products to fairs in order to introduce new products, or sell at supermarkets. Interviewee number 7 took advantage of watermelons or other fruits to make smoothies: *"we can buy rescue water melon or dragon fruit and make smoothies to help farmers"*

For distribution channel, improving package for the products such as making them as a gift to increase sales. Wholesalers and retailers are motivated to catch the idea selling "ready to eat" products to add more value on products. Interview number 4 commented that: *"packing good to make as the gift. Fruit should include company stamp, fruit of sufficient age, good looking fruit, delicious to eat, have clear origin, combine with other type of products such as orange, grape, apple to make a beautiful gift and make them as a combo for selling easier"*.

Moreover, staff at retail market should be trained about the arrangement of products on shelves to attract more customers and for quick sale of products near the date, interviewee number 11 from Winmart+ recognized *"the staff also need to be trained on how to arrange the shelves. For example: with eggs and milk, products that are about to expire should be displayed at the top of the shelf, so that consumers can buy these products first. Or Meat Deli, all their tray using Oxy Fresh 9 to keep product inside, all products must be placed horizontally"*.

However, if food is surplus at the end of the food supply chain, donation can be one of the solution. TH true milk had its own program:

"We can run some programs such as donating milk to hospitals and schools, organizing events at schools and donating milk"

"We learned from our experience and gathered someone to make 200 charity meals a day to distribute to poor people"

Using multichannel is also a wise strategy, interviewee number 9 emphasized that *"Government should recognize the role of general channel and invest more on as well as control more this type of channel"*. While the modern trade is developing very well in Vietnam now, this channel should be more supported. Moreover, take the advantages of online channel can be a good idea to approach end users and understand their behavior to make a plan very closely to the customers.

For customers, changing the awareness of customers on benefit of agriculture products, improving the awareness on food safety and reducing waste are very important. Hanoi Food Rescue also give an advice that: *"parents should educate and accompany their children in the smallest actions to reduce food waste"*. Hoa Le cooperatives asked for educating about the advantage of fruits *"the good effect of dragon fruit on health and protect customer's health"*.

Moreover, the training on the method of preservation products in cold and cool warehouses instead of buying fresh food is playing an important role as interviewee number 18 commented: *“fresh food is very difficult to keep for long time, food loss rate can be increased or even if we can use them, the vitamin and quality of product will reduce”*. Abandoning of the custom to eat fresh food is very useful to reduce FLW.

A large amount of interviewees (9 people) agreed that the investment in cold chain plays an important role to reduce FLW in food supply chain: *“in cold condition, apples maintain their firmness and acidity, color, sweetness and aroma”*, *“traders can invest in cold warehouses to lengthen shelf-life of the product”*. Even take the advantage of cold warehouses as a place to *“preliminary treatment, packing, value added service, documents, and also irradiation besides just storage”*, Hoang Ha company adds more that *“keeping goods in cold storage is 3 times more convenient than throwing it away”*, Khanh Hoa Phat said that mango can be preserve in cold warehouses more than 1 month.

The figure bellow shown the main causes and solutions of FLW that will be discussed in detail on chapter 5 – Discussion. Based on the frequency of the codes of 19 interviews, the coding grid was established as follow:

Table 5: coding grid

Causes of FLW	Plan	Short-term planning		Output limitation	
	Source	Behavior	Awareness	Harvest and post-harvest technologies	Intrinsic and extrinsic defect
	Make	Unqualified for export	The trade-off between cost of investment and profit		Low value-added products
	Deliver	Not properly controlled distribution channels		Lacking of cold storage	Location
	Consume	Limitation outputs		Inappropriate behavior	
	Entire FSC	Weak logistics, cold chain system		Lack of training	
Solutions for FLW	Plan	More long – term plans		Training on plan and forecast	
	Source	Post harvest classification and preservation		Training on brand value and sustainability	
	Make	Add more value on products		Training on products and technologies	
	Deliver	Using multi - channels		Changing design and delivery thinking	
	Consume	Changing behavior		Training on products	
	Entire FSC	Setting standards	Integration members in SC	Technology investment	Donation

Source: Author compiled form interview

5. DISCUSSION

The researches on FLW has increased recent days showing the interest of scholars on this domain. However, the complication of the issue to reduce FLW need more analyze to investigate the weak points in the food supply chain, especially in different context with the purpose of minimizing loss. The limitation of researches on FLW in Vietnam can become a big question to identify the key factors that contribute to FLW and the current solutions for reducing FLW level.

In the research, the intrinsic problem is the main cause of farmers to increase loss. The results are the same with research of Ann et. al. who used qualitative methods to collect ideas from grower views through 25 interviews to understand the emerging of economic risks from on – farm losses. In this research, the author emphasized the main reasons for discarding were the under-qualified products, imperfect products do not meet the customer preference or the rejection from retailers (A. Gillman, D. C. Campell, E. S. Spang, 2019). Another research was conducted by Ciara et.al. had listed the intrinsic causes from harvesting and cosmetic specifications (Ciara Beausang, Clare Hall, Luiza Toma, 2017). While the extrinsic factors are difficult to control, the issue need to be taken into account is the awareness improvement together with the behavior change of farmers. The paper from Wahyu et. al. revealed that education level of farmers in Klaten is not high on food waste training leading to the higher rate of food waste (W. A. Saputro, S. Purnomo, U. Salamah, 2021). The special point is that in Vietnam, farmers should be trained on the product's value recognition, brand making and food hygiene and safety awareness in order to appreciate Vietnamese product quality and enhance competitive advantage in global market. The output of farmers' product depend much on traders who just want to buy a large amount leading to the harvest time decision making whenever the trader buy products without consideration product life cycle. Quality can become a driver of losses (L. K. Johnson et al, 2019). However, in the case of farmers in North Carolina, quality can affect directly to the loss of farmers. In Vietnam, under-qualified product harvest without preliminary processing can create loss not only for farmers, but also for members in the next stages of the food supply chain.

Besides food loss is generated from farming stage, processing is also a source of this issue. Based on the systematic literature review of Vanessa et al, losses happen at the process stages are mainly researched by authors. The causes usually come from shortage of processing facilities, low level of processing methods and products are rejected due to not meet safety standard requirement (Vanessa S.M. Magalhaes et al, 2021). My research has the same result in which the important cause's drivers at processing stage mainly come from the trade – off decision making between the cost of investment and the benefit of reducing food loss. Other factor that were mentioned related to the technology investment is the low value-added products which are exported from Vietnam. These export products reduces the bargaining power of

Vietnamese enterprises. Without output initiative which is an indirect cause for “rescuing of agricultural products” – familiar terminologies recent days in Vietnam - when the products could not be exported abroad. Group of authors above also emphasized others causes of food loss waste which came from the unappropriated packages and improper stacking. Packing can protect food products up to 30% world wide along food supply chain (Bernhard Whohner, Erik Pauer, Victoria Heinrich and Manfred Tacker, 2019). This research has the similarity in describing the sub category on the price competition issue that prevented traders or processors from investing in durable and stable package to preserve products. Although, some interviewees insisted that the package can help members to reduce FLW remarkably.

Delivery and distribution is the next stage of the food supply chain. According to Natalia et.al., the income of most people was not high enough in developing country, the likelihood to waste a large amount of food became higher (N. Martinez et al, 2014). Beside the reasons that were synthesized from other researches from Vanessa et. al. such as the price strategies, retailer’s promotions inflexibility, wrong forecasting, lacking of cold chain or damaged packages. The results of the research had some similarities about cold storage and package limitation but 19 interviewees emphasized that the root causes of food loss and food waste at this stage mainly came from the perception of people and even Government on FLW as well as the role of general trade in Vietnam. GT channel is not appreciated highly enough while they are implementing an important role as the preliminary process for food from farms and traders, and becomes a place for loss in the communication aspect while the loss is not really happen there. Price of the wholesale markets are so low, the wet markets can buy a large amount from there and distribute to customers. The behavior of buying in large quantity and fresh product with low price can increase FLW at the consumption stage due to the behavior of wasting food is not very significant and not costly. One more point to state that the output market limitation can be a cause of loss for members in the FSC when the harvesting season comes and lacking of cold storages for keeping these surplus products.

Different from other stages in food supply chain, researches on food waste at the consumption stage were studies in many papers. Malgorzata et al in their study invented that the total loss and wasted meat was around 23% of production in which 64% of that waste comes from consumption stage (M. Karwowska, S.a Laba, K. Szczepanski, 2021). In the research of Ludovia et.al. the group of authors had summarized the wasteful behavior from the end customers and emphasized the potential drivers for food waste. There were four main factors that were discovered including psychological factors, social and personal norms, level of urbanization and perception of litter amount, demographics like age, education level, household composition, gender and income (L. Principatoa et al, 2020). My research also mentioned on customer behavior to decide the waste of food. However, the preference behavior for fresh food and consuming cheap products becomes the different characteristics of Vietnamese customers from other countries especially developed countries with the habit of using refrigerator to

preserve goods. As long as the habit of eating fresh goods is continued, the possibility of waste is still high in the household consumption.

While the research did not focus much on customer, the two others consideration factors as the weak points that cover all activities of food supply chain and cause food loss were lacking of cold chain logistics and the low level awareness of members in the food supply chain. There are many campaign program from developed countries to enhance the awareness of members in the supply chain to reduce wastage like Cowboy with the solution of connection food producers and transportation to sell or allocate food for donation, CropMonster tried to connect retailers, producers and food banks to reduce damaged or surplus food. In Germany, FoodLoop application is used in the supermarkets popularly to inform customer which products are discounted due to closing the expired date (Foodbank, 2021). Lacking of cold chain logistics was recognized as an important cause of FLW in Vietnam that proved by the results of interviews, especially for member at the beginning of the food supply chain.

After analyzing the cause of FLW, a series of measures are put into account to reduce food waste. According to Lemaire and his colleague, the accurate information flows was very necessary for planning and forecasting to match customer's demand and supply to reduce FLW (Anais Lemaire, Sabine Limbourg, 2019). The research also emphasized the role of planning as well as training on forecasting as a central role to reduce FLW.

6. CONCLUSION

The research focused on the root causes of FLW throughout the food supply chain in the context of Vietnam. According to the self – assessment of Ministry of Agriculture and Rural Development, the rate of food loss and food waste of each type of product as follows: vegetable loss is 20 – 30%, coffee, pepper, tea losses are 10 – 15%, seafood loss is around 15 – 20%, rice is about 5 – 7%. Because the characteristics of food are short shelf – lives, perishable, seasonal, sensitive to temperature and need to be preserved at different conditions for each type of product, causes and solution for FLW of each product can be varied. Besides, the limitation of the market together with the different requirement of difficult markets like US and EU or Japan and Korea acquires the awareness of members in the food supply chain to adapt to those conditions.

As discussion in chapter 5, each member of the food supply chain had their own weak points and should have their own solutions. However, the solutions from interviewees mostly in short term and from the problem-solving rather than problem-preventing attitude. For instance, discount were repeated quite a few time together with the telecommunication role to spread out the rescue situation for some products when the markets cannot consume in time. Although there are some sustainable solutions were mentioned like enhancing value of products, farmers' classifying before selling to traders. Some other measures such as increasing value – added into products and changing the model from serving in large volume to the model

of serving “ready to eat” meal to customers, and building more channels for distributing products are also important. However, it seems that the members are still thinking much on operational aspects and ignoring the management system from the point of origin to destination as well as the integration among members. Moreover, the roles of logistics, cold chain, awareness campaigns and enhancing standard or value of products are still not highly appreciated.

The research has contribution on identifying the main causes of FLW in Vietnam, and giving some solutions from both the ideas of interviewees and others as well as the author’s point of views. Although 19 in-depth interviews were conducted, there are still some limitations on the number of samples to be interviewed due to shortage of time. Each member in the supply chain should be added more to get the saturation sampling requirement. Besides that, the context which is restricted in Vietnam can become a weak point due to the different characteristics of the Vietnamese food supply chain comparing with other countries all over world. There are solutions applied in Vietnam that are suitable but widely applied will not be suitable anymore. A wide variety of products from plants to animals are included in the analysis makes the research less focused on solving problems for a given food supply chain. To be able to analyze more deeply, it is required that researcher can select a certain product to focus on in order to be able to unify the views of the members in that food chain.

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THE RESTRICTIONS TO THE COMPANIES' IMPLEMENTATION OF GREEN LOGISTICS VIA SUSTAINABLE TRANSPORTATION

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Abstract

With the wide-ranging effects of globalization, environmental issues have been becoming more and more significant concerns throughout the world. Therefore, companies are under pressure to achieve environmentally friendly operations. For these reasons, awareness of developing green logistics is increasing dramatically. Some companies integrate sustainable development into their management strategies for the establishment of competitive advantage. On the other hand, others are reluctant despite this competitive advantage. This article exposes the reluctance of some companies to put the environment into their supply chain if sustainable development of certain companies in the sector integrate and a source of competitive advantages.

Keywords: *green logistics, restrictions, supply chain management, environment.*

1. INTRODUCTION

If the concept of sustainable development is spreading throughout the world, its adoption into corporate strategy is much more widespread (Srivastava, 2007). However, the consideration of the environment should allow companies to increase their income, satisfy their customers, or even build a new competitive advantage. Thus, many companies are now engaged in the implementation of green actions such as reducing greenhouse gas emissions, packaging, responding to ISO 14001 certification, creating a green supply chain, etc. (Spallanzani et al., 2009). With increased public awareness of environmental issues, there have been some initiatives in areas like supply chain environmental management through the creation of green supply chains (Walker et al. 2008; Srivastava 2007). Green logistics is opined by Hart (1997) as a source of competitive advantage for the companies implementing it. In fact, the environment around them should not be considered a constraint but a real opportunity that must be seized. However, some companies are still reluctant to set up their green approach.

According to the Vietnam Logistics Report 2022¹⁹, green logistics development consists

¹⁹ Ministry of Industry and Trade (2022). The Vietnam Logistics Report 2022. Publishing House for Industry and Trade. <https://valoma.vn/wp-content/uploads/2022/12/Bao-cao-Logistics-Viet-Nam-2022.pdf>.

of many different activities for greening transport, warehousing, packing, and information systems, together with reverse logistics. However, the results of these activities are not optimistic in Vietnam. Therefore, the article emphasizes analyzing and building up the research questionnaire based on transportation aspects of green logistics mentioned in the Vietnam Logistics Report 2022.

2. LITERATURE REVIEW

The consideration of issues related to sustainable development in logistics is emerging with the global trend of sustainable development. In fact, due to the pressure from governments, growing regulatory obligations, and the latest codes of conduct, all stakeholders in the supply chain are made aware of how best to integrate these aspects into their strategies. Firms no longer hesitate to communicate about their project's logistics, in particular by insisting vehemently on the ecological aspect. For many companies, considering environmental factors in their practices, logistics becomes an opportunity for excellence (Hensler and Edgeman, 2001). It remains that the real avenues of work in the logistics field in accordance with real sustainable economic development are still poorly understood and far from always being well mastered by firms (Schmidt, 2005). It must be admitted that, diving into the heart of a globalized economy, ultra-competitive markets, and observing with a keen eye.

2.1. The concept of responsible supply chain management

Goldsby and Stank (2000) suggested the semantic change made by Wu and Dunn (1995) and analyzed the link between performance and environmental responsibility in logistics with 306 logistics managers. Through this study, they confirmed the positive link between logistical skills and the implementation of logistically responsible organizations. They also showed a positive link between performance appraisal (activity-based costing, benchmarking, etc.) and the establishment of organizations responsible for logistics. The degree of business or supply chain integration has more than a marginal influence on the ability of the firm to implement organizational logistics (even if the performance of an integrated chain is better than that of the parts that compose it). Similarly, the firm cannot solely rely on its agility to establish a trustworthy logistics organization. To do this, it must integrate the environment into its strategy, structure, and activities.

2.2. From sustainable development to the green supply chain

The concept of sustainable development was introduced for the first time in 1987 in the Brundtland report, which defined it as a development meeting the needs of society (Schmidheiny, 1992). Sustainable development was based on the idea that it was possible to create values for individuals, firms, and the planet at the same time. It should be regarded as an intrinsically global issue that considers both environmental and societal issues from a cultural and ethical standpoint, as well as economic ones. The company was perceived as an entity immersed in society and, more generally, in an environment with which it develops very close

relationships (Dewberry, 1995). Therefore, this is a fundamental step that organizations of all kinds must integrate into their modes of working. Sustainable development within a company is cross-functional. All the company's functions, including production and transportation, have a significant impact on the environment, and the supply chain plays a major role in protecting and preserving it through the adoption of green practices.

2.3. Green logistics

A supply chain could be defined as an integrated process, in which a number of different actors work together with the aim of acquiring raw materials, transforming these materials into finished products, and delivering these finished products to retailers. This chain was facilitated by material flows and information flows (Beamon, 1998). Traditional supply chain management focused on improving economic performance, such as through cost optimization generated by logistics flows, the minimization of transport times within the chain, the problems of locating production and distribution centers, the coordination of information flows between actors, and the optimization and management of stock. The green supply chain recognizes the impacts of logistics activities on the environment and society and tries to find the means to limit them. The definition of the green supply chain is quite vast, ranging from green purchases to responsible purchases (green purchasing).

According to Shrivastava (2007), green supply chain management corresponds to the integration of environmental awareness in the management of the chain logistics, including the product design phase, the extraction and choice of materials and raw materials, the manufacturing process and processes, the delivery of the finished product to the customer, as well as the management of the end of life of the product. Klassenan (2002) distinguished between five management methods for the green supply chain: environmental certification, pollution prevention, reverse logistics, life cycle analysis, and design. Zhang et al., (1997) enriched this concept by not only taking environmental impacts into account in the design of products into account but also analyzing the life cycle of products and reducing impacts during the production process and end-of-life management of products (recycling, reuse, remanufacturing, waste management, etc.). Min et al., (1998) then exposed the problems of localization and channel routing in green logistics.

Rodrigue et al. (2001) argued that "green logistics" can be represented by an efficient distribution and transport system that respects the environment. Along the same lines, Wu and Dunn (1995) mentioned that "green logistics" integrates saving resources, eliminating waste, and improving productivity. Hart (1997) added that it should have the smallest possible environmental footprint. For Philipp (1999), within the protection of the environment, green logistics can be assessed at two levels: (1) contributing to fulfilling mission-relevant management and (2) representing a component element.

2.4. Sustainable Transportation

Surface transportation is essential to daily life and has a significant impact on employment and economic competitiveness. Use of clean energy is the biggest problem from an environmental and resource perspective, ahead of surface transportation (road, water, rail, etc.). (Gray and Frost, 1998). As carbon emissions must be cut while energy must be saved, there are a number of grounds for concern. The truck sector optimization model, created by Guerrero et al. (2013), aids shippers and carriers in determining the cost-benefit analysis of investing in environmental equipment that lowers greenhouse gas emissions. To reduce airborne sulfate emissions, Acciaro (2014) suggested using LNG engines in the maritime industry in the future. He also looked at the model's economic potential. In one of the articles, Yang (2012) did an empirical study on Taiwanese marine companies, it came to the conclusion that Taiwanese maritime companies' environmental management strategies significantly improved environmental performance. In one of the most intriguing studies, Lai et al. (2013), the researchers tried to create a scale for measuring environmentally friendly shipping procedures. Company policy and procedure, shipper collaboration, the use of shipping materials and equipment, shipping paperwork, and a design that complies with regulations are some of the factors that have been identified as leading to green shipping practices. In this section, an effort has been made to give a general overview of the need for sustainable transportation. The topic includes a review of some existing material that explains the need for batteries or fuel cells, electric vehicles, hybrid technology, and other technologies. Despite the abundance of options, diesel use still dominates the road transportation sector.

3. THE ISSUE OF IMPLEMENTING GREEN LOGISTICS IN VIETNAM

Over the years, the logistics industry in Vietnam has made a positive impression on the international market, and Vietnam's logistics indicators have continuously improved in the past few years on international rankings. In 2018, the World Bank had a positive assessment when the logistics performance index (LPI) of Vietnam rose to 39th out of 160 countries and ranked 3rd in the ASEAN region. Recently, Agility's 2021 Emerging Market Logistics Index Report also shows that Vietnam has risen 3 places in the rankings compared to 2020, ranking 8th in the top 10 emerging markets with a growth rate of 14 - 16%. According to the report, Vietnam currently has about 4 - 4.5 thousand enterprises providing direct logistics services and about 30,000 related enterprises. Despite having an important position in the trade chain, logistics activities in Vietnam are said to be in a local and fragmented state of organization, using mainly unfinished facilities, infrastructure, and vehicles. Keeping up with technology and the times leads to a high demand for fuel, which increases CO₂ emissions into the environment.

In order to minimize the negative impacts of industry on the environment, sustainable development is one of the most important development strategies that Vietnam is proposing and implementing in the 21st century. Therefore, green logistics is an inevitable trend and

criterion that logistics enterprises should implement together to successfully complete their missions.

The Summit on Sustainable Logistics and Freight Transport in the Mekong Region (GMS) project held in January 2019 mentioned the issue of green logistics: economic development associated with ecological balance activities. In this summit, it was concluded that green logistics will be an inevitable trend and an important criterion to evaluate the sustainable development of the whole industry.

In fact, if the criteria on the environment and green logistics are not fulfilled, businesses will gradually be eliminated from business and commercial activities. Therefore, green logistics is extremely important not only for Vietnam in general but also for any businesses in particular.

In Vietnam, many enterprises suppose that the implementation of green logistics is costly, which will reduce profits as well as their competitiveness. On the other hand, it suggests the purpose of green logistics is to optimize the relationship among cold storage operations, goods distribution, and the natural environment. Green logistics is a development that meets current needs without sacrificing the availability and quality of resources. The initial time spent adopting the structure as well as the system to conduct green logistics will cost an enterprise a lot of money. However, in terms of sustainability, green logistics will bring about cost-effectiveness, optimize production and business capacity, and above all, reduce waste for the environment. The core of the trend toward greening logistics activities is the application of management and technical measures to reduce losses and the energy consumption of vehicles and equipment.

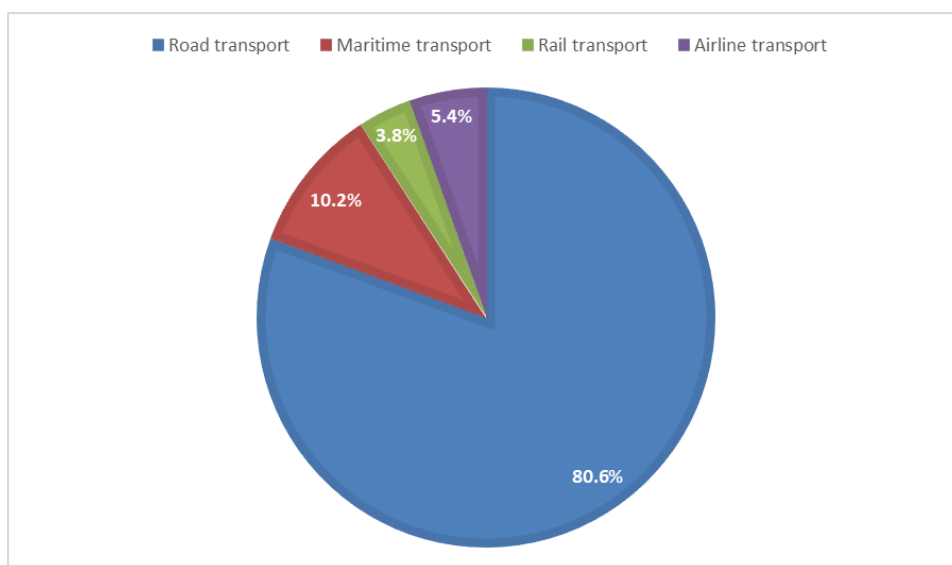
4. METHODOLOGY

In this article, we use qualitative research to determine the challenges that enterprises are encountering when implementing green logistics through green transportation. We built a questionnaire on the application of logistics in the fields of production, business, and e-commerce in three big cities representing three regions of Vietnam: Hanoi, Ho Chi Minh City, and Da Nang. The results of this study based on 386 responses could constitute a database and a working tool for any type of logistics domain. The workforce of the companies in the sample is between 50 and more than 1000 staff, ranging from SMEs to large international companies, thus encompassing all types of companies. The choice of the company is based on the possible generalization of the results because it is a predominantly multinational industry. Therefore, it is almost identical in different parts of the world. The questionnaires were sent between March 2022 and January 2023. They were sent to companies in many sectors, such as production, trade, logistics, e-commerce, and agri-food. We have selected 126 usable responses, representing a response rate of 32.56% for this study. The diagrams below detail the composition of the sample representing companies of all sizes mainly in the fresh produce sectors.

5. DISCUSSIONS

Transportation plays a chief role in supply chain management, as the carrier is regarded as a significant partner in logistics. Moreover, the logistics providers have to choose a transportation method with a reasonable price to meet the customers' demand. In fact, the physical flow of production and consumption is quite complicated, as the materials sourced for production can come from many different places, such as production sites, warehouse systems, and so forth. This is the reason why transportation costs make up the majority of logistics costs. Therefore, cutting down transportation costs makes a significant contribution to reducing logistics costs.

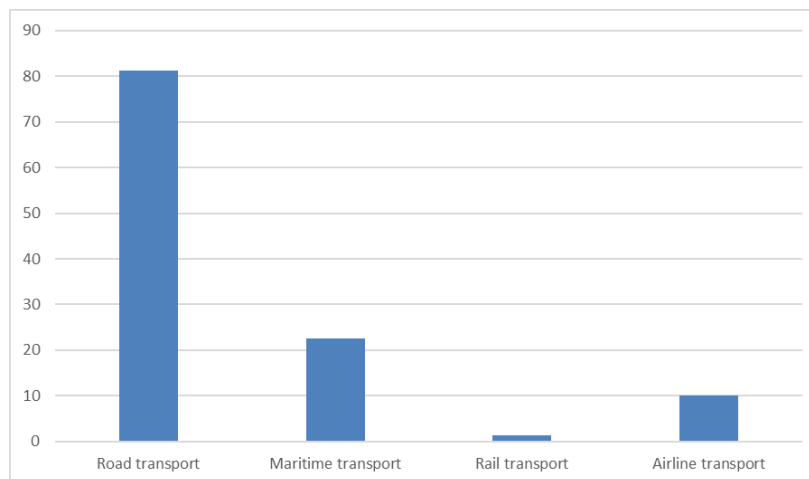
Figure 1. Percentage of vehicles used in logistics activities



Source: Authors' own calculation based on the data from the survey

The research results show that 80.6% of surveyed enterprises use road transport for domestic shipments and sea transport for international shipments. According to the World Bank, in Vietnam, road transport results in a very large amount of gas emissions, accounting for 85%, followed by inland waterway transport at 10% and air transport at 5%. The statistics show that 68% of trucks in Vietnam have a tonnage of less than 5 tons. Consequently, CO₂ emissions from transport activities are still at a high rate in Vietnam, accounting for over 68.51% of total emissions.

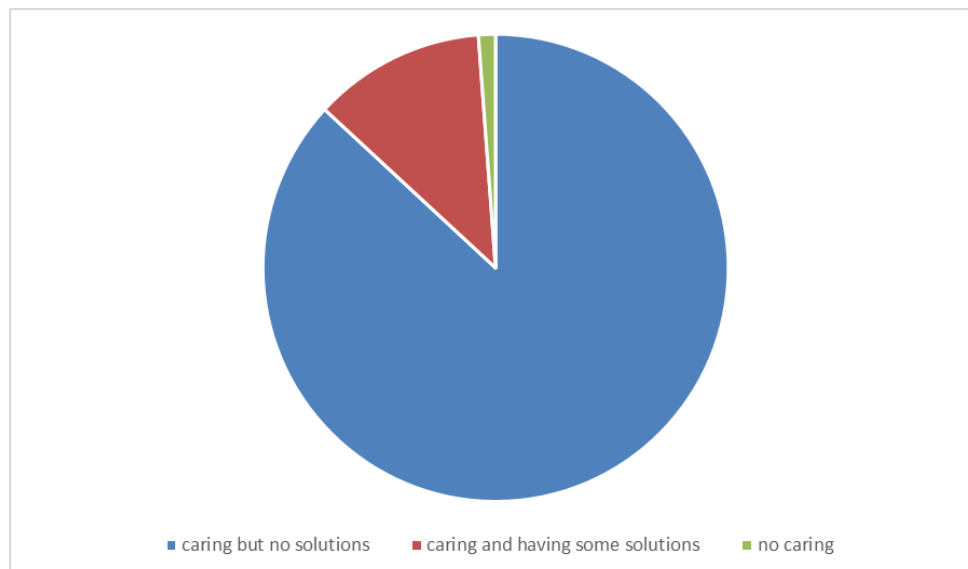
Figure 2. CO2 emission percentage of vehicles



Source: *The Vietnam Logistics Report, 2022*

Rail transportation is considered an environmentally friendly mode of transport; however, it has not yet been invested in and exploited to its full potential. Currently, there are still a lot of old vehicles discharging a large amount of toxic waste into the environment. Besides, the noise of rail transport is another factor that has a great impact on the environment. As a further matter, sea transport and inland waterway transport have had a lot of activities and initiatives to develop green because of their high internationalization. Nevertheless, air transport has not caught up with this trend.

Figure 3. The enterprises' concern about handling the empty vehicles in return

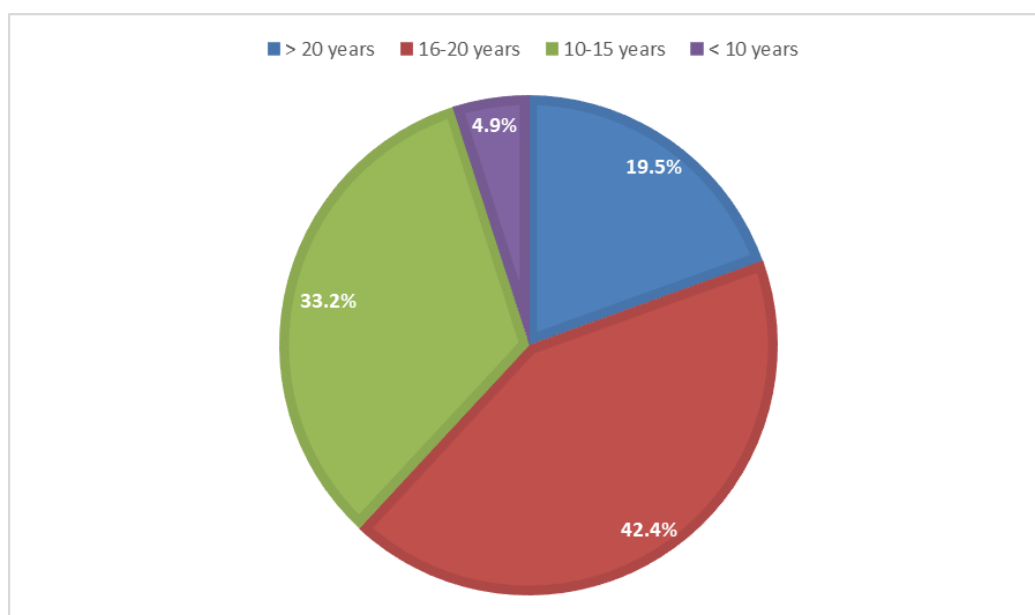


Source: *Authors' own calculation based on the data from the survey*

In addition, according to the Vietnam Logistics Report 2022, the number of empty vehicles returning is very high in Vietnam, reaching more than 70%. This figure is similar to

the survey results, which came in at 64.8%²⁰. The failure to optimize the route and take advantage of the vehicle's capacity not only increases transportation costs but also negatively affects the environment. According to the survey, the majority of enterprises are aware of this issue and are looking for solutions to solve it (87.9%), and a few (12.1%) enterprises have implemented linking with hubs to minimize the rate of return containers. Above all, it is worth mentioning that even though online freight transport exchanges by road and water have been open for a few years, they are falling into disrepair. Despite the intervention of the authorities, this problem has not been completely resolved.

Figure 4. The average age of vehicles used in logistics activities



Source: Authors' own calculation based on the data from the survey

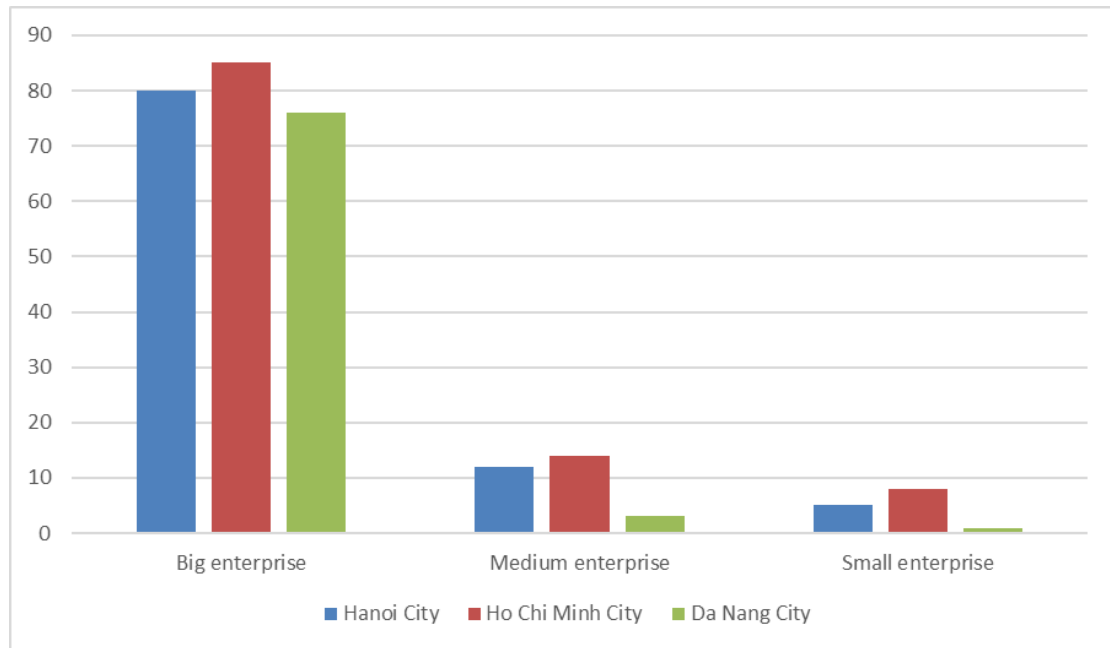
Besides, when surveying the age of transport and their level of meeting Euro4²¹ for higher standards, among the means of road transport, only 34.6% of enterprises use vehicles that meet Euro 4 standards, and up to 79.46% of vehicles used in the logistics departments of enterprises have a high average age (over 10 years). This is explained by businesses that are still unaware of the environmental impact of the above vehicles and want to save costs by making the most of the usability of these vehicles. Enterprises are also only willing to replace new vehicles when the old ones can no longer be used. Along with that, when asked about the process of periodic vehicle maintenance for transportation activities, businesses have not yet paid attention, accounting for only 12.6% of businesses. mainly large-scale enterprises have established a specific routine for regular vehicle maintenance. This has caused an increase in the amount of gas emitted into the environment in Vietnam.

²⁰ While only 10% of surveyed enterprises with a low rate of empty vehicles in return (<30%) and 25.2% of them with an average rate of empty vehicles in return (30-50%).

²¹ Euro 4 was introduced in January 2005 (January 2006), focusing on cleaning emissions from diesel vehicles, reducing PM and NOx limits.

In addition, when asked about the trend of greening transport vehicles by replacing gasoline and oil fuels with electricity or bio-fuels, 98% of respondents knew about it, but only 5% of them applied. Since the investment costs in green transportation and staff training to adapt to the changes still account for the majority of the enterprises' total costs.

Figure 5. The enterprises' technology applications



Source: Authors' own calculation based on the data from the survey

Finally, the digital transformation trend as well as the technology applications in management make the transportation management system (TMS) well-known as a specialized solution to planning and freight optimization. The result shows that 83.9% of the enterprises successfully applied TMS to optimize their costs and transport distance. Besides, to operate the supply chain activities, the enterprises build up an internal information system among themselves, their cooperators, and the related departments. In particular, big enterprises always take the lead in technology applications to optimize the production process as well as transportation and production costs. In contrast, SMEs face problems relating to cost due to their low-tech applications. The cause of this phenomenon is that the enterprises' major activities in the market require the collection of information about markets, customers, and suppliers to avoid asymmetric information in the market. Therefore, setting up an information system is one of the essential steps to achieving integrated supply chain management.

6. RECOMMENDATIONS

6.1 Government and appropriate authorities

The government and appropriate authorities need to continuously improve the synchronized legal framework for green logistics activities to avoid overlap among regulations

on air pollution control, emission regulation, and CO2 restriction from means of transport. Besides, there are some significant regulations and policies, such as regulations on mandatory training certificates for vehicle drivers on energy saving, safety, and greening the environment; regulations on green packaging and green waste for manufacturing and warehouse businesses.

The experts also proposed that the government should encourage and promote green logistics in SMEs by using tax and legal mechanisms. It provides motivation and cost reduction to the enterprises, encourages them to use alternative energy in road transportation instead of petroleum, changes the transport modes based on multimodal transport models, etc. In addition, the government should direct other ministries and departments to support logistics services through technology development and digital transformation capital within the National Programme of Action in Logistics. Because logistics forwarders in the digital transformation generation are in need of managing the international flow of goods. To reinforce the competitive advantage, they should launch the higher technology systems via hiring or purchasing software as a service to participate in global transportation.

In particular, it is necessary to have a common measure for green logistics by building up a set of criteria to measure the level of green logistics development, or the green logistics performance index.

6.2 Enterprise

The enterprises should set up, adjust, and then accomplish green logistics strategies by: (1) taking control of green logistics activities at the warehouse; (2) enhancing the quality of transportation; (3) deploying advanced technologies and information technologies; (4) taking advantage of state incentives; and (5) promoting cooperation between logistics service providers and the enterprises using logistics services.

Managers in the enterprise unit should cultivate their thinking and awareness about green transportation by keeping government policies on transportation standards and ecological criteria in transportation activities up to date. The enterprises also need to be proactive in learning and innovating to achieve sustainable development and to replace environmentally unstandardized vehicles.

Moreover, one of the most significant challenges for enterprises in restructuring green transportation activities is the issue of costs; as a result, managers should constantly update the government's support and incentives for green logistics transformation activities. Additionally, businesses should establish a budget for greening logistics activities in order to adapt to the changes in the environment as well as the market in order to minimize damage and impacts.

Furthermore, enterprises should promote the application of technology in transportation and set up an inter-enterprise information system to cut down on fuel waste on empty transport routes.

Finally, enterprises ought to develop a framework of criteria as well as a roadmap for human resource training in order to apply technologies to green transportation activities.

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8. APPENDIX

8.1. English version

THE RESEARCH QUESTIONNAIRE

Respondent No. :.....

Part I. General information

Company Name:.....

Address:.....

Phone number:.....

Email:.....

Industry type:.....

Business Code:.....

Name and position of the applicator:.....

Part II. Questionnaire

The following questionnaires on your knowledge about green logistics

1. Please tell us your transport used in logistics activities.
 Road transport Maritime transport Rail transport Airline transport
2. Do you know anything about green logistics?
 Yes No
3. Do you suppose that green logistics activities are costly?
 Yes No
4. Are you aware of the importance of green transportation activities in logistics?
 Yes No

The following questionnaires on your green transportation operation

1. Do you use maritime or rail transport instead of road one?
 Yes No
2. Please tell us the average age of your vehicles used in logistics.
 < 10 years 10-15 years 16-20 years > 20 years
3. Do your transports meet the Euro 4 standards or above?
 Yes No
4. Do you have the process for maintaining your means of transport periodically?
 Yes No
5. Please tell us the rate of your empty vehicles in return.
 Low (<30%) Average (30-50%) High (>50%)
6. Do you care about the reduction in the number of empty vehicles in return?
 caring but no solution caring and having some solutions no caring
7. Have you ever built up the solutions to reduce the number of empty vehicles in return?
 Yes No
8. Do you have any plans to tackle environmental issues during the transportation process?
 Yes No
9. Have you applied TMS to optimize your transport?

Yes

No

10. Have you ever applied some solutions to promote your green logistics activities in general and transportation activities in particular in supply chain management?

Yes

No

Name in detail:.....

The information you provided will be used only for academic purposes. We ensure the full confidentiality of your information and its safety. Thank you very much!

8.2. Vietnamese version

PHIẾU KHẢO SÁT

Số phiếu :.....

Phần I. Thông tin chung

Tên doanh nghiệp:.....

Địa chỉ:.....

Số điện thoại:.....

Email:.....

Loại hình doanh nghiệp:.....

Mã doanh nghiệp:.....

Tên và chức vụ người điền thông tin:.....

Phần II. Câu hỏi khảo sát

Hiểu biết của doanh nghiệp về logistics xanh

1. Doanh nghiệp đã sử dụng phương tiện nào trong hoạt động logistics

Đường bộ

Đường thủy

Đường sắt

Đường không

2. Doanh nghiệp đã có những hiểu biết về hoạt động logistics xanh

Đúng

Sai

3. Doanh nghiệp cho rằng hoạt động logistics xanh tốn kém chi phí

Đúng

Sai

4. Doanh nghiệp đã nhận thức tầm quan trọng của ứng dụng vận tải xanh trong hoạt động logistics

Đúng

Sai

Vận hành hoạt động vận tải xanh

1. Doanh nghiệp có sử dụng phương tiện vận tải đường thủy và đường sắt thay thế phương tiện vận tải đường bộ

Đúng

Sai

2. Độ tuổi của phương tiện doanh nghiệp sử dụng trong hoạt động logistics

< 10 năm

10-15 năm

16-20 năm

> 20 năm

3. Phương tiện của doanh nghiệp đáp ứng tiêu chuẩn Euro 4 trở lên
 Đúng Sai
4. Doanh nghiệp có quy trình bảo dưỡng phương tiện định kỳ
 Đúng Sai
5. Tỷ lệ phương tiện chạy rỗng chiều về của doanh nghiệp ở mức:
 Thấp (<30%) Trung bình (30-50%) Cao (>50%)
6. Doanh nghiệp quan tâm đến giải pháp giảm thiểu tỷ lệ phương tiện rỗng chiều về
 quan tâm nhưng chưa quan tâm và có một số giải pháp Không quan tâm
 có giải pháp nhất định
7. Doanh nghiệp có xây dựng giải pháp giảm tỷ lệ phương tiện chạy rỗng chiều về
 Đúng Sai
8. Doanh nghiệp có quy trình ứng phó với sự cố môi trường trong quá trình vận tải
 Đúng Sai
9. Doanh nghiệp ứng dụng phần mềm TMS để tối ưu hoá vận chuyên?
 Đúng Sai
10. Doanh nghiệp đã áp dụng một số giải pháp để thúc đẩy hoạt động vận tải xanh trong chuỗi cung ứng.
 Đúng Sai

Nếu có, hãy nêu cụ thể:.....

Những thông tin mà quý doanh nghiệp cung cấp đều nhằm phục vụ cho mục đích nghiên cứu của nhóm tác giả. Chúng tôi cam đoan sẽ đảm bảo tính bảo mật của thông tin.

Xin trân trọng cảm ơn!

* If you need the result of the survey for reference, please send us an email with the following information:

Your name:.....

Company name:.....Phone number:.....

Your address:.....Email:.....

MEASURING THE SUSTAINABILITY OF SUGAR VALUE CHAIN: INDICATORS DEVELOPMENT AND VALIDATION IN THE VIETNAMESE CONTEXT

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Abstract.

This paper aims to adapt and develop a set of indicators to measure the sustainability of the sugar value chain in the context of a transition country like Vietnam. Our set of sustainability indicators was developed using the Triple Bottom Line (TBL) approach and adapted from previous studies in other national contexts and industries. Then the proposed indicators are validated in the Vietnamese context using the data from a survey with 57 stakeholders who directly take part in or have a solid grasp of the sugar value chain in Nghe An province, Vietnam. Our findings show that a combined top-down and bottom-up approach should be used to ensure not only the high societal representativeness of selected indicators but also the high accessibility to data based on industry/stakeholder's interests and/or data availability. We believe that such a hybrid approach would adequately address the impacts of the other sugar value chain and the practicality and validity of the indicators.

Keywords: *sugar value chain, sustainability indicators, Vietnam*

1. INTRODUCTION

As one of the countries that used to import sugar, Vietnam has gradually improved its production to become a sugar exporter. Although the export output is still small, it is a remarkable development of the Vietnamese sugar industry. Up to now, sugar cane is one of the strategic production industries of our country. In the context of global economic integration, the existence and development of the sugarcane value chain has been directly affected by fluctuations in the world sugar market. The ups and downs of sugar price in the domestic market is partially depending on the world sugar price, the unreasonable subsidies of countries in the region for their local sugar producers, trade fraud, and sugare smuggling.

In other words, the sustainable development of the sugarcane value chain is still facing many challenges, especially when our country participates in many regional and international, bilateral and multilateral free trade agreements such as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), the Free Trade Agreement and the Investment Protection Agreement between Vietnam and the EU (EVFTA and IPA), especially

the ASEAN Trade in Goods Agreement (ATIGA) which has come into effect since the beginning of 2020.

In recent years, Vietnam's sugarcane value chain has faced many difficulties. The total area of raw cane is continuously reduced, leading to a decrease in sugar production, an increase in sugar inventories at factories, and a lack of specialized products. The lack of raw sugar cane forced factories to reduce capacity. Across the country, 17 out of 30 sugar factories have suffered big loss in revenue and equity. Many sugar mills are at risk of closing down in the near future. Meanwhile, the price of sugarcane is falling, causing farmers to suffer heavy losses. Farmers have to pay the bank debt for their crops so they have to give up sugarcane raising. Consequently, the links among partners in the sugar value chain is broken that seriously affects its sustainability.

In such a context, it is necessary to discuss and evaluate the sustainability of the sugar value chain to find the solutions. Thus, this paper aims to adapt and develop a set of indicators to measure the sustainability of the sugar value chain in the context of a transition country like Vietnam.

2. THEORETICAL BACKGROUND

2.1. Value chain

The Value Chain concept was developed and popularized in 1985 by Michael Porter, in "Competitive Advantage," a seminal work on the implementation of competitive strategy to achieve superior business performance. Porter defined value as the amount buyers are willing to pay for what a firm provides, and he conceived the "value chain" as the combination of nine generic value added activities operating within a firm – activities that work together to provide value to customers. Porter linked up the value chains between firms to form what he called a Value System. However, in the present era of greater outsourcing and collaboration the linkage between multiple firms' value creating processes has more commonly become called the "value chain." As this name implies, the primary focus in value chains is on the benefits that accrue to customers, the interdependent processes that generate value, and the resulting demand and funds flows that are created. Effective value chains generate profits.

Value chain approaches provide a systematic process to improve market linkage for farmers (Ferris et al., 2014). It provides a framework for identifying key constraints and considering appropriate solutions (Arias et al., 2013). These constraints and solutions require a coordinated response by different stakeholders in the chain, which necessitates trust and a willingness to collaborate (USAID, Micro links value chain wiki). Through value chain approach, one can understand farmer-trader relationship, power dynamics and the distribution of benefits in the chain. According to Rota and Sperandini (2010), value chain analysis is essential to an understanding of markets, their relationships, the participation of different actors, and the critical constraints that limit the growth of agricultural production and consequently the

competitiveness of smallholder farmers. These farmers currently receive only a small fraction of the ultimate value of their output.

2.2. Sustainable development

The term sustainable development was originally introduced in the field of forestry, and it included measures of afforestation and harvesting of interconnected forests which should not undermine the biological renewal of forests (Čiegis & Štreimikienė, 2005). This term was firstly mentioned in the Nature Conservation and Natural Resources Strategy of the International Union for Conservation of Nature published in 1980 (IUCN, 1991). Although initially sustainable development primarily viewed an ecological perspective, soon it spread to social and economic aspects of study (Tomislav, 2018). Many concepts of sustainable development have been developed.

In Brundtland Commission's report "Our Common Future" (1987), sustainable development is defined as the kind of development, which satisfies the current needs without endangering the future generations to satisfy their own. This definition of sustainable development is the most frequently cited one and seems to be more exhaustive than the majority of others. The essence of Brundtland's statement is fair distribution of natural resources both among different generations and among the present generation of people from the first, the second, and the third world, and finding a positive consensus between the environmental, social, and economic dimensions of environment (Ciegis et al., 2009). Furthermore, Munasinghe (1994) introduced an even broader view of sustainable development, defining it as the process of increasing the spectrum of alternatives allowing individuals and communities to realize their aspirations and potential in the long perspective, at the same time maintaining the regeneration ability in economic, social, and ecological systems.

2.3. Sustainability of a value chain

The sustainability of the value chain can be expressed simultaneously along three dimensions: economic, social and environmental or triple bottom line (profit, people and planet) (Gebre & Rik, 2016). On the economic dimension, an existing or proposed upgraded value chain is considered sustainable if the required activities at the level of each actor or support provider are commercially profitable. On the social dimension, sustainability refers to socially acceptable outcomes in terms of the distribution of the benefits and costs associated with increased value creation. On the environmental dimension, sustainability is determined largely by the ability of value chain actors to show little or no negative impact on the natural environment from their value-adding activities; where possible, they should show a positive impact (Neven, 2014).

Sustainability indicators are particularly hard to define and measure. The basic problem is that sustainability only occurs in the future while the indicators are measured in the present (USAID, 2012). Although the three sustainability dimensions (social, environmental, and

economic) are treated individually here for clarity, in practice they overlap (USAID, 2012). Once the core processes of the value chain are mapped, indicators must be associated with each chain, for the three sustainability dimensions. The indicator selection depends on the level of the organization and the type of activities (Moreno & Salgado, 2012).

Previous conventional life cycle assessment models in the past often focused on sustainability indicators such as raw materials, energy, emissions, etc. These indicators are chosen because they are directly related to all stages in the value chain and can be quantified. However, it is not simple to assess the socio-economic impact of the value chain of a specific product. In such a context, we propose that there is a need for multiple methods of measuring socio-economic criteria to describe the relationship between products and socio-economic impacts, which can be successfully integrated into the traditional analysis framework. In our classification, economic and social indicators are divided into two categories: additive and descriptive.

The additive indicators must meet two criteria: (1) they can be measured quantitatively, and (2) they are related to product volume so that they can be cumulative throughout the value chain. For example, production cost, labor cost, value added per unit. In addition, some socio-economic indicators to measure sustainability that are widely considered fail to meet the requirement to be additives because they are not directly related to production. This classification is suitable to measure social and environmental aspects (Kruse et al., 2009). Descriptive indicators can be divided into general and specific indicators based on the viewpoints or the different social contexts. The general indicators are often used to describe widely accepted social values, such as working conditions in relation to the minimum wage, social benefits, number of working hours per week, the gender ratio, etc. On the other hand, specific indicators are those factors that cannot be widely applied in any industry. These indicators focus on measuring the economic, social and environmental impact for a specific product or procedure. They are qualitatively or quantitatively measured but their comparison ability of these indicators are limited to the similar production system. For example, impact of pesticide use on workers can become a major concern in sugar industry, but not in fishery industry. From a sustainability viewpoint, specific descriptive indicators allow us to focus on sustainability issues related to a particular product.

3. METHODOLOGY

Study area

Vietnam is considered as one of the major sugar producers and consumers in ASEAN as well as in the world. In previous years, sugarcane was considered as a “poverty alleviation” crop due to its adaptability and high economic efficiency. Along with diverse uses in many industries, sugarcane has gradually asserted its economic stability. However, with the high competition among crops, the stability of sugarcane lags behind the short-term returns of other

riskier seasonal crops. In addition, smuggled sugar has been rampant in the recent years, as well as a downturn in the sugar consumption market, the domestic sugar industry has faced a lot of difficulties. Nghe An province is not an exception.

In the crop year 2021-2022, the total area of raw sugarcane in Nghe An reaches 19,223 hectares, concentrated in the following districts: Quy Hop 4,961 hectares; Tan Ky 3,171 ha; Nghia Dan 7,600 ha; Quy Chau 1,158 ha; Quynh Luu 936ha; Anh Son 449 ha,... The average yield of sugarcane is nearly 61.0 tons/ha; output reached 1,173,000 tons, serving 3 sugarcane processing factories with a total designed capacity of 15,500 tons of sugarcane/day. However, the scope and production of raw sugar cane has gone down in recent years in Nghe An. Compared with 2015, the area of raw sugarcane in the whole province has decreased by 27.0%, the output decreased by 23.0%.

Therefore, in order to ensure the adequate supply of raw material for sugar production and the engagement of farmers in the industry, the People's Committee of Nghe An province has approved the Key Agricultural Products Development Scheme in the period of 2021-2030, with the aims of increasing the raw material area up to 25,700 hectares (of which 10,000 hectares of high-tech sugarcane); establishing and developing more cooperatives in the value chain of sugarcane production, trading, and distribution. Particularly, the quantity of sugarcane production cooperatives will go up to at least at least 55 cooperatives by 2025 and 110 cooperatives by 2030.

With the goal of developing the province's sugar industry, the study of scale development for assessing the sustainability of the sugarcane product value chain demonstrates an imperative need.

Data collection and sample

We conducted a survey and sent to experts and researchers who work in the sugarcane value chain in Nghe An province. The primary data collection process is divided into two phases. At the first stage, we asked the experts to evaluate the suitability and feasibility of the sustainable criteria of the value chain of sugarcane product in Nghe An province. In the second stage, the selected sustainable criteria with high relevance and feasibility scores was sent out to a broader range of stakeholders, such as farmers, sugar mills, cooperatives, suppliers, distributors and public administrators involved in the sugarcane value chain.

The selection of the knowledgeable stakeholders was supported by officials from the Department of Agriculture and Rural Development of Nghe An province and experts from three sugar mills in Nghe An province.

We received a total of 57 responses from experts with knowledge of or working in the sugar industry value chain in Nghe An. The analyzed sample consisted of 50% women and 46.4% men. The age of survey participants ranged from 28 to 60 years, with 91% of an age

between 28 to 57. University or higher education accounted for 73.2% participants. This percentage would improve the quality of the evaluation results. Moreover, the percentage of respondents who know the value chain accounts for 83.9%, which is also another indicator of the quality of the responses.

Data analysis methods

First, we calculated the percentage of respondents who rated the relevance and feasibility of our sustainability indicators as agreement and complete agreement for each indicator. In this study, we used the cut-off of 75 percent of respondents who agree or strongly agree that the indicators are completely relevant and feasible. In addition, we calculated Krippendorff's Alpha (Hayes & Krippendorff, 2007) for each proposed sustainability indicator to determine inter-rater agreement. The cut-off Krippendorff's alpha value of 0.667 was used for assessing the level of consensus among industry experts on the relevance and feasibility of the sustainability indicators. We relied on this measure because it can be used for any number of raters and scale levels (Hayes & Krippendorff, 2007). Krippendorff's Alpha will be calculated for each indicator. The results were analyzed using the R statistical analysis tool.

4. RESULTS AND DISCUSSIONS

In Table 1, the results showed that 27 out of 51 indicators are judged to be relevant and feasibility, with the percentage of raters agreeing or completely agreeing over 75%. For example, the item "Sugarcane farmers have the opportunity to acquire knowledge on skills in planting and managing arable land" was assessed by 83.6% of experts as an appropriate indicator. The Krippendorff's Alpha index of all the 27 indicators is greater than 0.667 (Landis & Koch, 1977), indicating consensus in the expert responses about the relevance and feasibility of the criteria. However, among 24 items with a percentage of raters agreeing or completely agreeing less than 75%, there were 8 indicators satisfying the Krippendorff's Alpha consensus index. For example, the item "Unfair competitive activities of stakeholders in the value chain" exceeded the cut-off value of .667, indicating acceptable consensus among raters. A number of indicators were excluded because they are not suitable with the conditions of the local sugar industry in Nghe An, or not feasible to measure their impact. For example, the indicator "Discrimination between men and women in the sugarcane industry" may be not a suitable criterion for measuring sustainability. Particularly, the topographical condition for sugarcane cultivation are sloping and scattered in Nghe An, which does not create favorable conditions for mechanization in sugarcane planting and harvesting activities. As a result, the discrimination between male and female labor inevitably occur in these stages.

In terms of stakeholders relationship assessment in the sugar value chain, there are 5 out of 7 indicators with a percentage of the experts agreeing and completely agreeing over 75%. For instance, the item "Stakeholders in the value chain actively encourage partners to propose solutions to improve their own performance" was assessed as appropriate by 79.6% of experts.

Although two indicators had less than 75% of respondents agreeing and completely agreeing, the items still satisfy the Krippendorff's Alpha cut-off value of greater than 0.667 (Landis & Koch, 1977). As shown in Table 1, all items showed their Krippendorff's alpha greater than 0.667, indicating consensus in the answers of the experts on relevance and feasibility of the relationship indicators. In general, 42 items have been kept to measure 3 dimensions of sugarcane value chain sustainability, namely economic, environmental , and social dimension.

Table 1: Agreement Percent and Interrater Agreement Indices

Items	Completely agree		Agree		Neutral		Disagree		Completely disagree		Krippendorff's Alpha
	Absolute	%	Absolute	%	Absolute	%	Absolute	%	Absolute	%	
1. Average production cost/unit	23	41.1	25	44.6	6	10.7	1	1.8	1	1.8	0.846
2. Labor cost/unit	19	33.9	25	44.6	11	19.6	1	1.8	0	0.00	0.732
3. Added value/unit	21	37.5	19	33.9	16	28.6	0	0.00	0	0.00	0.650
4. Total labor hours/unit	19	33.9	25	44.6	10	17.9	2	3.6	0	0.00	0.693
5. Number of competitors	21	38.2	17	30.9	15	27.3	1	1.8	1	1.8	0.677
6. Total delivery distance of products in the value chain	22	39.3	20	35.7	10	17.9	3	5.4	1	1.8	0.701
7. The main source of income comes from the value chain	15	27.3	30	54.5	7	12.7	3	5.4	0	0.00	0.830
8. Average profit	19	33.9	24	42.9	13	23.2	0	0.00	0	0.00	0.706
9. Number of farms managed by cooperatives/enterprises	13	23.2	21	37.5	17	30.4	4	7.1	1	1.8	0.658
10. Productivity/revenue	23	41.1	15	26.8	16	28.6	2	3.6	0	0.00	0.665
11. Cost of renting land for sugarcane cultivation	16	28.6	20	35.7	19	33.9	1	1.8	0	0.00	0.613
12. Tax and fee payment from the value chain to local government budget	21	37.5	15	26.8	19	33.9	1	1.8	0	0.00	0.615
13. Budget for environment protection of stakeholders	18	32.1	16	28.6	22	39.3	0	0.00	0	0.00	0.598
14. Transparency and	13	23.2	12	21.4	21	38.6	7	12.5	3	5.4	0.601

	Completely agree		Agree		Neutral		Disagree		Completely disagree		Krippendorff's Alpha
accuracy of product information											
15. Unfair competition among stakeholders in the value chain	20	35.7	17	30.4	15	26.8	4	7.1	0	0.00	0.688
16. Benefits of working overtime are guaranteed	25	44.6	23	41.1	7	12.5	1	1.8	0	0.00	0.839
17. Income from the value chain ensure essential needs	24	42.9	19	33.9	12	21.4	1	1.8	0	0.00	0.703
18. Gender discrimination in the value chain	15	26.8	17	30.4	15	26.8	6	10.7	3	5.4	0.523
19. Clear instruction for workplace health and safety	27	49.1	17	30.9	10	18.2	1	1.8	0	0.00	0.734
20. Level of compliance with occupational safety	23	41.8	24	43.6	7	12.7	1	1.8	0	0.00	0.811
21. Adequate social welfare benefits	31	57.4	16	29.6	7	12.7	0	0.00	0	0.00	0.807
22. Workers are guaranteed hygienic conditions	26	47.3	20	36.4	9	16.4	0	0.00	0	0.00	0.788
23. Workers are satisfied with the salary	22	40.0	20	36.4	13	23.6	0	0.00	0	0.00	0.762
24. Local labor workforce/total workers in surgar industry	12	21.8	24	43.6	17	30.9	2	3.6	0	0.00	0.656
25. Information on product origin, ingredients, usage, side effects are clearly	31	56.4	17	30.9	6	10.9	1	1.8	0	0.00	0.769

	Completely agree		Agree		Neutral		Disagree		Completely disagree		Krippendorff's Alpha
announced											
26. Local suppliers are preferred	21	38.9	20	37.0	10	18.5	2	3.6	1	1.8	0.745
27. The process of recalling and handling defective products is clearly announced	27	49.1	16	29.1	11	20.0	1	1.8	0	0.00	0.735
28. Local farmers get opportunities to participate in vocational trainings	24	43.6	18	32.7	11	20.0	2	3.6	0	0.00	0.733
29. Stakeholders participate in charitable activities	21	38.2	18	32.7	14	25.5	1	1.8	1	1.8	0.687
30. Technology and science are applied to reduce environmental impact	25	45.5	20	36.4	8	14.5	2	3.6	0	0.00	0.813
31. Stakeholders in the value chain using renewable energy sources	24	44.4	17	31.5	11	20.4	2	3.7	0	0.00	0.723
32. Stakeholders in the value chain use recyclable materials	26	47.3	15	27.3	12	21.8	2	3.6	0	0.00	0.722
33. Stakeholders in the value chain use recyclable packaging	15	27.3	21	38.2	14	25.5	5	9.1	0	0.00	0.712
34. Energy consumption for goods transportation in the value chain	34	57.63	4	6.78	7	11.86	9	15.25	1	1.69	0.598
35. Local authorities	19	34.5	15	27.3	17	30.9	3	5.5	1	1.8	0.602

	Completely agree		Agree		Neutral		Disagree		Completely disagree		Krippendorff's Alpha
thoroughly apply measures to prevent unfair competition											
36. Farmers are supported to plant, harvest sugarcane	21	38.2	20	36.4	13	23.6	1	1.8	0	0.00	0.687
37. Farmers can access to sugarcane mills through official distribution channels	21	38.2	19	34.5	14	25.5	1	1.8	0	0.00	0.675
38. Transport infrastructure facilitates goods transportation	18	32.7	19	34.5	16	29.1	2	3.6	0	0.00	0.612
39. Farmers have alternative access to other market	15	27.3	18	32.7	21	38.2	0	0.00	1	1.8	0.543
40. Farmers' ability to acquire market information	17	30.9	25	45.5	11	20.0	2	3.6	0	0.00	0.694
41. Cheating occurs when measuring sugar content	17	30.9	13	23.6	18	32.7	2	3.6	5	9.1	0.601
42. Proportion of women in labor force	11	20.4	16	29.6	22	40.7	2	3.7	3	5.6	0.543
43. Joining cooperatives gains more benefits	21	38.2	19	34.5	13	23.6	2	3.6	0	0.00	0.685
44. Farmers have opportunities to improve cultivation skills and arable land management	17	30.9	29	52.7	8	14.5	1	1.8	0	0.00	0.787
45. Farmers have	22	40.0	18	32.7	13	23.6	2	3.6	0	0.00	0.685

	Completely agree		Agree		Neutral		Disagree		Completely disagree		Krippendorff's Alpha
opportunities to improve harvesting skills											
46. Farmers have opportunities to share experience with other partners	18	32.7	19	34.5	16	29.1	1	1.8	1	1.8	0.603
47. Farmers periodically take measures to maintain the quality of arable land	20	36.4	22	40.0	12	21.8	1	1.8	0	0.00	0.698
48. Farmers diversify sugarcane variety.	17	30.9	20	36.4	16	29.1	2	3.6	0	0.00	0.670
49. Farmers implement waste management for the sugar cane cultivation process	18	32.7	21	38.2	15	27.3	1	1.8	0	0.00	0.673
50. Farmers implement measures to improve the fertility of the soil	20	36.4	19	34.5	15	27.3	1	1.8	0	0.00	0.674
51. Farmers invest in planting sugarcane varieties that can resist diseases and pests	19	34.5	26	47.3	10	18.2	0	0.00	0	0.00	0.788
52. Stakeholders in the value chain clearly communicate each other's needs	25	46.3	15	27.8	10	18.5	3	5.6	1	1.9	0.765
53. Stakeholders in the value chain commit to long-	16	29.6	26	48.1	11	20.4	1	1.9	0	0.00	0.754

	Completely agree		Agree		Neutral		Disagree		Completely disagree		Krippendorff's Alpha
term cooperation											
54. Stakeholders in the value chain respond in a timely manner to improve operational efficiency for partners	26	48.1	15	27.8	12	22.2	1	1.9	0	0.00	0.752
55. Stakeholders in the value chain openly discuss their business strategy and performance	16	29.6	26	48.1	10	18.5	1	1.9	1	1.9	0.763
56. Partnerships in the value chain positively contribute to operational performance	20	37.7	18	34.0	14	26.4	1	1.9	0	0.00	0.701
57. Stakeholders in the value chain actively encourage their partners to propose solutions to improve performance	21	38.9	22	40.7	10	18.5	1	1.9	0	0.00	0.759
58. Stakeholders in the value chain gain valuable knowledge from partners	20	37.1	22	40.7	10	18.5	2	3.7	0	0.00	0.761

(Source: Authors' survey)

The aim of this study was to determine whether the sustainable indicators of Triple Bottom Line approach are suitable for the specific contexts such as Nghe An, Vietnam. This is important because the TBL framework of sustainability provides an overarching framework that can integrate many sustainable indicators. The indicators cover the three aspects of sustainability – environmental, economic, and social. The framework is applicable across industry or country; however, more specific indicators for different sectors or countries have to be defined separately, on a case-by-case basis. As a result, the study mobilizes the existing framework and indicators to appropriate sustainable performance metrics for sugarcane sector actors willing to work together for their value chain. The indicator set will be tested on a specific sugarcane value chain, as it offers a challenging set of economics and societal issues related to the transitional economy of Vietnam.

5. CONCLUSION

To achieve the sustainable development goals of the nation, it is crucial to improve the sustainability of industries, which depends on the sustainability of each partner in the industry and their sustainable relationship with other partners. In this regard, this paper addresses an existing research gap in the Vietnamese sugar industry. We proposed a set of indicators to measure sustainability of the sugar value chain. Although the indicators have been validated in the context of sugar industry in Nghe An province, we suggest that there should be more empirical research to verify the indicators in a broader context of the sugar industry in Vietnam.

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GREEN SUPPLY CHAIN MANAGEMENT: INTERNATIONAL EXPERIENCE AND POLICY RECOMMENDATIONS FOR VIETNAM

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Abstract:

Green growth and sustainable development have become the core of development strategies of many countries around the world; in order to pursue these goals, the transformation in supply chain management perspective into a green supply chain approach plays a decisive role. The supply chain management industry in Vietnam is relatively young in age, so the concept of green supply chain management is still quite novel, especially for enterprises. The government should therefore take the lead, encouraging other sectors of society to make changes and shift to a system with less environmental impact. The research uses qualitative methods and secondary data collected from other researches and articles to review some international experience, particularly those from the USA, the European Union and China, in green supply chain construction and management with the aim of proposing policy recommendations suitable to Vietnam's conditions for the government. The recommendations suggested cover regulatory policies that involve the adoption of tax programs and reporting systems, and incentive policies towards enterprises and people. These proposals are based on several existing policies in Vietnam, and expanded to achieve wider coverage and increased effectiveness.

Keywords: *green supply chain management, sustainable development*

1. INTRODUCTION

In the last two decades, climate change and environmental pollution have become prominent issues worldwide because of their profound impact on life and economy. The Paris Climate Accords signed in 2015, and most recently the 2021 United Nations Climate Change Conference (also known as COP26) mark the strong determination of countries to cut greenhouse gas emissions in order to slow down global warming. In many countries (mainly developed ones), governments have introduced policy frameworks for sustainable economic development and limited environmental impact. The concept of environmental cost is gradually being integrated when calculating economic problems, in addition to traditional costs. Consumers' perception has also changed significantly; today, before buying a product, many pay close attention to the sustainability aspect of the manufacturer, and will absolutely give preference to goods from companies whose production processes are more environmentally friendly.

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Although very urgent, minimizing emissions and environmental pollution is often considered to be associated with hindered economic growth. However, the application of measures to ensure sustainable development does not necessarily mean a trade-off with economic development, but on the contrary will bring long-term benefits to businesses (opportunities of implementing corporate social responsibility, green branding, etc.) and the whole society (healthy living environment, human development, etc.). To reconcile economic and environmental benefits, many countries have incorporated environmental policies into the supply chain, partially or wholly. Europe is one of the regions with a relatively complete and strict system of green supply chain management policies, having achieved certain results: The list of the least polluted locations in the world usually features cities of Finland, Sweden, Denmark, or Switzerland.

Vietnam is among the few countries that are heavily affected by climate change; on average, over the past 15 years, natural disasters have caused an annual loss of about 1.5% of the GDP (DARA and the Climate Vulnerable Forum, 2012). Vietnam already has the Law on Environmental Protection 72/2020/QH14 and a number of legal documents as a legal basis for the development of green logistics and supply chains such as Circular No. 16/2010/TT-BGTVT, regulating on airport construction investment projects with environmental impact assessment reports; Decision No. 855/QĐ-TTg of the Prime Minister dated June 6, 2011 with the goal of controlling, preventing and limiting the increase in environmental pollution, towards building a sustainable transportation system; Decision No. 1393/QĐ-TTg dated September 25, 2012 of the Government on the national strategy on green growth, which refers to the investment in the development of transport infrastructure towards sustainability, reduction in greenhouse gas emissions, and promotion of clean and renewable energy. Nevertheless, building a green supply chain has not been paid enough attention to, reflected in the number of scientific papers and articles we have found as well as the reality of low awareness of enterprises and people. In fact, pollution caused by production, logistics and other activities in the supply chain has been happening in our country, and is likely to continue in the long run if no action is to be taken, and the one who suffers the most is none other than the people. If Vietnam does not act now to achieve sustainable development, especially while other countries in the region have begun to embrace the green trend, not only will we be left behind, but the next generations will also pay a very high price.

Greening supply chains is a long-term problem, requiring coordination from the government, businesses and people. However, it is not very realistic to expect a proactive and self-disciplined attitude from individuals or enterprises due to the prevailing misconception that being environmentally friendly equals losing competitiveness. Therefore, the government must be the leading force, having both regulatory and incentive measures to initiate green transition movements in society. By studying international experience in green supply chain and logistics development and management, we have selected a number of case studies of different scales

and compulsions from which to make policy recommendations for the government that match the current conditions of Vietnam.

2. THEORETICAL BASIS

2.1. Supply Chain Management

According to Chopra S. and Meindl P., “a supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain includes not only the manufacturer and suppliers, but also transporters, warehouses, retailers, and even customers themselves” (Chopra and Meindl, 2013). In an organization, the supply chain covers all departments involved in receiving and filling a customer request such as marketing, operations, distribution, finance, and customer service.

Supply chain management is defined as “The planning and management of all activities involved in sourcing and procurement, conversion and all logistics management activities” by The Council of Supply Chain Management Professionals (CSCMP) (Vitasek, 2013). This concept also includes coordination and collaboration among partners within the channel such as suppliers, intermediaries, third-party service providers and customers.

There are six main components in a traditional supply chain (Bhasin, 2021):

- **Planning:** All resources required to meet client demand for a product or service must be planned and managed by businesses. In addition, enterprises must design their supply chain and choose which KPIs to utilize to guarantee that it is efficient, effective, and offers value to customers while also meeting the organizational goals.

- **Sourcing/ Procurement:** At this stage, enterprises need to choose the suppliers based on their criteria to provide the goods and services, which are needed to create their product. Afterwards, the manager must monitor and manage supplier relationships across processes including ordering, receiving, managing inventory, and authorizing supplier payments.

- **Making:** It includes activities from accepting raw materials, manufacturing the product, quality testing, packaging, scheduling for delivery.

- **Delivering/Logistics:** The person in charge needs to organize the customers' orders, schedule the deliveries, invoice the customers, work with the shipping company to dispatch the cargos and receive the payments. Most of the businesses outsource substantial portions of the logistics process to service-oriented companies, especially when the delivery requires special handling or complicated processes.

- **Returning:** In this stage, the company needs to design a network that is responsive and flexible to receive defective, excess, or unwanted products, and to process them afterwards.

- **Enabling:** In order to operate effectively, the supply chain requires a number of supporting functions such as Finance, HR, IT, Quality Assurance, Sales to monitor information

throughout the supply chain and assure compliance with all regulations.

2.2. Green Supply Chain Management

Different from traditional supply chain management, the term sustainable or green supply chain refers to the idea of integrating sustainable environmental processes and being aware of the environmental impacts into the traditional supply chain. It does not limit to reducing the industrial waste, but only opens to making every activity of the value chain from designing, procurement, manufacturing, logistics, and product return management becomes more environmentally-benefit.

As proposed by Khan, there are six main success factors for a green supply chain system (Khan, 2019):

- **Ethical leadership/internal management:** Senior managers should motivate, support, encourage and pressure the employees to adopt green practices. Meanwhile, individuals within an organization should have an environment-protection mindset, and be aware of the environmental risks at all stages of the supply chain.

- **Customer management:** Customers play a vital role in every green supply chain, as they pressure the enterprises heavily to adopt green practices in business operations to meet their ever-increasing demands. Close collaboration with customers can become advantageous, as companies become more competitive in the market.

- **Supplier management:** Enterprises cannot adopt green practices without close collaboration with their suppliers. It is important for companies to strive for green partnerships, to motivate their strategic suppliers to develop eco-friendly innovations.

- **Competitiveness:** Rather than firms' desire to safeguard environmental sustainability, competitiveness has been seen as a major motivator in implementing green practices. The adoption of green technology in corporate operations can also be traced back to a desire to be more competitive and stand out among other firms in the same market.

- **Society:** With the existence of regulatory agencies paying more attention to environmental issues and customers becoming more environmentally conscious, businesses must disclose end-to-end information about their supply chain operations' impact on the local community and people's lives. In addition, social media and non-governmental organizations are pressuring businesses to adopt green practices.

- **Regulations:** As the environmental impacts have become more and more prominent, regulatory bodies have implemented stricter laws to control climate change, global warming and pollution at both national and international levels. Therefore, firms need to comply with these changes, and pay more attention to create a green supply chain system.

3. INTERNATIONAL EXPERIENCE IN GREEN SUPPLY CHAIN MANAGEMENT

3.1. Overview of Supply Chain Systems in the USA, the EU and China

3.1.1. In the USA and the EU

In the United States, the logistics and transportation industry is fiercely competitive. This industry benefits from a highly skilled workforce and low expenses for both international and domestic enterprises. In 2018, the business logistics costs in the United States totaled \$1.6 trillion (8% of GDP that year). In 2018, the industry received \$1.5 billion in foreign direct investment. Analysts predict that investment will follow sector-specific development in the US economy. Manufacturers and consumers benefit from the highly integrated supply chain network. In addition, to steer policy development of green supply chains, the US government has issued strong and scientific-based laws and regulations, which cover from the areas of pollution management, traffic control, food contamination prevention to consumer health protection, with matching monitoring systems in place.

In Europe, the free movement of people, services, and goods is made possible through transportation, which is a cornerstone of European integration. Logistics is also a significant contributor to the economy, accounting for about 9% of EU gross value added, which is the contribution to the economy. In 2016, transport services alone generated €664 billion in gross value added and employed roughly 11 million people (European Union, n.d.). Through the specification and classification of green products, the EU encourages the expansion of green supply chains around the world. Based on the large commercial market in terms of value within the EU and beyond, they have the power and expect to take the lead in the environmentally responsible development of the manufacturing industry.

3.1.2. In China

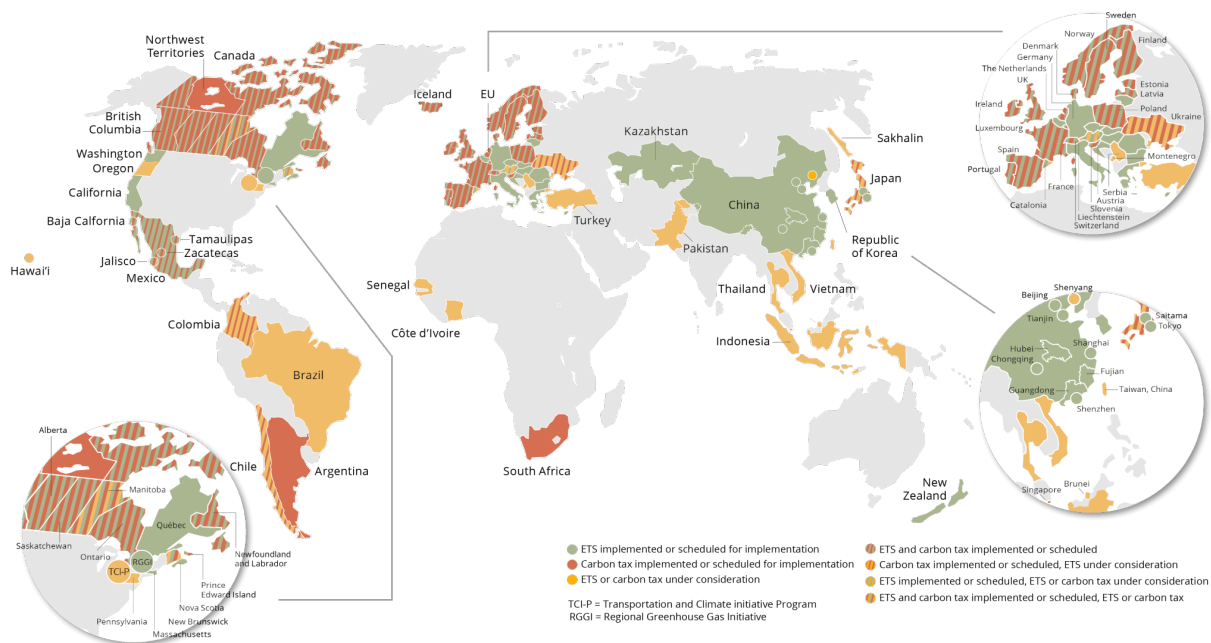
China is an emerging economy, the world's factory and the largest exporter, so the demand for supply chain and logistics development in this country is very high. The logistics market in China, with a volume of \$400 billion and growth of 30% in 2010, has huge growth potential (PricewaterhouseCoopers, 2012). However, because this country has only started to accelerate economically in the last two decades, its supply chain and logistics services are not as complete as in the US and the EU. Logistics costs in China are relatively high, accounting for 14.8% of the GDP in 2018 (Development and Research Center of the State Post Bureau, 2019). The policy system for logistics and supply chain management in China is not as specific as that of developed countries. Recently, the Chinese government has paid more attention to this matter, as well as to the development of green supply chains due to the pressure for reduced greenhouse gas emissions from the Paris Climate Accords, and most recently the COP26. Compared with the US and the EU, the situation of logistics and supply chain management in China has more obvious similarities with that in Vietnam.

3.2. International Experience

3.2.1. Carbon Policies

Carbon policies are among the most popular tools to limit carbon dioxide emissions adopted. In principle, putting a price on emissions helps shift the burden of environmental costs from communities and society to individuals and organizations that directly generate emissions. Carbon pricing pushes emitters to raise their awareness and be more responsible for their polluting actions. It motivates innovation, giving a big impetus to the transition from a fossil-fuel-dependent economy to a greener and more sustainable system, as enterprises have to come up with new ways to ensure their business while causing the least pollution. Without any of these policies, the reliance on fossil fuels will remain. According to Brookings economist Adele Morris, a carbon tax supporter, “As long as burning dirt (i.e. fossil fuels) is the cheapest form of energy, that’s what we’ll do.” (Handley, 2021).

Figure 3.1: Global carbon pricing implementation



Source: Center for Climate and Energy Solutions

There are two common types of carbon policies: emissions trading systems (ETS) or cap-and-trade, and carbon taxes (discussed below). The instrument chosen differs from country to country, from economy to economy. There are some other indirect ways of carbon pricing, such as fuel taxes, the elimination of fossil fuel subsidies, and laws that are concerned with “social cost of carbon” (The World Bank, n.d.).

3.1.1.1. Carbon Tax

A carbon tax is a fee levied on each unit of greenhouse gas emissions or on the carbon content of fossil fuels with the goal of incentivizing businesses to reduce emissions by green

practices and/or the use of green technologies. The price of emissions is predetermined by the government.

A plus of carbon tax is that it can be easily implemented just like normal tax systems, and integrated into the supply chain. In terms of costs, for versatile supply chains that are capable of switching to green operations in a relatively short time, carbon taxes do not create dramatic surges in the total cost of the economy. On the contrary, carbon pricing can even be an economic growth driver. According to Waltho, Elhedhli and Gzara, non-carbon-taxing countries generally only interact with one another, and vice versa. Countries that adopt carbon taxes tend to trade with one another more intensively, which is a good indicator of cooperation as well as willingness to conclude environmental agreements. In addition, the carbon tax revenue can be spent on infrastructure improvements, or tax reduction for enterprises or individual consumers (Waltho, Elhedhli and Gzara, 2019).

One difficulty for governments when applying carbon taxes is how to price emissions accurately. The tax should be high enough to discourage carbon emissions and motivate emitters to switch to green technology; meanwhile, overpricing may constrain economic development and phase out SMEs with little resource for green transformation in a short period. Likewise, on a larger scale, the structure of the economy and the flexibility of the supply chain should also be taken into account. If the supply chain is not able to abandon fossil-fuel-based systems and adopt sustainable technologies in the short run, then a relatively high level of carbon tax at first will be detrimental to the economy. Besides, different industries need different tax rates so as not to hurt more economically sensitive sectors, such as agriculture.

Carbon tax has been implemented in a number of countries and territories; as of 2021, 35 carbon tax programs have been in effect globally. The initiators of carbon tax are Finland and the Netherlands, having implemented their first carbon tax schemes in 1990, followed by the other Scandinavian countries (Waltho, Elhedhli and Gzara, 2019). Since 1991, Sweden has employed a carbon price to limit greenhouse gas emissions. Despite the implementation of a variety of other policies, the Swedish Ministry of Environment estimated that the carbon tax had decreased emissions by an additional 20%, allowing the country to meet its Kyoto Protocol target for 2012. Sweden's success can be attributed to fostering innovation and the adoption of green heating systems, which have effectively phased out the use of oil for heating. In contrast with sceptics' view that the carbon tax would hinder economic growth, Sweden's economy has expanded by over 100% since the carbon tax was introduced, and the country was recently ranked fourth in the world for economic competitiveness (David Suzuki Foundation, n.d.).

3.1.1.2. Emissions Trading Systems

An emissions trading system (ETS) (also called a cap-and-trade system) is a market-based mechanism that incentivizes the reduction of emissions where it is most cost-effective. It sets an upper bound of greenhouse gas emissions, allocates "carbon credits" to enterprises, and

allows low-emitting enterprises to sell their extra carbon credits to those that release more carbon dioxide. In other words, an ETS creates a market for greenhouse gas emissions, and lets the demand and supply in the market determine the price (The World Bank, n.d.).

The most prominent benefit of ETSs lies in their flexibility; an ETS “lets the market find the cheapest way to cut emissions” (Kizzier, n.d.). This means less risk of economic constraints and significantly increases in the economy’s total cost due to the policy, allowing the supply chain to adapt gradually. As a market-based instrument, ETSs can be easily incorporated into the supply chain. Moreover, when an ETS is established, since the total cap is predetermined, the goal of emissions minimization is clearly more visible and certain compared to a carbon tax program.

One shortcoming of these systems is the “waterfall” phenomenon, where a market member who has more carbon credits than they need sells them at a very high price to make significant profits. Due to the profitability of selling these credits, there is a risk of “ghost companies” being established to earn free initial credits just to sell them to other businesses in the market. In order to avoid these potential problems, close regulation by the government, an auditing system, and high transparency standards are required. Besides, the price determined by the market entails uncertainty and a lack of control, requiring careful consideration and intervention by the government.

The number of ETSs is growing worldwide. The EU, Canada, China, Japan, New Zealand, South Korea, Switzerland, and the United States all have national or subnational ETSs in operation or under construction (European Commission, n.d.). The EU ETS, established in 2005, is a cornerstone of the EU’s climate change policy and a major tool for cost-effectively decreasing greenhouse gas emissions. It has always been the world’s largest carbon market, covering around 40% of the EU’s total carbon emissions currently (European Commission, n.d.). China has also launched its national ETS in early 2021 after three years of piloting in eight major cities. It aims to effectively control and reduce greenhouse gas emissions in the country to pursue green growth. 2,200 companies in the power sector are under the regulation of the national ETS; the volume of carbon dioxide emissions covered is 4 billion tons, accounting for approximately 40% of the total emissions, and is expected to be increased in the future. The system is based on several key pillars: reporting and verification of historical emissions data from eight emission-intensive industries; construction of the national registry, trading system, and national enterprise greenhouse gas reporting system; legislative and regulatory framework establishment; and capacity building (International Carbon Action Partnership, 2021).

3.2.2. Green Procurement

When compared to other commodities and services with the same primary function, Green Public Procurement (GPP) is a procedure wherein public authorities aim to procure

goods and services with a reduced environmental impact throughout their life cycle.

3.2.2.1. Green Procurement in the USA

According to OECD in 2014, the federal government in the USA occupies almost 500,000 buildings, operates over 600,000 vehicles, employs over 1.8 million civilians, and spends over 500 billion dollars on goods and services each year. The US government has established procurement mandates for socio-economic goals such as purchasing from small businesses, businesses that employ blind, deaf, or other disabled people, businesses owned by Native Americans, women, and other diverse or socially marginalized groups (OECD, 2014).

Firstly, all federal government bodies use the Federal Procurement Data System (FPDS) to report on public purchasing, of which amount is greater than 25,000 USD. In addition, 25 largest government agencies are obliged to report quarterly, and will be assessed semi-annually by an Office of Management and Budget scorecard, whereas some other small agencies voluntarily follow the same practice. The US Environmental Protection Agency, the US Department of Energy, and the US Department of Agriculture are the three agencies in charge of identifying items and consulting on the public purchases to the other departments. More than 300 product categories have been assigned with respective environmental criteria by these three bodies. Besides, all of the sustainability standards have also been integrated into the Federal Acquisition Regulation (FAR), which governs all federal procurement regulations. The scope of FAR still requires sustainable acquisition compliance for micro-purchases that do not meet the FPDS reporting requirement.

The US government also provides platforms for public procurements such as GSA (General Services Administration) Advantage or the Defense Logistics Agency's E-mall. Furthermore, agencies issue their own contracts or orders based on existing contracts, such as the GSA's multiple award schedule contracts. Agencies can indicate which green items they want to buy and describe what it means for them to be "green" in scopes of work, clauses, or references to environmental programs. The FAR contains provisions that must be included in those contracts.

3.2.2.2. Green Procurement in the EU

Green Public Procurement (GPP) is at the heart of the EU's policy, serving as both a catalyst and a model for the private sector to follow, as well as a considerable weight in its own right as a percentage of GDP. According to the European Commission, in 2017, public procurement in Europe accounts for around €2 trillion, or 13.3% of EU GDP, and is thus a significant lever in pressuring markets to become more sustainable (European Commission, n.d.).

Although GPP is a voluntary tool, it is important in the EU's aspirations to build a more resource-efficient economy. It has the potential to assist create a critical mass of demand for

more sustainable goods and services that would otherwise be difficult to obtain. As a result, GPP is a powerful motivator for eco-innovation.

GPP must include explicit and verifiable environmental requirements for products and services in the public procurement process to be effective. Currently, the EU GPP criteria cover 20 groups of goods and services such as electricity, furniture, public space maintenance, etc. (European Commission, n.d.). While adopting these criteria will ensure a good balance between environmental performance and other costs, the procuring agencies may choose to include all or only certain requirements in their tender documents according to their needs and ambition level. However, the difficulty of ensuring that green purchasing rules are relatively consistent across member states, thereby there should be assistance in the creation of a fair playing field that will help accelerate and drive the single market for environmentally sound goods and services.

3.2.3. Reporting Systems

In the USA, the federal government mandates companies to report information on the effects of their operations, including their supply chain activities, on the environment. For example, the Environmental Protection Agency's Toxic Release Inventory requirements demands companies to report and record their harmful chemical emissions, even the locations (US EPA, n.d.).

Additionally, the US government also makes attempts to implement environmental information reporting systems. American enterprises are expected to report on a large number of financial and corporate governance problems. This reporting is highly regulated, takes place periodically and contains comprehensive information about the company and its operations. Moreover, these reports are also monitored and published on the Securities and Exchange Commission.

3.2.4. Incentive-based Policies

In addition to policies to manage greenhouse gas emissions, many countries also apply incentive-based policies (IBPs) to encourage businesses to be proactive in limiting pollution caused by their business activities. On one hand, IBPs are more cost-effective instruments to fulfill environmental goals than alternative approaches like direct regulation of emitters (Gupta, 2002). On the other hand, IBPs allow businesses more flexibility for innovation and transition to green technologies depending on their capacity. IBPs come in many forms and can generally be more easily modified than regulatory policies to match each supply chain's conditions. Here we would like to introduce two IBPs that are relatively simple to plan and implement, and are highly feasible if considering deployment in Vietnam.

3.2.4.1. EU Ecolabel

The EU Ecolabel is a label of environmental excellence that is awarded to products and services that meet high environmental standards throughout their life-cycle: from raw material extraction to production, distribution, and disposal. It was established in 1992 and is recognized throughout Europe and the world. The EU Ecolabel incentivizes manufacturers to produce less waste and greenhouse gas emissions throughout the manufacturing process, promoting the circular economy. The EU Ecolabel criteria also urge businesses to create products that are long-lasting, repairable, and recyclable.

The EU Ecolabel criteria set forth stringent requirements for businesses seeking to reduce their environmental impacts, and ensure the efficacy of their environmental initiatives through third-party supervision. Many companies refer to the EU Ecolabel requirements for guidance on environmentally friendly best practices when it comes to designing products or services. Despite the COVID-19 pandemic, the number of enterprises awarded the EU Ecolabel has been constantly growing. As of September 2021, 2,059 licences have been granted for 83,593 products in the EU market (European Commission, 2021).

For enterprises, the EU Ecolabel not only motivates them to become more environmentally responsible through the recognition of their innovation and self-transformation efforts, but is also a supportive force for their branding. As a consumer with commonsense, facing two products of similar quality and price, one is more likely to choose the product from a manufacturer that causes less pollution rather than that from a notorious polluter. Hence, holding an Ecolabel license can become a great source of differentiation and competitive advantage for the company, when comparing its products with its competitors’.

3.2.4.2. Lean and Green Program

Lean and Green, initiated in 2008 by the Dutch government, is a program that promotes enterprises to become more sustainable by taking reformations that not only lower costs and improve their competitiveness, but also help reduce their environmental impact (Hsu, n.d.). The project was kicked off by research to determine the sectors responsible for carbon dioxide emissions, eventually finding out that they originated from three sources roughly evenly: international transit (ports and airports), distribution (urban logistics), and small vans and work vehicles (Maloney, 2017).

The main focus of the program is shippers, logistics service providers, and local councils. Participants must develop a plan that includes specific emissions targets for the next five years as well as key (green) performance indicators. Optimizing routes, reducing carton sizes, employing smaller vehicles, reducing empty miles, leveraging rail and barge, and transitioning to alternative fuels are all examples of such a scheme. Should organizations be able to achieve emissions cut of at least 20% in the prescribed period, they will receive the Lean and Green Award and become part of the Lean and Green Community (Pieters, Glöckner, Omta and Weijers, 2012).

From the Netherlands, the program has been increasingly supported by the government and businesses, and has expanded to other EU countries. Up to now, more than 400 public and private organizations in the Netherlands, Belgium, Germany, Italy and Luxembourg are within the Lean and Green network. The reason behind such growth is the benefit it brings to the implementers of the green schemes. Similar to other awards programs, Lean and Green offer its participants to be compared to their competitors in standard measures recognized by the government. For customers, this is a way of building trust in the logistics service providers' environmental responsibility.

4. POLICY RECOMMENDATIONS FOR VIETNAM

As an emerging field in recent years, logistics and supply chain management is witnessing incredible development with a growth rate of 14-16% and a scale of about 22 billion USD (Nguyen, 2021). Supply chain management in Vietnam is generally very young in age, and sustainable supply chain development poses problems in terms of policies, businesses, infrastructure, and human resources. From the bottlenecks and problems, we also see certain opportunities.

Currently in Vietnam, there are about 3,000 logistics enterprises, mainly SMEs, only meeting about 25% of logistics requirements, not participating in operating the whole chain like foreign enterprises do. However, domestic enterprises also have many advantages: owning a majority of warehouses (which are leased to foreign enterprises), understanding the Vietnamese market and customers, and being quick to grasp foreign advances (Ella Study, n.d.). In terms of human resources, logistics human resources currently meet just 10% of the market's demand. Only a few years ago, universities and colleges began to focus more on logistics and supply chain management. On the positive side, the training of human resources from now on can easily integrate the development orientation of green supply chains and logistics without following the traditional path that harms the environment. In short, a young, incomplete system opens up opportunities to build a sustainable supply chain from the very beginning; to generate changes from Vietnamese enterprises, especially with the encouragement and support of the government, is totally viable.

From the international experience discussed above, we would like to propose several policy recommendations for the Vietnamese government to promote a green supply chain. In order to complete the policy framework for green supply chain management, macro proposals are the core, but we believe that there are not-too-complicated solutions that can be considered to gradually bring the green supply chain and logistics concepts closer to the business community and people. Our proposals fall into two categories: regulatory policies and incentive policies.

4.1. Regulatory Policies

4.1.1. Tax Programs

Currently, Vietnam is applying both environmental taxes and fees. According to the latest regulations in Resolution No. 579/2018/UBTVQH14 of the National Assembly Standing Committee, regarding the Environmental Protection Tax issued on September 26, 2018, there are 8 groups of products subject to taxation, including 3 products of large consumption and when consumed emitting substances that negatively impact the environment: gasoline, diesel oil and coal. However, there have not been many in-depth studies to properly assess the harm when using these products, so it is not clear whether the tax rate is reasonable (Hoang, 2021).

We have not yet built a standardized emission measurement system, so there is no common carbon tax and hence not covering the entire production process of enterprises as well as the economy. As analyzed above, carbon tax is an effective and simple tool to curb greenhouse gas emissions into the environment. Considering the actual situation, we believe that the Vietnamese government needs to develop a clear roadmap to levy carbon taxes in the long run.

Looking at China's experience, we can start with a flexible measure like an ETS, with incentive as the main purpose for businesses to gradually get used to being careful about their carbon footprint, then adopt more stringent standards and regulations. Before large-scale implementation, it is essential to pilot the policy with multiple tax rates for a few large industrial cities, or for some of the most polluting industries. This pilot greatly aids finding an optimal tax rate, as well as a way of polling public opinion to make appropriate adjustments.

For successfully operating an ETS, creating a large enough trading platform with convenient exchange services is very important, since without such an ecosystem, it is difficult to get enterprises interested. If we do not have a large market at first, we can connect with other carbon credit markets in the region such as China (already available) or ASEAN (together to create a separate market for the countries in the association).

4.1.2. Reporting Systems

Currently in Vietnam, according to the Law on Environment Protection, the ministries, municipalities and localities together with the Ministry of Natural Resources and Environment participate in state management in the field of environment protection as assigned by law. However, in reality at present, the participation of ministries and localities in environmental protection will be limited, as there has not been a national reporting system for enterprises to update information on the environmental impacts of their operational activities on a cyclical basis.

As mentioned above, internal management and regulations are two of the 6 key factors that lead to a successful supply chain management system. Government oversight is extremely

important to ensure green supply chain regulations and practices are implemented and followed by enterprises and citizens.

Firstly, the Vietnamese government should require all the businesses operating within its territory to report environmental impacts throughout their value chains on a quarterly or semi-annually basis, from procurement, making, delivery to reverse logistics. For example, in the making stage, enterprises must disclose information related to the level of toxic chemicals in the products, the types of packaging used to wrap up the products, level of energy consumption in production, industrial waste treatment methods, etc. Moreover, this information can be published on the national stock exchange to provide environmental performance information for investors.

Secondly, the government needs to ensure the user-friendliness and the transparency of this national platform for reporting. If the platform is too complicated, it can create barriers for enterprises, especially the small and medium business which may not have a specialized IT team. Most importantly, the system needs to be governed and audited periodically by a separate third-party agency to ensure transparency and fairness among companies.

4.2. Incentive Policies

4.1.1. Incentivizing Changes from Enterprises

According to Mr. Ta Xuan Quang - Enterprise Development Department - Ministry of Planning and Investment, the Vietnamese government has used policy tools to promote cleaner production (CP) in enterprises. The government has issued a number of legal documents such as Decree No. 45/2012/ND-CP on industrial promotion to encourage the application of CP in rural industrial production establishments, and Law on Environment Protection dated June 23, 2014. Enterprises applying CP have opportunities to access loans and financial support. However, up to now, the number of enterprises and production facilities participating in CP nationwide is very modest. According to Mr. Nguyen Huy Hoan - Deputy Director of Science and Technology Department - Ministry of Industry and Trade, after 5 years of implementing the Cleaner Production Component in Industry (CPI) sponsored by Danina, there are only 57 projects for enterprises and 4 household demonstration projects implemented (VUSTA, 2011). Visibly, we are in the right direction but not achieving high effectiveness, thereby needing more new, attractive forms to attract the attention of businesses.

The enterprise block is the main source of greenhouse gas emissions in the supply chain; green reformations coming from businesses will create significant change. To enterprises, especially SMEs, greening production appears to be an expensive and complicated process. Therefore, the government should first focus on large enterprises and MNCs with strong capabilities and ample resources, incentivizing them to lead the sustainable trend to form the pillars of the green ecosystem, creating “peer pressure” for smaller businesses.

It is necessary to develop detailed regulations on green products, green production, green transportation, etc. similar to the EU Ecolabel, acting as a reference for enterprises in their business activities. They can base on these standards to assess their sustainability level, set environmental goals, estimate the distance to the goal, and finally construct a feasible roadmap to achieve it.

The government can plan and implement sustainable development incentive programs similar to the Lean and Green model above. Letting enterprises make their own emission reduction plans creates initiative and proactive attitudes, as well as allowing them to base on their current situation to construct a viable scheme. In order to facilitate businesses to make these plans, the government can provide specific instructions and suggestions in each stage of the supply chain.

- **Planning:** Planning includes predicting the market demand for the company's products, helping balance production, not overproducing too much causing waste, consuming energy and storage costs. Enterprises can apply data science at this stage for more accurate forecasting, in addition to order processing and management technology.

- **Procurement:** In procurement stage, the government should develop a guideline like the EU GPP criteria for enterprises to follow when choosing a strategic supplier, and provide incentives for firms which actively source for sustainable inputs for the productions.

- **Manufacturing:** Currently, production technology in Vietnam compared to the world is mostly old, outdated, and consumes a lot of energy, so the application of resource efficiency and cleaner production (RECP) to improve production is of great importance. Packaging products with environmentally friendly materials should also receive more attention, as this is a relatively simple change that is easier to implement at the enterprise scale compared to other stages in the supply chain, while bringing very positive environmental effects.

- **Warehousing:** Warehousing is a key determining factor to green logistics, due to the huge amount of energy consumed in warehouses. If warehouse planning is too big of a problem, warehouse service providers can apply simpler measures to reduce energy consumption, such as smart lighting (using energy-saving lighting systems, reduce lighting intensity if not too necessary); install solar battery system outside or on the roof of the warehouse; building partitions and mezzanines to limit the use of air conditioners only for certain types of goods; plant more trees outside to reduce the air temperature, etc.

- **Transportation:** Emissions from transportation account for a large proportion of total emissions. Once again, the optimization problem is posed. To cut emissions from goods distribution, enterprises can employ routing optimization models and switch to small, flexible and clean energy-using means of transport, both helping to minimize fuel consumption, and significantly contribute to reducing traffic congestion, especially in big cities.

- Reverse logistics: Manufacturers can recover used products from customers to turn them back into raw materials to create new products. The practices of recycling and reusing of course will require appropriate technologies, but if implemented, they will not only reduce the amount of waste released into the environment, but also help save the cost of input materials, thereby increasing profits for businesses.

To recognize enterprises' innovation efforts, the government should have awards and recognition programs, both giving recognition to enterprises, and acting as a way for businesses to brand themselves and establish rapport with environmentally conscious customers. From the EU Ecolabel and Lean and Green examples, we propose to expand the benefits that enterprises can receive when participating in these programs. Currently, green supply chain management has not received enough attention in Vietnam, so it is advisable to provide visible benefits in the short term, especially economic ones, so that businesses are more motivated to reform themselves. Specifically, in addition to being certified by the government, it is possible to consider reducing certain taxes and fees, and offering financial incentives (support for loans, reduced loan interest rates, etc.) to enterprises that manage to significantly reduce emissions and pollution. In addition, for state-funded projects and bidding packages, sustainable businesses should be given priority/plus points in bidding, i.e. putting green criteria into the evaluation and selection criteria.

4.1.2. Raising Awareness of Society

The term green supply chain management is relatively new in Vietnam for both the enterprises and the consumers. Current training programs implemented by the government still focus only on each aspect of the green supply chain such as packaging, waste management, but do not take into account the holistic approach and all the stakeholders involved. For consumers, many people are aware of the environmental issues, but they have not adopted the sustainable practices in their daily lives. Therefore, there must be training programs and campaigns that focus on the interaction between MNCs and SMEs, as well as the consumers. The term green supply chain management is relatively new in Vietnam for both the enterprises and the consumers. Current training programs implemented by the government still focus only on each aspect of the green supply chain such as packaging, waste management, but do not take into account the holistic approach and all the stakeholders involved. For consumers, many people are aware of the environmental issues, but they have not adopted the sustainable practices in their daily lives. Therefore, there must be training programs and campaigns that focus on the interaction between MNCs and SMEs, as well as the consumers.

For enterprises, the Vietnamese government can organize an annual training program on green supply chain, which includes both multinational and small and medium companies in Vietnam. The leading multinational companies can act as anchors to encourage the participation of small and medium enterprises in this program, which is relevant to the case of Vietnam. The

curriculum may incorporate concepts for improving client-supplier relationships, optimizing operational processes through pollution prevention, and developing capacities through experiential learning. More crucially, the program should foster a learning-by-doing method by introducing the formation of collaborative projects that improve supply chain interactions and open up new business prospects. Through the way employees engage in their eco-efficiency initiatives, the learning-by-doing training method strives to build capacity and empower employees inside each firm. Furthermore, a community of green supply chain strivers can be established in Vietnam, which creates a platform for companies to network and share experience with one another.

For consumers, since they can put pressure on enterprises to adopt green practices, it is important to raise their awareness on green consumption. The ideology of environmental protection needs to be included in the school curriculum for students at all levels, and the government can organize contests for them to practice the green consumption behaviors and come up with innovative solutions for a more environmentally-friendly consumption.

5. CONCLUSION

Climate change has recently emerged as one of the most serious issues that countries must address. Consumer perceptions have shifted dramatically as well; today, many individuals evaluate the manufacturer's sustainability when purchasing a product, and will unquestionably choose goods made by companies with more ecologically friendly manufacturing techniques. Traditionally, going green can be considered as hindering economic growth. However, implementing measures to ensure sustainable development does not have to imply a trade-off with economic progress; on the contrary, it will help firms in the long run.

Despite being a developing nation with a focus on the manufacturing sector and is affected heavily by climate change, building a green supply chain has not been paid enough attention in Vietnam, which can be reflected in the number of scientific papers and articles we have found as well as the reality of low awareness of enterprises and people. Building a green supply chain is not a short-term solution, hence it requires the close collaboration between all parties of the economy led by the government. Therefore, the Vietnamese government needs to study from the experiences of leading countries in green logistics, skillfully and selectively apply regulatory, incentive or educational measures to businesses and people to gradually build an environmentally-friendly supply chain. By transforming, restructuring, and adopting green practices, Vietnamese businesses can catch up with new trends, penetrate into high-demand markets like the EU, be exposed to new business opportunities and affirm their positions on the world map.

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BARRIERS IN IMPLEMENTING TOTAL QUALITY MANAGEMENT IN VIETNAM'S CONTEXT

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Abstract

Total quality management (TQM) is widely considered as one of the most useful approaches to improving quality of the organizations' output. In Vietnam, TQM has become more popular in management and improving organizational performances. This study aims to identify the extent to which TQM has been implemented in Vietnam's manufacturing enterprises, but also the barriers in implementing their TQM practices. The collected 259 questionnaires were able for statistical analysis. The results show that the degree to which TQM practices have been deployed in these enterprises. It also mentions that there are main barriers and difficulties in applying and implementing TQM such as lack of benchmarking, low motivation for application, lack of training, etc. The study suggests some implications to overcome problems and successfully applying TQM for those enterprises.

Key words: *Total quality management, implementation, barriers, manufacturing enterprises, Vietnam.*

1. Introduction

Nowadays, quality of products and services is considered as the most powerful weapon for organization to compete in the market. One of the best approaches to ensure for achieving this competitive advantage is Total Quality Management (TQM). TQM is a systematic approach accepted by both manufacturing and service organizations globally. Adopting TQM helps the organizations achieve effectiveness and enhance business performance (Singh, *et al.*, 2018; Salleh, *et al.*, 2018).

Manufacturing and service enterprises in Vietnam are not out of that pace. They have been applying TQM in recent years in order to create products or service with high quality to meet the customers' demand. They have understood the quality is a key survival element in competitive market. Business success lies in its ability to effectively implement total quality system that will maintain a high level of quality products and/ or service at a relatively minimal cost (Topalovic, 2014). In spite of numerous benefits, implementing TQM is not an easy task. There are many barriers and challenges faced with organizations. Due to these barriers, many organizations have failed to implement TQM effectively (Pussell and Yapa, 2020; Cho and Linderman, 2019). Understanding the obstacles while implementing TQM successfully is a must, that enables managers to develop more strategies to excel their business.

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Therefore, the purposes of this study are, first, investigating the extent to which TQM has been implemented in Vietnam's manufacturing enterprises, secondly, identifying barriers in implementing TQM practices in these organizations, so that they can overcome the obstacles, maintain successful implementation of TQM, and improve business performance. Besides the introduction, the following parts will be literature review of TQM implementation and barriers to inhibit TQM implementation, research methodology, research findings, conclusion and implication.

2. Literature Review

2.1 TQM implementation

According to Alghamdi (2018), TQM is considered as a culmination of a hierarchy of quality definitions. First, it is about quality – continuously satisfying customers' expectation. Second, it is total quality – achieving quality at low cost. Third, TQM – achieving total through everyone participations. TQM is understood and implemented in every part of organizations.

TQM is implemented by SMEs as their strategy for continuous quality improvement. Despite the fact that there is a positive relationship between TQM effectiveness and organization performance, there are still many problems that if not resolve correctly lead to failure (Rat, *et al.*, 2020; Garengo, 2009, Brown, 2008). So that the implementation of QTM ensures organizations' competitiveness in a business environment by eliminating barriers and ensuring the free flow of products and information, reducing costs, improving quality products and innovation of new products. (Rat, *et al.*, 2020).

Permana *et al.* (2021) indicate that TQM is well implemented with the commitment from management and employees' involvement and other factors like training and education. Implementing TQM successfully depends on critical factors, namely as management commitment and leadership, continuous improvement, total customer satisfaction, employee involvement, training, communication, and teamwork (Salleh, *et al.*, 2018). Alawag *et al.* (2023) indicates that there are important factors affecting TQM adoption as follows: leadership, customer satisfaction, continuous improvement, process management, teamwork and top management commitment.

2.2 Barriers in TQM implementation

Most researchers mention that people are key factor in business operations. It plays an essential role in implementation of TQM practices. Saumyaranjan, *et al.* (2018) indicate that leadership and culture are crucial for TQM. The challenge before senior management is to cultivate an organizational culture in supporting quality control and management philosophy. Moreover, lacking knowledge and understanding of quality management practices, cultures, and skills may lead to use the wrong tools or same tools for all problems. Lack of technical expertise, financially inept and harbor poor financing arrangements, poor training and resource availability are some major impeding factors during deployment of TQM programme (Kumar *et al.*, 2008).

In a study of barriers faced by the organizations in implementing, Pussella and Yapa (2020) summarize that there are three groups, namely managerial issues, people-oriented issues and organizational issues. First of all, organizations have to deal with managerial issues such as lack of communication, lack of top-management commitment, lack of coordination, lack of/ no benchmarking and poor planning. People-oriented issues include employee’s resistance to change, lack of proper/ continuous training and education, inadequate use of empowerment and teamwork. Organizational issues are lack of continuous improvement culture, attitude of employees towards quality, high turnover at management level/ high employee turnover. From the research, the authors mention that all barriers in deploying TQM can be eliminated by changing organizational culture, training and educating employees and managers; commitment from top management.

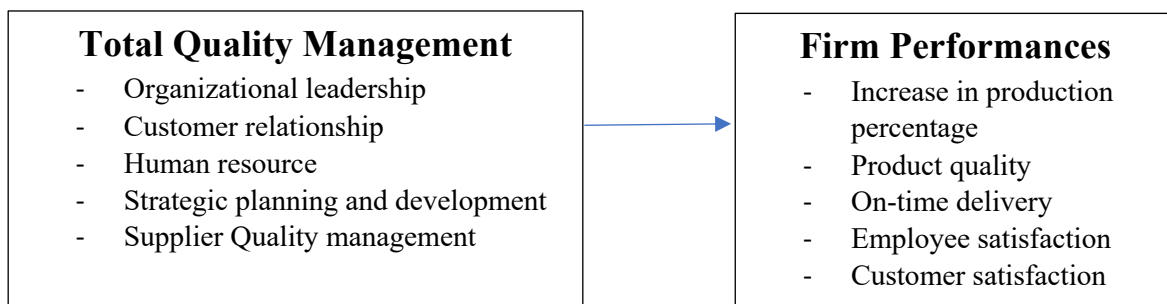
Zhou (2012) also refers that manufacturing enterprises are unclear about the potential benefits of quality management practices, because TQM practices for manufacturing industry are resource intensive and yield fruitful results in a long term (Chase et al., 2014). So that the organizations could think of newer alternatives of integrating the business activities beyond the organization boundary.

3. Research design and methodology

3.1 Conceptual research framework

As mentioned above, the objectives of this study are, first of all, to access the extent to which TQM practices have been implemented and firm performances in Vietnam’s manufacturing firms, and second, specify the barriers that impeded TQM implementation.

Total quality management practices and firm performances are based on an extensive review of TQM literature and with consultation with enterprises and academic professors. The conceptual framework is shown in Figure 1 below.



TQM practices classification is not an easy task. It is a concept of debate among researchers. Besides comprehensive literature review, the TQM practices in this study are summarized and adapted from Singh *et al.* (2018).

3.2 Sample and data collection

The study was conducted in manufacturing firms in Vietnam, mainly in Hanoi and Ho Chi Minh city, from May 2022 to December 2022. Survey database was obtained from Vietnam Chamber of Commerce and Industry, Hanoi and Ho Chi Minh city Business Associations. The study used a stratified random sampling technique. The survey was conducted via self-administration as well as google forms and managed to get 319 samples from the participating managers and workers. The questionnaire was made available in Vietnamese and English. Out of 319 samples, there were 259 valid. The study has classified into two levels. Manager's level has included directors, senior manager and functional managers. Worker's level has been technicians, workers in charge with quality, production and planning departments.

3.3 Questionnaire structure

The questionnaire contains three parts. The first part is demographic information, the second one is level of TQM implementation, the third one is the situation of TQM application based on respondents' perception. The questions in part two were about TQM constructs, and performances constructs. These constructs and their items were selected from previously tested scale (Singh *et al*, 2018). All the questions were in five-point Likert scale ranging from strongly disagree, disagree, neutral, agree and strongly agree. The questions in part 3 were respondents' perception about situation of TQM application and barriers impeding TQM implementation in Vietnam's manufacturing enterprises.

3.4 Data analysis

259 data were analyzed, using SPSS 26.0. It uses descriptive statistics to show the level of TQM implementation in Vietnam's manufacturing firms. It also summarizes how TQM has been applied and barriers that inhibit TQM implementation. Respondents' perceptions resulting from questionnaires and direct observation were used as a source of information.

4. Findings and analysis

4.1 Respondents' profile

Table 1 shows the demographic information of respondents. Among them, there is 63.72% of top managers and plant managers, and 36.28% accounts for employees in production, quality and planning position.

Characteristics	Count	Approximate percentage (%)
1. Position at work		
Company directors and senior managers	39	15.06
Quality managers	42	16.22

Production managers	37	14.29
Planning managers	47	18.15
Quality staffs	41	15.83
Production staffs	51	19.69
Planning staffs	2	0.76
2. ISO application		
Certificate	84	32.43
Plan to apply	124	47.88
Not applied yet	51	19.69
3. Business performance		
Revenue Growth	259	100
Profit Growth	243	93.82

Table 1: Characteristics of the respondents

(Source: Research's results)

4.2 Level of TQM implementation

The tables below show the extent to which TQM practices have been implemented in these enterprises, with the average value of each variable, at an average standard deviation which shows a good approximation of the average of the variable to the real value of it, relative to the total statistical population (Rat, *et al.*, 2020). Overall, the average values of all practices, except organizational leadership (OL) and human resource (HR), are above 4, in particular customer relationship (CS) is 4.1293, strategic planning and development (SPD) is 4.0045, supplier quality management (SQM) is 4.0463 (table 2). This result shows that the enterprises have operationalized those TQM practices quite well.

Table 2: TQM implementation in Vietnam's manufacturing enterprises

Organizational leadership	N	Minimum	Maximum	Mean	Std. Deviation
OL1	259	1	5	4.02	.757
OL2	259	1	5	3.92	.855
OL3	259	1	5	3.92	.847
OL4	259	1	5	3.86	.862
OL5	259	1	5	3.94	.907
OL6	259	1	5	3.97	.946
OL7	259	1	5	3.97	.921
OL	259	1.67	5.00	3.9286	.66322

Customer Relationship	N	Minimum	Maximum	Mean	Std. Deviation
CR1	259	3	5	4.10	.684
CR2	259	2	5	4.14	.702
CR3	259	3	5	3.86	.692
CR4	259	2	5	4.11	.690
CR5	259	2	5	4.08	.688
CR6	259	3	5	4.11	.638
CR7	259	3	5	4.24	.724
CR	259	3.00	5.00	4.1293	.51034
Human Resource Relations	N	Minimum	Maximum	Mean	Std. Deviation
HR1	259	2	5	3.96	.769
HR2	259	2	5	3.96	.741
HR3	259	2	5	4.02	.765
HR4	259	2	5	3.93	.853
HR5	259	2	5	3.93	.816
HR6	259	2	5	3.82	.741
HR7	259	2	5	3.91	.800
HR	259	2.29	5.00	3.9322	.56772
Strategic Planning and Development	N	Minimum	Maximum	Mean	Std. Deviation
SPD1	259	2	5	4.07	.730
SPD2	259	3	5	3.83	.666
SPD3	259	3	5	3.85	.689
SPD4	259	2	5	4.08	.768
SPD5	259	2	5	4.08	.722
SPD6	259	2	5	4.11	.685
SPD	259	2.83	5.00	4.0045	.49533
Supplier Quality Management	N	Minimum	Maximum	Mean	Std. Deviation
SQM1	259	2	5	3.99	.797
SQM2	259	2	5	4.01	.800
SQM3	259	2	5	4.08	.724
SQM4	259	2	5	4.10	.733
SQM5	259	2	5	4.05	.716
SQM6	259	2	5	4.05	.748
SQM	259	2.20	5.00	4.0463	.57844

(Source: Research's results)

Organizational leadership (OL) and human resource relation (HR) are two practices having lower scores under 4, in particular OL is 3.9286, and HR is 3.9322. The answers for some items in OL also have really low score (ranged from 1 up to 5) indicate that the implementation of those item is not really good. Other items of CR, SPD, SQM practices also have the score from 2 or 3, it means that the implementation of them has not been improved much.

Besides looking at the degree of TQM implementation in Vietnam's manufacturing firms, the research also identified their organizational performances, which are identified as the results of TQM implementation process. All criteria in table relate to organizational performances have the scores over 4, including an increase in production percentage (4.07), high quality product (4.03), on-time delivery (4.00), customer satisfaction (4.0914), and employee satisfaction (4.027).

Table 3: Organizational Performances

	N	Minimum	Maximum	Mean	Std. Deviation
Increase in production percentage	259	3	5	4.07	.556
High quality product	259	3	5	4.03	.520
On-time delivery	259	3	5	4.00	.553
	N	Minimum	Maximum	Mean	Std. Deviation
CS1	259	3	5	4.06	.529
CS2	259	3	5	4.08	.578
CS3	259	3	5	4.13	.548
Customer satisfaction	259	3.00	5.00	4.0914	.46103
	N	Minimum	Maximum	Mean	Std. Deviation
ES1	259	1	5	4.05	.639
ES2	259	1	5	4.05	.645
ES3	259	2	5	4.01	.632
ES4	259	2	5	3.99	.685
Employee satisfaction	259	1.75	5.00	4.0270	.54341

(Source: Research's Results)

In addition to the organization performances, table 1 also refers to the respondents' perception of business results in their enterprises. Both revenue and profit growth have been achieved. 100% respondent said that their revenue has grown, while 93.28% said their enterprises have achieve profit growth.

In fact, the study focuses on how TQM practices have been implemented in Vietnam's manufacturing firms, by looking at the degree of TQM operationalization. Moreover, discovering barriers that impede these practices is also important for the enterprises, to overcome the difficulty and maintain the effectiveness.

4.3 Barriers to TQM implementation

The third part of the survey shows the respondents' perceptions about TQM situation and barriers to apply them in those enterprises. The respondents were asked about what difficulties and barriers face to their enterprises, while apply TQM. The barriers come from three parts, including managerial issues, human-oriented issues and organizational issues. Table

4 shows a list of barriers identified by the respondents.

Table 4: Barriers toward TQM implementation

(Source: Research's result)

Barriers	Votes	Percentages (%)
Lack of benchmarking	72	27.80
Low motivation for application	59	22.78
Lack of training	49	18.92
Conflict with other management methods	46	17.76
High implementation costs	44	16.99
Long-term results (Difficult to quantify the benefits of TQM)	38	14.67
Lack of specific guidance for the application	38	14.67

The two biggest difficulties are lack of benchmarking and low motivation for application, which arrive from managerial issues. It also links with organizational leadership above, which has done not quite well in these enterprises. Moreover, poor training and lack of specific guidance for human resources are accompanied with human resource relationship practice's situation. The respondents also indicated some other difficulties, such as lack of organizational culture, lack of time to do, backsliding to old ways of working. Identifying and understanding these barriers are important for successful TQM implementation in Vietnam's manufacturing enterprises. Moreover, qualitative research is needed to discover the reason behinds these barriers.

5. Conclusion and implications

The findings of this study contribute to practical insights in some ways. First of all, the research investigates the awareness of entrepreneurs, managers and other employees about TQM. Understanding the extend to which TQM practices have been implemented in their enterprises helps to them to improve their activities' effectiveness and achieve better organizational and business performances. Secondly, investigating the barriers that delay or hinder TQM implementation supports the enterprises to overcome the difficulties easily.

The success of any TQM initiative depends largely on organizational leadership. Top management should involve in communication and planning of organizational goals, take quality as their responsibility and provide significant resources to improve and maintain quality. They should interact routinely with their concerned departments and make plans for contingency changes.

Customer satisfaction is a key for success, so that the enterprises really need to focus on customer relationship, by identifying key customers' requirement, building up the customer-oriented strategies and encouraging partnership, discussing about product design and defective

items, taking customer feedback in a regular basis.

Human resource relation and management play an important role in TQM implementation. The enterprises not only focus on recruiting right person for right job, providing training for newly selected personnel and on-job and multitask training for other employees, but also encourage them to team-work, group-problem solving, and bonus for quality improvement initiatives. The enterprises should pay attention to health and safety practice on a daily basis.

To achieve better quality management, the enterprises should encourage study and planning for improvement of all products and process, frequently inspecting quality product and process; deploying seven tools of quality to plan, control and improvement processes, applying statistical control and visual management.

Last but not least, to maintain quality at source, the enterprises should build up the long-term relationship with their suppliers. Selecting the suppliers with quality certificates and choosing the quality of products over price are two priorities. Moreover, the enterprises should visit their suppliers to inspect and evaluate the products for improving quality, as well as collecting the detailed information about their supplier and performance.

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Appendix: TQM constructs and items

OL	Organizational leadership
OL1	Top management actively involved in communication and planning of organizational goals.
OL2	Top leadership provides significant means (resources) to improve and maintain quality.
OL3	Top leadership view quality more important than production (means quality has more importance than production schedules).
OL4	Management at the top takes quality as their responsibility.
OL5	Top executives routinely interact with their concerned departments (quality and others).
OL6	Top management is evaluated on quality performance.
OL7	Top leadership anticipate changes and make plans to accommodate it.
CR	Customer relationship
CR1	The key customer requirements are identified and fulfilled.
CR2	Customer oriented strategies are built and reviewed for further improvement.
CR3	Encouragement provided to partnerships with customers to make relations better.
CR4	Design, development and delivery of products is according to the customer requirements.
CR5	Customer satisfaction feedback are taken after a regular interval.
CR6	Customer complaints are properly recoded and reviewed to maintain our quality

	standards.
CR7	Concessions are provided for defective parts/products.
HR	Human resource relation
HR1	Recruitment procedure focuses on “right person is selected for right job”.
HR2	Proper and efficient training is provided to newly selected personnel.
HR3	Health and safety practices are excellent.
HR4	Career development training to employees is provided by the company (both inside and outside of the company).
HR5	Employees are multi-task trained.
HR6	Small group problem solving is encouraged by the company.
HR7	Incentives and bonus are available for quality improvement initiatives.
SPD	Strategic planning and development
SPD1	The company encourages study and planning for improvement of all its products and processes.
SPD2	There is frequent inspection of product quality and process takes place.
SPD3	The company employs seven tools of quality to plan, control and improvement of processes.
SPD4	The company collects data first and then makes decision for the improvement of process, after reviewing it.
SPD5	The company uses statistical control for quality management.
SPD6	The company uses visual management for quality.
SQM	Supplier Quality Management
SQM1	The company regards quality of products more important than price for selecting a supplier.
SQM2	The company has provided certification to our suppliers and routine audits take place in maintain quality standards.
SQM3	The company’s employees periodically visit our suppliers to inspect and evaluate the products for improving quality.
SQM4	Our company has the detailed information about our suppliers and their performances.
SQM5	Our suppliers regularly take feedback from us, so as to maintain quality standards.
SQM6	The company has cooperated with suppliers in quality improvement.
	Organizational Performance
	There is an increase in production percentage.
	Our Product quality is very high.
	Product delivery is on-time.
CS	Our customers are fully satisfied.
ES	Employees have high moral and are fully satisfied.

(Source: Adapted from Singh, *et al.*, 2018)

UNIVERSITIES' PERCEPTIONS AND LEVELS OF INTEREST IN LECTURERS' RETENTION: QUALITATIVE RESEARCH

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Abstract:

Lecturers' retention helps universities improve teaching quality and operational performance. The objective of this study was to assess the perception and level of interest among public universities in Vietnam about lecturers' retention. The study was conducted by qualitative methods of in-depth interviews with managers/leaders, lecturers of public universities in Vietnam. Thereby proposing factors affecting the retention of lecturers of public universities in Vietnam.

Keywords: *Lecturers' Retention, Public High Education, Vietnam*

1. Introduction

Education has always played an important role in boosting the national economy, especially in the current period of the knowledge economy. Human capital has been confirmed by many studies as an indispensable factor in the process of economic growth. Education is the fundamental way to create and enhance human capital. The process of developing the Democratic Republic of Vietnam is indispensable for the contribution of an increasingly solid educational foundation. Accordingly, higher education is considered an important pre-output stage for an individual to be able to build and fulfill his or her own aspirations. Therefore, higher education has been observed by the government through the Law on Higher Education (2012) to agree on tasks, powers and regulations for higher education institutions in the main fields of activity as well as the management of teaching staff.

The competence requirements of lecturers are increasing and demanding at higher levels, not only in terms of professional competence but also psychological, intellectual, emotional, etc. Therefore, the pressure on lecturers is also increasing when the large workload and specific requirements of the profession create difficulties in meeting these requirements. The responsibility and also the most important task of the lecturer is to create knowledge and accumulate experience so that students have big ideas, have an educational standard thinking and temperament, have skills and problem-solving capacity in practice. At the same time, teachers need to be role models to inspire lifelong learning and striving for students. In addition, teachers are still under pressure on the needs of material life, pressure from relationships and in their own minds, minds and forces.

However, resources to support the work of lecturers also keep them motivated to strive at work. Therefore, this study assesses the level of interest and perception of public universities about current faculty retention.

2. Literature review

2.1. The concept of workdemand – work resources

The Work-Resource Demand Model (JD-R) assumes that while all occupations can have risk factors related to job stress, this group of factors can be categorized into two main categories: job demand and job resources. From there, a holistic model is created that can be applied to many different environments and industries regardless of specific needs and different related resources. (Bakker, Demerouti, de Boer, et al., 2003; Bakker, Demerouti, Taris, et al., 2003; Demerouti, Bakker, de Jonge, et al., 2001; Demerouti, Bakker, Nachreiner, et al., 2001)

In it, it was clearly stated that:(Bakker & Demerouti, 2007)

- Job demands will include the physical, psychological, social and organizational aspects of the job, which require effort or psychological and physical skills. Therefore, it is associated with certain psychophysiological problems (cognitive and emotional). Examples of this group of factors can be mentioned as high work pressure, environment, unfavorable workplace facilities, psycho-emotional activities with customers, etc. While job demands are not necessarily negative factors, they can easily cause stress for employees at work because they require a certain amount of effort on the part of the employee (Meijman & Mulder, 1998).

- Work resources will include physical, psychological, social and organizational aspects of work that are characterized:

- Have a role in helping employees achieve work goals;
- Reduced work demands and psychophysiological problems;
- Stimulate the exploration and personal development of employees.

Therefore, it can be said that the work resources needed in solving work needs and moreover, they are of their own importance. Our character theory also confirms this by emphasizing the motivational potential of tasks including autonomy, responsiveness, and meaning of tasks. The theory of resource conservation (COR) put forward by also holds that the main motivation of people is towards hoarding and maintaining resources, which are expressed differently at different levels such as: salary, career opportunities, job security at the organizational level; the working environment at the individual and societal level; achieve a clear role, be involved in the decision-making process at the level of work organization; have diverse skills, autonomy at the task level.(Hackman & Oldham, 1980)(Hobfoll, 2001)

2.2. Lecturers' retention

Lecturers' retention refers to the instructors' intention to continue teaching activities in the future. The concept of faculty retention was developed on the basis of employee retention. Employee retention has been studied from various angles by scholars in many industry groups, however, they all have similarities. There are views that retention is the commitment of employees and individuals to their businesses and organizations. There is a view that retention is understood as employee engagement with the organization. In broad terms, retention is the intention to stay, work long-term, maintain work, or the loyalty of individuals in specific positions in their organization.

(Sinnott et al., 2002) Employee retention, or in other terms, is employee retention, including the effort to create, as well as foster, an environment that encourages employees to continue working with practical policies that meet the diverse needs of employees. Employee retention refers to the efforts an organization makes that increase the chances of individuals staying in the organization longer. shows that employee retention is a combination of policies and practices, influencing employees to stay with the organization for a longer time. According to , an employee's intention to stay is directly related to their willingness to have a positive attitude. assume that the intention to stay is whether the employee wants to continue as a member of the organization, is willing to stay in the organization, or stays after careful consideration. Determine that the intention to stay in an organization is related to the loyalty of individuals to the conditions and working environment in that organization, thereby being ready to continue working in the future. Affirming that when the organization provides opportunities for employees to develop themselves as well as improve their ability to work, these individuals will establish a psychological relationship with the organization, forming an element of commitment to the organization. It is this element that later develops into the intention to continue the work of individuals . From this it can be understood that the intention to stay is influenced by the psychological relationships between employees with their organization or, in other words, the employee's identification with their organization. According to , there exists a complex relationship between employees and employers that influences the behaviors and thoughts of individuals. Mention that employee commitment is a component of motivation, which directly leads employees to complete tasks, essentially accomplishing the end goal. It deals with the psychological aspects that form attachment to the organization. In summary, although referred to in a variety of terms, faculty retention can be defined based on employee retention definitions, which are understood as the intention of faculty members to stay at the institution, demonstrating their long-term commitment to the university.(Isfahani & Boustani, 2014)(Armstrong, 2009)(Yoshimura, 2003)(Chang et al., 2019)(TETT & MEYER, 2006)(Coetzee & Stoltz, 2015)(Chen & Chen, 2021)(Naim & Lenkla, 2016)(Cole & Bruch, 2006)(Slatten et al., 2021)

A review of previous research found that faculty retention can be influenced by a variety of factors such as supervisor relationships, organizational relationships, or even psychological constraints. Research on this issue is an important issue at the organizational level, helping managers understand the factors that impact employee retention, creating efficiency in the operation of the entire organization. Not only that, but on an individual level, research can also help teachers see clearly into their own abilities as well as their work.(Slatten et al., 2021)(Mahto et al., 2020)

3. Research Method

To accomplish the research objectives, the study selected in-depth interview methods and focus group interviews. This approach provides the most appropriate approach for exploratory research (Nguyen Van Thang, 2012) and allows research to identify individual perceptions (representing educational institutions) about teacher retention and factors affecting teacher retention (Phan Thi Thu Hien, 2019).

The interview process is conducted in two stages. *In phase 1*, the study consulted experts to get an overall assessment and view on issues related to faculty retention at public universities and how to choose scales. This process allows the research to capture key issues that should be taken into account when undertaking in phase 2. *Phase 2* is the process of conducting interviews with representatives from Vietnamese public universities to determine perceptions of faculty retention and factors affecting teacher retention.

The main subjects of qualitative research are lecturers working at public universities in the North, Central and South in Vietnam. Interview subjects selected based on classification criteria are faculty members belonging to *the administration* (Principal, vice principal, etc.), *lecturers holding management positions* (Faculty schools, deputy faculties, subject schools, deputy heads of departments, etc.) and *pure teaching lecturers*. A total of 15 school board representatives, 16 lecturers holding management positions, 47 lecturers who are working as regular teachers participated in the interview. In addition to interviewing representatives from universities, the study collected opinions from 4 experts in research activities in the field of education.

The 78 subjects interviewed were conducted between early September 2022 and the end of mid-October 2022. First, the study contacted the administrators of 30 public universities by email in order to exchange and obtain consent to participate in interviews from 21 schools. After that, the study exchanges the requirements of the interview subjects to ensure the classification criteria such as working department, years of experience, academic degrees and receives a list of participants as well as contact information of each participant. Subjects are contacted and scheduled for interviews in both in-person and online. The subjects at the same working location form an interview group (maximum 5 people to facilitate the control and

collection of information). *The 22 interviews* were conducted in the form of semi-structured interviews and based on prepared basic questionnaires.

The content of the interview consists of 3 parts. Part 1 introduces the research and conduct of collecting participant information, with a commitment to protect the identity and personal information as well as the location of work. Part 2 collects opinions on teacher retention and factors affecting teacher retention. In Part 3, the study conducted to collect the opinions of the subjects on the scale and the expected questionnaire test survey. Data to be collected during pre-prepared interviews. However, in order to optimally exploit information sources from the subjects, the interviewer needs to be sensitive to grasp the respondent's thought flow and flexibly ask appropriate questions to prompt more relevant information. The information gathered from the previous interview will be mentioned and exploited in later interviews, until the research does not receive new ideas.

Information from the interviews is kept in the form of recordings combined with audio (with the consent of the participants) for data processing. The recording files are reproduced with the support of Nvivo7 software with the result of 95 pages of A4 data. The three members of the study cross-examined the transcript several times between the transcript and the results of the transcription to correct for false or missing information, until consensus reached over 95%. After that, the study proceeds to encrypt the data, collate, analyze and synthesize the results received. This process helped the study determine the level of awareness and implement faculty retention.

4. Results

Table 1. Classification of interview subjects

Criteria	Amount	Proportion
<i>Academic degrees</i>	78	100%
<i>Professor, Associate Professor</i>	8	11%
<i>Doctor</i>	32	43%
<i>Master</i>	38	51%
<i>Title</i>	78	100%
<i>School Board</i>	15	20%
<i>Lecturers holding management positions</i>	16	21%
<i>Lecturer</i>	47	63%
<i>Years of work at the school</i>	78	100%
<5	25	33%
(5; 10]	38	51%
>10	15	20%

Source: Meta-study

Among the 78 lecturers interviewed, masters accounted for the highest proportion (51%), professors and associate professors only 8 (11%). The rest have no teaching assistants or unqualified lecturers to teach at the university. Of the 21 participating universities, 15 were represented as rectors or vice-chancellors (20%), 63% of participants were regular teaching lecturers.

4.1. Results of awareness and interest in retaining lecturers of Vietnamese public universities

All university representatives insist that faculty retention is not a new concept in the industry. Someone said that faculty retention is "efforts to make a faculty member have awareness of the basis of *work, trust and loyalty to the organization*" – Dean of the Department of Training Management of a Southern school.

"Schools retain faculty as well as businesses seek to retain staff. It's a series of actions that includes devising strategies to maintain motivation and focus — motivating faculty to keep working and working for the good of the university." — Vice Chancellor of a Northern University

"Faculty retention has become an area of educational research that focuses on how factors, such as school characteristics and faculty demographics, influence their decisions about staying, transferring to different schools, or leaving the profession before retirement." – Head of the Department of Scientific Research at a Central Public University.

Leaders agreed that retaining faculty is one of the university's growth strategies. And their target audience is mainly talents, lecturers with high qualifications and outstanding performance. Accordingly, the retention of lecturers is said to play an important role for each educational institution and institution. *"Attracting and retaining talent is always one of the top priorities of leaders,"* said the president of a central public university.

"Universities that want to achieve sustainable development goals need to have a clear faculty development strategy, solutions to attract and retain talented people to work and contribute." – Vice Chancellor of a Northern university.

"The retention of lecturers is not only a quantitative factor, but also a quality factor to improve the quality of education." – Vice Chancellor of a Southern university.

"Not only lecturers play an important role, all staff in the school are indispensable links to serve the training process of the school. Therefore, attracting and retaining talent, creating a quality team resource is an important issue for the university."- President of a Northern University.

"Attracting talented people is important, but retaining talented people is even more important. Universities need to build a good working environment and conditions to create stability and synchronization in the quality of the team." - Rector of a northern university.

Not only do administrators value the role of faculty retention, but teachers also recognize that individual engagement is important to the institution. *"Currently, the number of working teaching staff does not meet the learning needs in society. Recruiting young lecturers is not easy. Many units cannot find a way to keep the brainpower here, causing the pressure of the school's work to increase, the enrollment also faces many difficulties and delays in educational tasks"* – Lecturer of a university in the North. However, according to some lecturers, there are still educational institutions that do not prioritize and try to find ways to retain talented people. The manifestation of this case is that the incentives for potential lecturers are not valued, and no effort is made to find ways to solve problems that are difficult for teachers.

The interviewees also presented concrete evidence of university faculty retention. This shows that faculty retention is not only perceived at the theoretical level but has actually become the direction and operating policy of many public universities. According to some lecturers, many schools have done well in attracting and retaining talented people. *"The university set up a fund for faculty to do science, creating the best conditions for research enthusiasts. This activity also helps teachers increase their income from their research projects and projects."* – Lecturer in Economics.

"The school is currently training in an application-oriented way, so the implementation of talent attraction must also be in accordance with the goals and strategies of the school." – Lecturer in medicine.

"We determined from the beginning that human resources to keep the school running is a very important factor, so good lecturers and researchers are valuable capital that needs to be retained." - Lecturer in information technology.

The interview results show that public universities are now aware of faculty retention and the importance of faculty retention to the development of the institution. Faculty are also aware of the significance and role of faculty retention for universities. Many lecturers appreciated the university's work in place for policies to attract and retain faculty. This shows that faculty retention is not an unfamiliar issue in the higher education landscape in Vietnam. This is the foundation for an empirical research model.

4.2. Cognitive Results of Factors Influencing Faculty Retention/Teacher Engagement

Administrators interviewed said there were many important factors for the university to attract and retain faculty. The comments were divided into 3 main elements: the first was about strategic planning, the second was the mechanism for retaining lecturers, and the third was a positive and progressive educational environment. *"The school needs to clearly plan development goals and strategies, from there, recruitment activities, improving the quality of the team must also follow that direction and development strategy. Because each faculty*

member considers whether that strategy and direction of development is suitable for their career path." – President of Southern University.

"Universities need to create an open mechanism to retain talented people who have chosen to accompany the institution to implement the outlined development goals and strategies. For example, some lecturers are research-oriented, some lecturers want to specialize more in teaching. Universities must try to create conditions for them to promote their strengths, strengths and passions." — President of the University of the North.

"In order to retain faculty, the university also needs to create welfare, attachment and cohesion among colleagues, in order to create a friendly, positive and progressive educational environment." - President of Northern University.

From the perspective of lecturers, the choice of continuing or relocating is determined by many factors. For the convenience of analysis, the study synthesizes and divides these factors into two groups, including NLCV factors and job demand factors. The factors of the work resources are of a positive nature, which is the driving force for the ability of lecturers to engage with the school.

Some teachers have emphasized that they need certain resources from their work environment to be able to get their work done. It could be office space or equipment, curriculum, syllabus, etc. This resource is not always provided by the organization, but they also use their own resources. *"Having a comfortable and comfortable office space can help me relieve stress at work."* Or *"using a personal computer instead of a school computer helps me get my work done more productively."*

Besides, workplace relationships were also assessed to have a great influence on their motivation to work. A friendly and supportive environment will help them feel recognized and included, making them more willing to give and stay with the school for a long time. *"This is a place where I can go at any time and get advice, such as teaching and learning. I can consult and get help on how to develop a new curriculum and how to use online resources. That makes me feel that I am not alone but can have a long journey."* – Lecturer in Pedagogy.

Many teachers also see themselves as a work resource, including their physical, psychological, ability to control their work environment, etc. Some teachers argue that in order to manage their work well, they need a certain freedom in decision-making. Or autonomy is a measure that helps them manage and handle work. *"Most people are free to come up with new ideas or change some things related to teaching such as choosing subjects, developing their own content and teaching methods. This made me feel given the opportunity to develop and perform to my strengths."* — Lecturer in Economics. This is quite similar to the opinion of senior officials when they think that the issue of building an open mechanism to retain talents, give them autonomy, provide an environment and opportunities to realize their passions and promote their strengths.

Another opinion given by lecturers is the value of the work. That's when they feel the work gives meaning in line with their ideals, bringing many benefits to the collective and society. This can be a factor that helps them overcome the pressure of workload because they feel that the effort is worth it and meaningful. "*The motivation of the lecturer is to contribute to society.*" – Lecturer in engineering. "*My passion in my work is to make a difference.*" – Lecturer in economics. "*Teaching is a profession that creates a lot of value, a source of knowledge and human capital. This is always a source of motivation for me to energize when working.*" – Lecturer in pedagogy.

In addition, demand/work requirement factors are the main cause of stress and pressure for lecturers. The job needs/requirements in question are factors related to workload, time to complete tasks, quality standards to be achieved, etc. Many instructors cite workload as one of the factors that makes them feel pressured. Administrative tasks are mentioned first, when many teachers believe that administrative procedures have many unstreamlined points, are still formal and have many jobs that cause them to spend extra hours to perfect them. In addition, teaching and controlling large numbers of students in a classroom also makes it difficult for them to support all students and unable to care for the entire class. "*The number of students in a classroom is too large. Many times lecturers who want to support students are left behind, but because the class is so crowded, it is difficult for teachers to access, unable to make a difference.*" – Lecturer in the Faculty of Social and Humanities. "*Some days I work from 6 a.m. and throughout the day. When I go home, I still need household chores, which sometimes makes me feel exhausted.*" The increased demand/demands of work cause lecturers to work long hours. This makes it possible for them to experience physical and mental health problems.

Time pressure is also a cause of frustration and want of relief of lecturers. Having to perform a large amount of work in a short period of time makes them need to prioritize choosing the tasks that must be completed first. This can create contradictions, leading to the behavior of performing tasks in a casual and only formal way, leading to unsatisfactory results and causing them to gradually lose motivation to work. "*Cumbersome bureaucracies and bureaucracies, endless meetings and rushed work are really a hindrance.*" - Lecturer of Southern Public University.

Student behavior and attitudes are also factors that can create pressures for teachers both in terms of how to behave with teachers and attitudes in learning. Since education is a highly valued and highly respected profession in society, the outputs of a generation will become a challenge for many teachers. Education is also a meaningful and ideal profession for many people. They want to contribute and expect their dedication to bring a lot of value. When students are not motivated to strive and study, without a certain respect for faculty, they will feel a loss of meaning and ideal of work. "*Sometimes the gap between lecturers and students is difficult to close, I always hope to be able to listen to students' thoughts about the future*

development path, but it is always difficult to gain the trust of children." – Lecturer in architecture.

For some teachers, the issue of faculty compensation is not too important. *"Elite instructors often have multiple sources of income. They have other careers, can own their own businesses. Teaching is a place where they want to try and assert themselves."* Other teachers still cite income from the teaching profession as one of their pressures. Especially, funds for research, publication and publication account for significant expenses.

According to the subjects, job resources or work needs/requirements all have their own ways of influencing their choice to engage or change. Work resources can bring them potential opportunities and favorable conditions for career development. At that time, *"the plans and goals of the faculty will be aligned with the development policy and goals of the school."* And in his career path, the lecturer will see the university as a necessary place and always go hand in hand with himself. Meanwhile, N hu hu / work requirements bring significant pressures but its impact is twofold. Many agree that *"pressure eats away at willpower and enthusiasm, which can leave a person feeling stuck and without the opportunity to grow. They will look for new opportunities."* Some interviewees said that pressure can lead to greater efforts to develop themselves and overcome difficulties. From there, the teacher can still stick with the school. However, this *"depends on many other factors such as development opportunities, compensation of the school, psychological and physiological characteristics of the faculty"*.

The results of the study show that teachers' opinions about the factors that influence the commitment of the institution can be divided into two groups of factors: job requirements/requirements and work resources, respectively two independent variables of the model. In particular, work resources are considered as a source of motivation to help lecturers align their career development goals with the university and be more engaged while job demands/requirements can bring pressure to lecturers to seek new career opportunities, reduces the university's ability to retain faculty. This suggests that job resources and job needs/requirements can affect faculty retention through career-related issues such as faculty career plans.

5. Conclusion

Improving the quality of recruiting and training lecturers is a long-term development goal of universities. As defined by the Ministry of Industry and Trade (Communist Party of Vietnam, 2016): *"Improve the quality and efficiency of research and application of science and technology, especially education and management science"*. Currently, lecturers at public universities have been trained in the right teaching expertise, ready to support and accompany learners in the process of learning, scientific research and even in the corporate environment. Most lecturers have Master's degrees or higher. Specifically, the number of lecturers with postgraduate degrees reached 94.3% (L.T.H Hanh, 2021). However, this rate is uneven at higher

education institutions. Lecturers with university degrees are only tasked with college-level teaching or teaching assistants, providing practical guidance. This shows that the quality of teaching staff in terms of professional qualifications has been improved. Only in the teaching staff of the University of Electricity, the quality of lecturers has been increased by 41 lecturers with doctoral degrees after 2 years of study, from 83 PhDs in the academic year 2017-2018 to 122 in early 2020. At Quang Ninh University of Industry, the number of lecturers achieving doctorates in 2019 has increased by 26 people (44 PhDs) compared to 2015 (18 PhDs). These impressive figures show that universities have made a lot of determination and efforts to attract and retain highly qualified lecturers, as well as activities to improve the teaching qualifications at universities have also been invested and interested.

The lecturers themselves always actively improve their qualifications and education in the teaching process, constantly updating knowledge and researching to learn effective teaching methods. Lecturers at universities always have to learn and innovate continuously to ensure the ability to transfer knowledge, practice self-study, develop necessary skills, gain experience, etc., for students. Accordingly, 100% of lecturers at public universities have been granted certificates of training in pedagogical skills. Most lecturers are aware of the important role in updating knowledge, innovating teaching methods, achieving theoretical and practical balance in each subject and level of education, etc. These are essential factors for students to have sufficient competencies and qualities to meet the requirements of society.

In the current era of technology and digital transformation, lecturers at public universities in Vietnam are also constantly updating their knowledge and learning skills about technology. For universities under the Ministry of Industry and Trade, 100% of lecturers meet standards and are granted certificates of information technology skills according to Circular No. 03/2014/TT-BTTTT dated March 11, 2014 of the Ministry of Information and Communications. Specifically, the lecturers have basic knowledge of computers and the Internet, have the ability to absorb information from the Internet to serve the teaching process, can proficiently use MS Office, as well as related skills for scientific research activities. More than 90% of lecturers majoring in information technology have achieved international IC3 certificates. Not stopping at the basic level, many lecturers have researched and effectively applied information technology to teaching and scientific research. Many lecturers have learned and referenced the teaching style of developed countries such as the UK, USA, Japan, Singapore, etc. Many lecturers choose to improve their capacity by participating in foreign training programs and returning home to continue teaching at universities in Vietnam.

In the context of the growing economy, the income and living standards of lecturers of public universities have also gradually improved. Universities also organise regular health check-ups for academic staff to ensure they are consistently performing their teaching jobs in a healthy physical condition. All schools organize periodic health check-ups 2 times a year for all staff, lecturers and employees in the school. In addition, the state government and the

university also encourage and mobilize lecturers to participate in the movement of physical exercise, scientific activities, and health promotion.

The teacher's mental strength is reflected in the firmness of his views, moral qualities, political stance, lifestyle and willingness to take responsibility. The lecturers at public universities grasped revolutionary moral qualities, led a healthy lifestyle, were honest, pure, exemplary, simple and had a high sense of disciplined organization. In relationships with parents, students and colleagues, lecturers have respectful manners, cooperation to help each other, self-respect, enthusiasm for the profession and always have the will to progress. Most lecturers have the spirit of facing and overcoming difficulties, always striving to complete tasks, improve teaching efficiency. Many faculty members have a good record of fulfilling duties, exemplifying and performing pioneering roles. These are lecturers who receive a lot of moral and lifestyle trust, have a reputation for political qualities and are highly valued.

Public universities are now managing faculty activities according to teaching, scientific research and other tasks (N.T.T. Thao et al. (2020)). In order to retain faculty, school leaders need to pay more attention to the teaching staff in the school. Develop and implement programs to inspire and encourage lecturers to improve their capacity and professional qualifications. At the same time, it creates conditions for lecturers to cultivate practical experience and knowledge. As can be seen, this is a fairly familiar recommendation for educational development at a university. However, the practical application still has many shortcomings. Therefore, the study makes some recommendations to school administrators as follows: Salaries and bonuses are one of the important factors to enhance the commitment of lecturers to universities. Therefore, on the basis of the Government's regulatory documents, the administrators of higher education institutions develop and complete appropriate welfare and remuneration policies. Schools can apply a 3P pay model, including job position, personal competency and work performance. The model reflects that each given job position will be paid a salary commensurate with the dedication. From here, create motivation to improve the job satisfaction of lecturers.

At the same time, according to the Maslow theory model, there are many other factors that motivate people to work except salary such as the need for health, respect, the need to express themselves ... Therefore, the school board considers diversifying the appropriate welfare mechanism. In addition to basic social welfare regimes such as holidays, work travel, sickness regime ..., the university can establish other welfare regimes such as the policy of sending lecturers to attend seminars abroad, being sent to study or exchange abroad ...

Schools need to design training plans in accordance with basic standards set by the government and associated with the long-term development goals of the school unit. To design the right plan, the school board needs to clearly define the audience, content and budget. Next, based on the plan, the school develops a specific training process according to training needs.

At the same time, post-training assessment should also be focused. At the same time, the school needs to supplement and improve regulations on training policies. Diversifying forms of training is also a method that needs to be considered in the future.

Building an environment of academic freedom in the school. At the university, teaching staff enjoy academic freedom on the basis of professional and ethical standards. At the same time, lecturers engage in academic research associated with the responsibility to ensure objectivity, fidelity to the truth and respect for the academic freedom of others. Since then, lecturers develop scientific research capacity according to their interests and abilities. As a result, it both meets the wishes of lecturers and improves the quality of university teaching staff in the school.

It is also important for schools to be aware that teaching and scientific research are "dual" tasks. Therefore, the university not only aims to encourage scientific research but also needs to include scientific research capacity as an evaluation criterion in the teaching record of lecturers. Scientific research works should be recorded in the competency profile of lecturers, thereby serving as a basis for appropriate teaching and research subjects.

In addition, universities need to promote international cooperation in scientific research. This is an opportunity for lecturers to learn, exchange with outstanding researchers in the world, approach world-class problems and become international researchers. Establishing a common code of conduct in schools should be done early. This creates a fair and effective working environment. At the same time, improve and increase the cohesion among lecturers. From there, strengthen the retention factor of teachers from within them.

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PARALLEL SESSION 3

**FINANCE &
BANKING**

SUSTAINABLE BANKING & FINANCIAL INCLUSION IN THE GLOBAL SOUTH: THE “S” IN ESG

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1. INTRODUCTION

Financial inclusion or the extension of formal financial services to the poor has enormous benefits for individuals all over the world, particularly in developing countries (Karlan and Morduch, 2010; Demirgüç-Kunt et al., 2018). Access to banking has been identified as one of the most potent factors lifting people out of poverty and enabling their development and well-being (Allen et al., 2016). In this context, financial inclusion has gained traction as a policy issue in international development circles, as reflected in the fact that it became a crucial objective of the Sustainable Development Goals (SDGs) formulated by the United Nations (UN) in 2015 (UN, 2020).

Specifically, Target SDG 8.10 exhorts financial institutions to expand access to banking (UN, 2015). Despite all this attention, lack of bank account ownership has declined only from 1.7 billion adults in 2017 to 1.4 billion in 2021 (World Bank, 2022b, 2018). At present, 24% of adults on earth have no access to banking (Demirgüç-Kunt et al., 2022). The problem is acutest in the developing world where commercial banks have not reached out to the poor and low-income households – those most in need (Girón et al., 2022; Karlan et al., 2010). Estimates are that 29% of adults in the global South lack a bank account, compared to only 4% in the North (Demirgüç-Kunt et al., 2022; IMF, 2022).²⁶ In light of the current economic headwinds, taking decisive action against financial exclusion is more critical than ever, as the poor in the global South are the hardest

²⁶ Our sample is made of 32 global South countries from Latin America, Africa, Asia, the Balkans, Middle East, and Caucasus: Algeria, Bolivia, Brazil, Chile, Colombia, Ecuador, Egypt, Ethiopia, Georgia, Ghana, Guatemala, Haiti, India, Indonesia, Jordan, Kazakhstan, Lebanon, Libya, Malaysia, Mexico, Morocco, Pakistan, Peru, Philippines, Serbia, Thailand, Turkey, Ukraine, Uruguay, Uzbekistan, Vietnam, Zimbabwe.

hit by inflation, food shortages, and slowing economic growth (World Bank, 2022a)

Some scholars argue that multinational banks (MNBs) may be best positioned to expand financial inclusion because they are economically more efficient and technologically more competitive than domestic banks in the global South (Bonin et al., 2005). Studies have made a case for MNBs as the ideal change agents because their decades of experience of expansion into the South have obliged them to innovate market and non-market strategies for managing the complex political and economic environments they typically encounter (Doh et al., 2017; Boddewyn, 2003). Multi-nationality, size, and world market scope have given them more clout, normative reach, autonomy, and motive to act than other actors in the developing world (Rugman and Doh, 2008). Other scholars, however, dispute this, contending that the impact of MNBs on financial inclusion in the South has been decidedly mixed (Beck and Martinez Peria, 2010b; Ordonez-Ponce and Weber, 2022), after finding that the impact of MNBs is inconsequential owing to their single-minded focus on business interests like shareholder return on investment (ROI) (Gormley, 2010). Stiglitz (2005) concluded that MNBs are a less-than-ideal conduit for augmenting access to banking in the South, as they prefer catering to local elites and are indifferent (at best) to the provision of access to the neediest.

Weighing up both sides of this debate, we argue that MNBs can articulate a credible framework for advancing financial inclusion *only* insofar as they actually implement the Environmental, Social, and Governance (ESG) criteria. Integrating ESGs into workaday bank operations helps to underpin sustainability (Aracil et al., 2021; Ubeda et al., 2022a); thus, such practices should enable MNBs to advance financial inclusion (Ubeda et al., 2021). The literature is scarce, however, which analyses the influence of their Social practices on financial inclusion (Ubeda et al., 2022b). And the “S” in ESG, in particular, remains to date the most difficult pillar for academics to analyse and for firms to integrate into their corporate practices, due to the difficulty of obtaining relevant data in the absence of an agreed standard for defining and measuring this dimension (Baid and Jayaraman, 2022).

Nevertheless, the Social aspect is more critical than ever; in fact, it has been cast into the starring role as a result of COVID, garnering more attention than ever from investors. The speed, scope, and severity of the crisis is unprecedented, and the factors of the Social aspect (such as financial inclusion) have become the most urgent issues for companies globally. Entire sectors of the economy face a bleak, uncertain future. A company’s reputation will become a function of how transparent and sincere it is willing to be with its share- *and* stakeholders on the Social criteria.

Using a sample of 152 MNBs, 32 developing countries, and 37,952 individuals, we analyse the effect which the Social practices of MNBs exert on financial inclusion in the global South. We find that a sustainable perspective positively impacts all dimensions of financial inclusion and does so across all income levels in the developing world. This suggests that the

Social aspect of ESG can alleviate exclusion for those with the lowest incomes in the South. To advance understanding of how this Social influence on the global South operates, we define three distinct dimensions of financial inclusion – *i.e.*, access to banking, the ability to save, and the ability to borrow. We also add to the literature on the methodology of research on financial inclusion, by showing cause why it should be measured less one-dimensionally by more than just bank account prevalence (Pesqué-Cela et al., 2021; Bateman and Chang, 2012).

2. THEORY AND HYPOTHESES

2.1. The Social dimension of ESG as a lever of financial inclusion

The Social aspect of ESG has received less attention than the other two (Hedstrom, 2018). In fact, ever since the ESGs were introduced to the banking sector in 1990 (Mendez and Houghton, 2020), Environment and Governance have captured the lion's share of attention because on policy agendas all over the world climate change and misgovernance have been deemed the most urgent issues (Saul, 2022).

Firms have also found it challenging to engage the Social aspect of ESGs, as it is harder to appraise than the others because of its more qualitative characteristics (BNP Paribas, 2021; Neilan et al., 2020). Nor have the several services that provide firm-level ESG ratings agreed on how to measure this aspect, which only heightens the challenge (Berg et al., 2022). The upshot is that firms have found it more straightforward to comply with and take on board the Environment and Governance aspects, as greatly facilitated by their quantitative nature and the generally agreed methods of assessing it (PRI, 2017).

When endeavoring to analyse the Social aspect²⁷, it is notable that Thomson Reuters²⁷ (2017) takes some account of it in the process of rating firms (*viz.* banks) on the quality of their commitment to ESGs. Firm scores are compiled over four Social dimensions: (1) *Workforce*, measuring care of employees; (2) *Human rights*, measuring respect for universal legality; (3) *Community*, measuring commitment to good citizenship and business ethics; and (4) *Product responsibility*, broadly measuring quality of output. Compared to Environment and Governance, the Social aspect and its four dimensions are the ones most relevant to our theme of financial inclusion.

The sustainable practices of multi-national banks (MNBs) that implement the Social criteria do matter for financial inclusion, because the Social criteria directly address the human rights of bank customers as well as other stakeholders in the communities served by banks (Becchetti et al., 2022). One of the four dimensions used by Thomson-Reuters to determine a firm's ESG rating specifically assesses the firm's expeditiousness in upholding human rights. The other three dimensions are also grounded in principles that may someday be deemed human

²⁷ Thomson Reuters are the world's largest financial statistics database and provider of systematic ESG information to professional investors who manage portfolios by integrating ESG (non-financial) data.

rights, that a firm would do well to follow: upholding decent labour standards (workforce), affirming business ethics (community), and preserving customers' wellbeing (product responsibility) (Thomson Reuters, 2021, 2017).

Some experts indeed conceive financial inclusion as a human right (Queralt, 2016; Yunus, 2007). To say the least, the Social criteria are the kind of signposts to ethical conduct from which human rights are derived; moreover, they direct firms purporting to implement them to treat financial inclusion in all its dimensions *as if* it were a human right; using all reasonable efforts, *i.e.* that do not jeopardize the firm's continuing existence as a solvent enterprise. One may construe the term "human rights" expressed in the Social criteria as referring to human rights already formalized in international law, while the other dimensions rely on a more informal notion of human rights.

2.2 Financial Inclusion in the global South: Banking, Credit and Savings

Financial inclusion has usually been proxied by the ability to *access* financial services such as formal banking (Carbó et al., 2005; Leyshon and Thrift, 1995; IMF, 2021, 2022). Even the SDG 8.10 emphasises the primordial need to expand *access* to banking to the South (UN, 2015; Ubeda et al., 2022b). One reason for such one-dimensionality is that it is a pretty straightforward path for policymakers purporting to alleviate poverty among the underprivileged; changes in the number of individual bank accounts are easy to count (Helms, 2006; World Bank, 2014). Critics of this approach point out that not enough strong empirical evidence supports the claim that access to accounts is a panacea for the serious predicament of lack of financial inclusion in the developing world (Banerjee et al., 2015; Mader, 2018; Dabla-Norris et al., 2021). Other sceptics argue that this way of gauging financial inclusion is inadequate as it does not measure all relevant factors (Bateman et al., 2012). They show how financial inclusion is a multidimensional public good, but do not arrive at any consensus on what other observable quantities ought to be measured (Mialou et al., 2017; Sarma and Pais, 2011; Gupte et al., 2012).

The critics nevertheless have a point: the want of a clear barometer for gauging the impact of the Social criteria (when implemented) on financial inclusion is what continues to muddle our comprehension of the issue; this empirical inconclusiveness is down to the lack of consensus on what data, contexts and methodologies to employ to better render an accurate measurement (Pesqué-Cela et al., 2021). Certainly, access to banking is primordial, but it is only one of the measurable dimensions needed to provide a fully accurate picture. Hence, it is necessary to include the dimensions of the *usage* of banking services, namely the ability to save as well as the capacity to obtain credit or bank loans (Collard et al., 2001; Dev, 2006). This is particularly important in the global South, where too many scholars assume that financial inclusion is complete once a poor person opens a bank account (Sen and De, 2018; Girón et al., 2021; Chakravarty and Pal, 2013). Bank accounts alone cannot overcome the main barriers to

inclusion in these countries, but are merely the first step toward a more comprehensive and effectual inclusion (Akeju, 2022; Brune et al., 2016).

Hypothesis

As a result of the above considerations, we propose the following hypothesis:

Hypothesis 1: The Social aspect of the ESG criteria, when put into practice by MNBs, positively impacts financial inclusion in the global South.

H1a: The Social aspect of the ESG criteria, when put into practice by MNBs affords access to banking to those in the lowest income groups in the global South.

H1b: The Social aspect of the ESG criteria, when put into practice by MNBs facilitates savings by those in the lowest income groups in the global South.

H1c: The Social aspect of the ESG criteria, when put into practice by MNBs affords borrowing by those in the lowest income groups in the global South.

3. DATA & METHODS

3.1. Sample

Our study merges data from multiple sources. Using the BankScope database of Bureau van Dijk and Fitch Ratings, we identify 1,418 commercial banks in 109 developing countries, of which 564 are subsidiaries of MNBs. To estimate the social aspect of ESG criteria in 2017 by MNBs, we use their social dimension of ESG ratings²⁸ in the EIKON-Thomson Reuters database.

We estimate financial inclusion from the Global Financial Inclusion (Global Findex) survey that reached over 150,000 randomly selected adults in 148 countries (Allen et al., 2016; Chauvet and Jacolin, 2017; Mehrotra and Nadhanae, 2016). We use data from the last survey conducted in 2017 (see: Demirgüç-Kunt et al., 2018),²⁹ allowing us to configure a sample of 32 developing countries and 37,952 individual respondents. The country selection is conditioned by the availability of data.

3.2. Variables

Dependent Variable

Financial inclusion means the access to and use of financial services by the poor (Allen et al., 2016; Kendall et al., 2010). Previous studies used two different approaches to financial inclusion (Ahamed et al., 2021; Beck et al., 2007; Chauvet et al., 2017; Honohan, 2008; Kendall et al., 2010; Tram et al., 2021): (1) one based on individual indicators, and (2) one based on a

²⁸ For more information see <https://solutions.refinitiv.com/esg-data>.

²⁹ Additional information about the Global Findex, including the complete database, can be found at: <http://www.worldbank.org/globalfindex>; see also <http://www.gallup.com/strategicconsulting/en-us/worldpoll.aspx>.

country-level composite financial inclusion index³⁰. The Findex Global survey allows us to go beyond these studies and use three individual indicators to measure financial inclusion (Allen et al., 2016).

1. $Account_{ij}$ is a variable that takes value 1 if individual i in country j is the owner of a deposit account.

2. $Save_{ij}$ is a variable that takes value 1 if individual i in country j used a bank or another type of formal financial institution to save or set aside any money in the past 12 months.

3. $Borrow_{ij}$ is a variable that takes value 1 if individual i in country j used a bank or any other type of formal financial institution to borrow any money in the past 12 months.

Independent Variables

We estimate MNBs' Social practices from the firm-level scores provided by Thomson Reuters that rate firms' commitment to enacting the Social criteria (Cheng et al., 2014; Dahlsrud, 2008; Forcadell et al., 2020; Mervelskemper and Streit, 2017; Ortas et al., 2015; Sassen et al., 2016; Velte, 2016). We use the score of headquarters as a proxy of the Social practices of MNB i in country j ($Social_{ij}$). We estimate the aggregate value of the above

variable at the country level: $Social_j = \sum_{i=1}^{k_j} \frac{A_{ij}^f}{A_j} Social_{ij}$ is the level of Social practices of MNB i in country j , where k_j is the number of foreign subsidiaries in country j . To estimate the assets controlled by an MNB, we use the BankScope database of Bureau van Dijk and Fitch Ratings (Ahamed et al., 2021), which updated the database of bank ownership compiled by Claessens and van Horen (2015). It counts Bank A as a subsidiary if more than 50% of its shares are held by Headquarters H . This criterion allows us to identify an MNB from a domestic subsidiary. To forestall double counts, we use the consolidated counts of banks. Accordingly, A_{ijt}^d is the volume of assets controlled by domestic banks and A_{ijt}^f that by MNBs. We identify 1,418 commercial banks in 109 developing countries of which 564 are subsidiaries of MNBs. Therefore, $A_j = \sum_{i=1}^{n_j} A_{ij}^d + A_j^f$ is the total assets of banks in country j , where n_j is the number of banks located in country j .

Control Variables

We include control variables at both individual and country levels. MNB_j is the presence of multi-national banks in country j as measured by the percentage of total bank assets controlled by foreign subsidiaries $\left(MNB_j = \frac{A_j^f}{A_j}\right)$. BC_j is the level of banking penetration in country j as measured by the percentage of people with bank accounts. $Gender_{ij}$ is a dummy variable that takes value 1 if the individual is female. Age_{ij} is the age in years. $Inc(d)_{ij}$ are

³⁰ For a recent systematic review of financial inclusion measures, see (Pesqué-Cela et al., 2021).

dummy variables derived from the ordinal variable that identifies five income levels, where d takes value 1 for the lowest income band and 5 for the highest income band. $Educ(2)_{ij}$ is a dummy variable that identifies individuals with secondary education. $Educ(3)_{ij}$ is a dummy variable that identifies individuals with a tertiary or higher level of education. $BTrust_j$ is the average level of trust in banks in country j . $BConc_j$ is bank concentration as measured by the total assets of the five largest banks as a percentage of total commercial banking assets. RL_j is the rule of law indicator of the World Governance Indicators, indicating the quality of contract enforcement, property rights protection, and judicial system efficiency.

3.3. Analytical Approach

We analyse the effects of MNBs' Social practices, which is a variable estimated at the country level (level 2) on financial inclusion at the individual level (level 1). Also, some control variables are estimated at the country level. This multilevel frame violates the assumption of independence of observations, leading to downwardly biased standard errors if ordinary regression is used (Krull and MacKinnon, 2001; Preacher et al., 2010). We estimate a multilevel regression.

Given that the variables $Account_{ij}$ and $Borrow_{ij}$ are binary; we estimate a multilevel probit regression³¹:

$$P[Account_{ij}/Borrow_{ij}]_i = 1|X] = \alpha + \beta_1 Social_j + \beta_2 CV1_{ij} + \beta_3 CV2_j + \zeta_j + \epsilon'_{ij} \quad (1)$$

where $Account_{ij}/Borrow_{ij}$ is a dummy variable of individual i of country j , that takes value 1 if the individual has an account in a bank (or has a bank loan), and 0 otherwise. The effects of MNBs' Social practices ($Social_j$) on these dimensions of financial inclusion is measured by the coefficient β_1 . $CV1_{ij}$ and $CV2_j$ are, respectively, the control variables to level 1 and level 2. ζ_{1j} is the intercept, which varies over individuals, and $\zeta_{1j} \sim N(0, \psi_{11})$. ϵ_{ij} are the errors, and $\epsilon_{ij} \sim N(0, \theta)$.

Both institutions and banks have developed strategies to incentivize and facilitate formal household saving among the poorest. The success of these initiatives is conditioned by the demand- and supply-side barriers to formal saving (Di Giannatale and Roa, 2019). The banking penetration can mitigate the costs of acquiring information, enforcing contracts, and making transactions, reducing barriers to savings (Bachas et al., 2021; Célerier and Matray, 2019; Levine, 2005; Schaner, 2018). Therefore, banking penetration can be considered as a moderating variable of the capacity of banks' social strategies to mobilise savings. In these sense, we propose that a minimum level of bank penetration is necessary to the social activities of MNBs have a positive impact on the saving decision. We use machine learning to identify

³¹ We used the command `meprobit` of Stata 16.

this threshold, applying the k-Nearest Neighbors algorithm³². The finding indicates that greater discriminating power, between people who do and do not decide to deposit savings in a bank, is reached when $BC_j = 0.8$. Therefore, we estimate this multilevel probit regression:

$$\begin{aligned}
 P[Save_{ij} = 1] & \\
 &= \alpha + \beta_1 Social_j \times I(BC_j \leq 0.8) + \beta_2 Social_j \times I(BC_j > 0.8) \\
 &+ \beta_3 CV1_{ij} + \beta_4 CV2_j + \zeta_j + \epsilon'_{ij} \quad (2)
 \end{aligned}$$

where $Save_{ij}$ is a dummy variable of individual i from country j , that takes value 1 if individual i deposits his savings in a bank, and 0 otherwise. $I(BC_j \leq 0.8)$ is a function that takes value 1 if $BC_j \leq 0.8$ and 0 otherwise. β_1 measures the effect of $Social_j$ on $Save_{ij}$ when $BC_j \leq 0.8$. $I(BC_j > 0.8)$ is a function that takes value 1 if $BC_j > 0.8$, and 0 otherwise. β_2 measures the effect of $Social_j$ on $Save_{ij}$ when $BC_j > 0.8$. $CV1_{ij}$ and $CV2_j$ are, respectively, the control variables to level 1 and to level 2. ζ_{1j} is the intercept, which varies over individuals, and $\zeta_{1j} \sim N(0, \psi_{11})$. ϵ_{ij} are the errors and $\epsilon_{ij} \sim N(0, \theta)$.

The sample has been segmented into income quintiles. Consider that the social practices of MNBs generate financial inclusion when they contribute positively to the decision to use current accounts, save or use a loan ($\beta_1 > 0$), among the most vulnerable population, i.e. among the first three income segments.

The relationships between financial inclusion and two control variables, trust in banks and income distribution, are not unidirectional, because reverse causality may be in play (Beck et al., 2010a; Neaime and Gaysset, 2018; Xu, 2020). Trust in banks is necessary for financial inclusion, but financial inclusion also improves trust in banks (Xu, 2020). Poverty alleviation increases the demand for banking services, but financial integration reduces inequalities (Neaime et al., 2018). A function control in a standard two-stage method (Wooldridge, 2015) can alleviate, if not solve, endogeneity bias and doubts about the direction of causality. In the specification of the control function, we include the instrumental variables proposed by Bjørnskov (2007) and Xu (2020): $Protestant_j$ is the percentage of Protestants in a population, $GDP.pc_j$ the GDP per capita, $Population_j$ the adult population³³. $Politic_j$ is a scale of political preferences: the higher the value the greater the predisposition toward right-wing positions.

4. RESULTS

Model 1 in Table 1 is a multilevel probit model, in which we analyse the effect of MNBs' Social practices on the use of bank accounts. The coefficient of $Social_j$ is positive and

³² We split the sample into two subsamples, a training section (70% of the sample) and a testing section (30% of the sample)

³³ Given that the population density was not significant, we used the logarithm of population size.

significant, so MNBs' Social practices increase the use of bank accounts. Financial inclusion requires that this effect is sustained among the most vulnerable groups. In these, the coefficients of **Social_j** is significant and positive if the population has less purchasing power, i.e., for the first three income quintiles (Models 2 to 4). MNBs' Social practices positively affect the use of bank accounts among lower-income citizens and contribute positively to financial inclusion (H1a).

Insert Table 1

The outcomes of MNBs' Social practices affecting the decision to save are presented in Table 2. In Model 6, the coefficients of interactions **Social_j × I(BC_j ≤ 0.8)** and **Social_j × I(BC_j > 0.8)** are significant and positive, with the first coefficient smaller than the second. MNBs' Social practices positively impact the decision to save, but the effect is more intense if the country has a high level of banking development. In model 10, the coefficients of both interactions are positive and significant. Again the first coefficient is smaller than the second. The social practices of MNB have a positive impact on people with higher income, this effect is more intense in countries with a high banking development. However, in Models 7, 8, and 9, only the coefficient of the interaction **Social_j × I(BC_j > 0.8)** is significant. Therefore, MNBs' social practices increase the propensity to save among the most disadvantaged groups, only when banking development is high. These findings partially confirm the H1b hypothesis, since a minimum level of banking development is required for the social practices of MNBs to have a positive impact on the savings of the poorest.

Insert Table 2

Table 3 contains the results of models that analyse the impact of MNBs' Social practices on loan contracts. In Model 11, the coefficient of **Social_j** is positive and significant. Therefore, MNBs' social practices increase the resort to bank loans. In Model 15, the findings are the same as above. This confirms this effect among the highest income levels. In Models 12, 13, and 14, the coefficients of **Social_j** are positive and significant. The impact of MNBs' Social practices also increases the resort to bank loans for low-income levels, which confirms hypothesis H1c.

Insert Table 3

ROBUSTNESS

Not all MNBs present in less developed countries have a Social rating, which may call into question the proposed measure of SB_j . To test the robustness of our findings, we select countries where the percentage of assets controlled by MNBs with a Social ESG rating exceeds 50% of assets controlled by MNB. The results confirm that MNBs' Social practices increase the use of bank accounts by the most vulnerable (see Table 4); when the level of banking development is high the social practices of MNB improve the decision to save among the poorest (see Table 5); finally these social practices have a positive impact on the decision to borrow under formal contract increase (see Table 6). These results confirm the robustness of our previous findings.

Insert Table 4, 5 and 6

5. CONCLUSIONS

Our results confirm that when MNBs put the Social aspect of the ESG criteria into practice, they expand financial inclusion in the global South. A positive impact is observed at all income levels, affirming that such practices facilitate access to financial services even by those with the lowest incomes. As noted in the Introduction, lack of bank account ownership has declined only marginally in recent years, from 1.7 billion adults in 2017 to 1.4 billion in 2021, and 29% of adults in the global South lack a bank account, compared to only 4% in the North. But MNBs taking Social actions not only extend access to bank accounts in the South, as exhorted by SDG 8.10, they also have a good effect on other dimensions of financial inclusion that are oftentimes neglected, namely the opportunity to obtain credit or bank loans as well as to save money; both of which constitute capital accumulation. This is a key point because access to a bank account, though primordial, is only one of the measurable dimensions needed to yield a rounded picture of financial inclusion in the countries of the South (Collard et al., 2001; Dev, 2006).

As for the opportunity to access credit and bank loans, we find that when MNBs in the global South incorporate the Social criteria into their business models, it positively affects customers' decision to borrow, at all income levels; confirming that, by enabling the worst-off classes to borrow, the Social criteria advance financial inclusion. As for the opportunity to save, we find that MNBs' Social practices enhance the most disadvantaged groups' propensity to save, – but only when banking development is high. This means that MNBs' Social actions are not enough by themselves to facilitate savings in the South while the level of banking penetration in these countries remains extremely low compared to penetration in developed countries (Chironga et al., 2018).

Our results advance the literature examining MNBs' Environmental, Social and Governance practices in the developing world (Aracil and Forcadell, 2018; Azmi et al., 2021; Kumar and Prakash, 2019; Úbeda et al., 2022). Specifically, it contributes new insights to the very few studies of the impact of MNBs' banking practices on the “S” in ESG in the developing world and the consequences for financial inclusion (Nizam et al., 2019; Ubeda et al., 2022b). The study is also useful as illustrating that financial inclusion in the global South is not just about access to bank accounts, but is a multidimensional issue (Pesqué-Cela et al., 2021) the analysis of which should include access to credit and the opportunity to save.

Our study has implications for policy-makers as well as practitioners as they look for ways to redress financial exclusion of the disadvantaged, which is one of the worst predicaments that the global South is currently facing (Demirgüç-Kunt et al., 2022; Kshetri, 2017). This is more important than ever in the current environment, because the prospects of the poor in developing countries is not hopeful: they will be hurt the most by economic slowdowns, food shortages, and inflation in the post-COVID world (World Bank, 2022a). Our findings offer to practitioners in the financial sector, who may be finding it difficult to incorporate the Social aspect of the ESG criteria into their investment decisions, some insights into analysing this elusive term and into dealing with the inadequacy of data.

Table 7: Multilevel probit regression for the decision to use a deposit account (control function)

	Model 1 <i>Account_{ij}</i> <i>Mixed-Probit</i>		Model 2 <i>Account_{ij}</i> <i>Mixed-Probit</i>		Model 3 <i>Account_{ij}</i> <i>Mixed-Probit</i>		Model 4 <i>Account_{ij}</i> <i>Mixed-Probit</i>		Model 5 <i>Account_{ij}</i> <i>Mixed-Probit</i>	
			First quintile	income	Second quintile	income	Thirst quintile	income	Fourth and fifth income quintile	
<i>Social_j</i>	0.001 (0.000)	****	0.003 (0.001)	****	0.003 (0.001)	****	0.003 (0.001)	****	0.002 (0.000)	***
<i>Empl_{ij}</i>	0.383 (0.021)	****	0.270 (0.034)	****	0.298 (0.035)	****	0.332 (0.032)	****	0.462 (0.023)	****
<i>BC_j</i>	2.516 (0.054)	****	2.588 (0.102)	****	2.787 (0.098)	****	2.578 (0.095)	****	2.455 (0.073)	****
<i>MNB_j</i>	0.055 (0.046)		0.590 (0.143)	****	0.262 (0.133)	**	0.302 (0.134)	**	0.363 (0.087)	****
<i>BTrust_j</i>	0.136 (0.015)	****	0.733 (0.112)	****	0.305 (0.109)	***	0.443 (0.105)	****	0.645 (0.068)	****
<i>Gender_{ij}</i>	-0.166 (0.015)	****	-0.083 (0.033)	**	-0.145 (0.033)	****	-0.203 (0.032)	****	-0.168 (0.022)	****
<i>Age_{ij}</i>	0.035 (0.002)	****	0.036 (0.004)	****	0.034 (0.005)	****	0.031 (0.005)	****	0.029 (0.003)	****
<i>Age_{ij}²</i>	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****
<i>Inc(2)_{ij}</i>	0.118 (0.022)	****								
<i>Inc(3)_{ij}</i>	0.249 (0.023)	****								

	Model 1		Model 2		Model 3		Model 4		Model 5	
	<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First quintile	income	Second quintile	income	Thirst quintile	income	Fourth and fifth income quintile	
<i>Inc(4)_{ij}</i>	0.335 (0.032)	****							-0.280 (0.023)	****
<i>Inc(5)_{ij}</i>	0.579 (0.023)	****								
<i>Educ(2)_{ij}</i>	0.473 (0.018)	****	0.423 (0.039)	****	0.393 (0.041)	****	0.367 (0.040)	****	0.645 (0.027)	****
<i>Educ(3)_{ij}</i>	1.109 (0.029)	****	0.921 (0.091)	****	1.000 (0.074)	****	1.002 (0.067)	****	1.249 (0.037)	****
<i>RL_j</i>	-0.021 (0.029)		-0.017 (0.041)		-0.072 (0.037)	*	-0.016 (0.035)		-0.043 (0.033)	
<i>BConc_j</i>	0.000 (0.001)		-0.004 (0.001)	***	-0.000 (0.001)		0.002 (0.001)	*	0.005 (0.001)	****
λ_{BTrust}	1.761 (0.440)	****	-0.644 (0.123)	****	-0.219 (0.123)	*	-0.331 (0.118)	***	-0.653 (0.079)	****
λ_{Inc}	-1.537 (0.676)	**								
<i>Constant</i>	-4.119 (0.583)	****	-5.387 (0.671)	****	-3.761 (0.635)	****	-3.883 (0.518)	****	-2.183 (0.620)	****
Instrumental variables (first stage regressions)										
	<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>	
<i>Protestant_j</i>	0.696 (0.006)	****	0.618 (0.052)	****	0.679 (0.045)	****	0.672 (0.046)	****	0.781 (0.028)	****
<i>Population_j</i>	0.154 (0.000)	***	0.140 (0.004)	****	0.140 (0.004)	****	0.141 (0.004)	****	0.144 (0.002)	****
	<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>	
<i>GDP.pc_j</i>	-0.000 (0.000)									
<i>Protestant_j</i>	0.425 (0.065)	****								
<i>Population_j</i>	0.066 (0.007)	****								
<i>Wald - χ^2_1</i>	4990.860	****	739.130	****	829.440	****	1119.010	****	2467.980	****
VIF max†	2.130		2.040		6.810		6.920		6.590	
LR-test	209.450	****	30.670	****	20.640	****	4.730	**	138.340	****
Observations	37,952		6,751		6,840		7,307		17,054	
N. of Countries	32		32		32		32		32	

Table 8: Multilevel probit regression for the decision to save (control function)

	Model 6	Model 7		Model 8		Model 9		Model 10	
	<i>Save_{ij}</i>	<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>	
	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
		First	income	Second	income	Thirst	income	Fourth and fifth	income
		quintile	quintile	quintile	quintile	quintile	quintile	quintile	quintile
<i>Social_j</i> ×	**								*
<i>I(BC_j ≤ 0.8)</i>	0.001 (0.000)	-0.000 (0.001)		-0.001 (0.001)		0.000 (0.000)		0.001 (0.000)	
<i>Social_j</i> ×	****				**		*****		****
<i>I(BC_j > 0.8)</i>	0.011 (0.001)	0.007 (0.002)	****	0.004 (0.002)		0.006 (0.002)		0.005 (0.001)	
<i>Empl_{ij}</i>	0.336 (0.021)	****	0.288 (0.051)	****	0.231 (0.048)	****	0.336 (0.043)	****	0.402 (0.028)
<i>BC_j</i>	0.721 (0.068)	****	1.015 (0.169)	****	0.992 (0.152)	****	1.228 (0.283)	****	0.923 (0.081)
<i>MNB_j</i>	-0.289 (0.027)	****	0.449 (0.216)	**	-0.064 (0.201)		0.015 (0.172)		-0.069 (0.096)
<i>BTrust_j</i>	0.126 (0.033)	****	0.711 (0.173)	****	0.611 (0.158)	****	0.498 (0.172)	****	0.683 (0.072)
<i>Gender_{ij}</i>	-0.109 (0.016)	****	-0.080 (0.045)	*	-0.166 (0.045)	****	-0.140 (0.040)	****	-0.079 (0.023)
<i>Age_{ij}</i>	0.015 (0.003)	****	0.002 (0.007)		0.016 (0.007)	***	0.016 (0.006)	**	0.012 (0.003)
<i>Age_{ij}²</i>	-0.000 (0.000)	****	-0.000 (0.000)		-0.000 (0.000)	***	-0.000 (0.000)	**	-0.000 (0.000)
<i>Inc(2)_{ij}</i>	0.164 (0.035)	****							
<i>Inc(3)_{ij}</i>	0.291 (0.033)	****							
<i>Inc(4)_{ij}</i>	0.401 (0.032)	****							-0.280 (0.023)
<i>Inc(5)_{ij}</i>	0.718 (0.022)	****							
<i>Educ(2)_{ij}</i>	0.334 (0.021)	****	0.294 (0.060)	****	0.267 (0.058)	****	0.290 (0.051)	****	0.453 (0.030)
<i>Educ(3)_{ij}</i>	0.770 (0.030)	****	0.625 (0.091)	****	0.742 (0.084)	****	0.664 (0.070)	****	0.865 (0.037)
<i>RL_j</i>	-0.058 (0.051)		0.036 (0.091)		-0.052 (0.071)		-0.025 (0.052)		-0.022 (0.051)

	Model 6		Model 7		Model 8		Model 9		Model 10	
	<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First quintile	income	Second quintile	income	Thirst quintile	income	Fourth and fifth quintile	
<i>BConc_j</i>	-0.008	****	-0.001		-0.005		-0.005	**	-0.003	
	(0.008)		(0.002)		(0.007)		(0.002)		(0.001)	
<i>λ_{BTrust}</i>	1.275	**	-0.509	**	-0.652	***	-0.474	***	-0.655	****
	(0.652)		(0.205)		(0.189)		(0.157)		(0.779)	
<i>λ_{Inc}</i>	-3.481									
	(7.008)									
<i>Constant</i>	-2.880	****	-2.786	****	-2.073	****	-2.318	****	-2.183	****
	(0.595)		(0.586)		(0.608)		(0.545)		(0.620)	
Instrumental variables (first stage regressions)										
	<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>	
<i>Protestant_j</i>	0.675	****	0.618	****	0.682	****	0.668	****	0.779	****
	(0.000)		(0.052)		(0.049)		(0.052)		(0.030)	
<i>Population_j</i>	0.149	***	0.140	****	0.140	****	0.141	****	0.145	****
	(0.000)		(0.004)		(0.004)		(0.004)		(0.002)	
	<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>	
<i>GDP.pc_j</i>	-0.000	*								
	(0.000)									
<i>Protestant_j</i>	0.427	****								
	(0.067)									
<i>Population_j</i>	0.066	****								
	(0.007)									
<i>Wald – χ₁²</i>	3250.010	****	172.370	****	204.970	****	288.910	****	1288.860	****
VIF max†	1.870		1.710		1.730		1.700		1.610	
LR-test	898.760	****	27.520	****	60.170	****	84.620	****	596.070	****
Observations	37,952		6,751		6,840		7,307		17,054	
N. of Countries	32		32		32		32		32	

Table 9: Multilevel probit regression for the decision to borrow (control function)

	Model 11		Model 12		Model 13		Model 14		Model 15	
	<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First quintile	incomeSecond quintile	incomeThirst quintile	incomeFourth quintile	incomeFifth quintile			
<i>Social_j</i>	0.003 (0.001)	****	0.002 (0.001)	* (0.001)	0.005 (0.001)	****	0.002 (0.001)	* (0.001)	0.003 (0.001)	****
<i>Empl_{ij}</i>	0.503 (0.021)	****	0.517 (0.070)	**** (0.070)	0.442 (0.064)	****	0.541 (0.065)	**** (0.065)	0.532 (0.023)	****
<i>BC_j</i>	-0.213 (0.084)		0.204 (0.179)		0.087 (0.174)		-0.195 (0.168)		-0.012 (0.110)	
<i>MNB_j</i>	-0.186 (0.082)	**	0.609 (0.365)	* (0.365)	0.221 (0.330)		0.230 (0.290)		0.095 (0.187)	****
<i>BTrust_j</i>	0.112 (0.043)	***	0.938 (0.367)	** (0.367)	0.750 (0.334)	**	0.675 (0.279)	** (0.279)	0.336 (0.170)	**
<i>Gender_{ij}</i>	-0.071 (0.023)	***	-0.007 (0.059)	** (0.059)	-0.045 (0.055)		-0.031 (0.055)		-0.093 (0.033)	***
<i>Age_{ij}</i>	0.033 (0.004)	****	0.035 (0.010)	*** (0.010)	0.022 (0.009)	**	0.028 (0.009)	*** (0.009)	0.042 (0.006)	****
<i>Age_{ij}²</i>	-0.000 (0.000)	****	-0.000 (0.000)	*** (0.000)	-0.000 (0.000)	**	-0.000 (0.000)	*** (0.000)	-0.000 (0.000)	****
<i>Inc(2)_{ij}</i>	0.014 (0.038)									
<i>Inc(3)_{ij}</i>	0.025 (0.038)									
<i>Inc(4)_{ij}</i>	0.036 (0.038)								-0.036 (0.044)	****
<i>Inc(5)_{ij}</i>	0.048 (0.036)									
<i>Educ(2)_{ij}</i>	-0.000 (0.026)		0.067 (0.073)		0.205 (0.074)	***	0.068 (0.081)		-0.036 (0.044)	
<i>Educ(3)_{ij}</i>	0.206 (0.038)		0.101 (0.124)		0.191 (0.122)		0.101 (0.099)		-0.061 (0.054)	
<i>RL_j</i>	0.021 (0.038)		-0.157 (0.099)		-0.238 (0.074)	***	-0.041 (0.081)		-0.128 (0.060)	**
<i>BConc_j</i>	-0.007 (0.001)	****	-0.005 (0.004)		-0.003 (0.004)		0.000 (0.003)		-0.004 (0.002)	**
<i>λ_{BTrust}</i>	118.248 (18.589)	****	-0.620 (0.379)		-0.521 (0.333)		-0.631 (0.290)	** (0.290)	-0.301 (0.174)	*

	Model 11	Model 12	Model 13	Model 14	Model 15
	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>
	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>
		First income quintile	Second income quintile	Third income quintile	Fourth and fifth income quintile
λ_{Inc}	-0.122 (0.827)				-0.004 (0.033)
<i>Constant</i>	-2.164 * (1.257)	-3.549 *** (1.224)	-4.786 ***** (1.507)	-3.883 ***** (0.518)	-2.183 ***** (0.620)
Instrumental variables (first stage regressions)					
	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>
<i>Protestant_j</i>	0.696 ***** (0.000)	0.623 ***** (0.051)	0.689 ***** (0.048)	0.679 ***** (0.048)	0.788 ***** (0.029)
<i>Population_j</i>	0.154 ***** (0.000)	0.146 ***** (0.003)	0.148 ***** (0.003)	0.147 ***** (0.003)	0.151 ***** (0.002)
	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>
<i>GDP.pc_j</i>	-0.000 * (0.000)				
<i>Protestant_j</i>	0.425 ***** (0.065)				
<i>Population_j</i>	0.066 ***** (0.007)				
<i>Wald – χ^2_1</i>	600.04 *****	130.240 *****	99.420 *****	132.670 *****	289.010 *****
VIF max†	2.130	7.970	8.320	8.480	6.590
LR-test	538.090 *****	33.320 *****	62.110 *****	85.380 **	226.500 *****
Observations	37,952	6,751	6,840	7,307	17,054
N. of Countries	32	32	32	32	32

Table 10: Multilevel probit regression for the decision to use a deposit account (control function). The sample includes countries where the assets controlled by MNBs with an ESG ranking exceed 50% of assets controlled by all MNBs.

	Model 16		Model 17		Model 18		Model 19		Model 20	
	<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First	income	Second	income	Thirst	income	Fourth and fifth	
			quintile		quintile		quintile		income	quintile
<i>Social_j</i>	0.003 (0.001)	****	0.002 (0.001)	* 	0.004 (0.001)	****	0.003 (0.010)	****	0.003 (0.001)	****
<i>Empl_{ij}</i>	0.384 (0.017)	****	0.274 (0.038)	****	0.299 (0.039)	****	0.388 (0.037)	****	0.469 (0.026)	****
<i>BC_j</i>	2.529 (0.054)	****	2.639 (0.119)	****	2.761 (0.119)	****	2.618 (0.109)	****	2.332 (0.078)	****
<i>MNB_j</i>	0.030 (0.052)		0.340 (0.127)	***	0.325 (0.119)	***	0.147 (0.122)		0.164 (0.083)	**
<i>BTrust_j</i>	0.103 (0.015)	***	0.056 (0.090)	****	0.375 (0.092)	***	0.289 (0.090)	****	0.289 (0.062)	****
<i>Gender_{ij}</i>	-0.159 (0.016)	****	-0.050 (0.005)	**	-0.120 (0.037)	****	-0.189 (0.036)	****	-0.184 (0.024)	****
<i>Age_{ij}</i>	0.034 (0.002)	****	0.043 (0.005)	****	0.033 (0.005)	****	0.032 (0.005)	****	0.031 (0.003)	****
<i>Age_{ij}²</i>	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****
<i>Inc(2)_{ij}</i>	0.124 (0.025)	****								
<i>Inc(3)_{ij}</i>	0.250 (0.024)	****								
<i>Inc(4)_{ij}</i>	0.334 (0.024)	****							-0.280 (0.023)	****
<i>Inc(5)_{ij}</i>	0.567 (0.024)	****								
<i>Educ(2)_{ij}</i>	0.458 (0.018)	****	0.383 (0.047)	****	0.404 (0.045)	****	0.323 (0.043)	****	0.610 (0.030)	****
<i>Educ(3)_{ij}</i>	1.108 (0.030)	****	0.864 (0.084)	****	1.049 (0.084)	****	0.913 (0.005)	****	1.217 (0.041)	****
<i>RL_j</i>	-0.005 (0.027)		0.038 (0.038)		-0.072 (0.037)	*	0.016 (0.035)		-0.015 (0.031)	

	Model 16		Model 17		Model 18		Model 19		Model 20	
	<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>		<i>Account_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First	income	Second	income	Thirst	income	Fourth and fifth	
			quintile		quintile		quintile		income quintile	
<i>BConc_j</i>	-0.000 (0.001)									
λ_{BTrust}	2.317 (0.440)	****	-0.520 (0.108)	****	-0.282 (0.113)	**	-0.174 (0.108)	***	-0.303 (0.078)	****
λ_{Inc}	-1.537 (0.676)	**								
<i>Constant</i>	-4.119 (0.583)	****	-4.361 (0.567)	****	-3.761 (0.635)	****	-3.883 (0.518)	****	-2.183 (0.620)	****
Instrumental variables (first stage regressions)										
	<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>	
<i>Protestant_j</i>	0.696 (0.006)	****	0.550 (0.052)	****	0.611 (0.051)	****	0.578 (0.056)	****	0.674 (0.030)	****
<i>Population_j</i>	0.154 (0.000)	***	0.150 (0.003)	****	0.149 (0.003)	****	0.147 (0.003)	****	0.149 (0.002)	****
	<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>	
<i>GDP.pc_j</i>	-0.000 (0.000)									
<i>Protestant_j</i>	0.425 (0.065)	****								
<i>Population_j</i>	0.066 (0.007)	****								
<i>Wald - χ^2_1</i>	4500.840	****	607.980	****	664.890	****	893.680	****	2115.530	****
VIF max†	2.150		3.420		3.460		6.920		4.010	
LR-test	179.160	****	7.850	****	16.860	****	4.810	**	91.970	****
Observations	35,240		6,312		6,377		6,798		15,753	
N. of Countries	29		29		29		29		29	

Table 11: Multilevel probit regression for the decision to save (control function). The sample includes countries where the assets controlled by MNBs with an ESG ranking exceed 50% of assets controlled by all MNBs.

	Model 21	Model 22	Model 23	Model 24	Model 25
	<i>Save_{ij}</i>	<i>Save_{ij}</i>	<i>Save_{ij}</i>	<i>Save_{ij}</i>	<i>Save_{ij}</i>
	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>
		First quintile	income Second quintile	income Thirst quintile	Fourth and fifth income quintile
<i>Social_j</i> ×	*				
<i>I(BC_j ≤ 0.8)</i>	0.001 (0.001)	-0.002 (0.002)	-0.001 (0.002)	0.001 (0.002)	0.000 (0.001)
<i>Social_j</i> ×	****	**	*	***	****
<i>I(BC_j > 0.8)</i>	0.011 (0.001)	0.006 (0.003)	0.005 (0.003)	0.008 (0.002)	0.006 (0.001)
<i>Empl_{ij}</i>	0.328 (0.021)	**** 0.302 (0.060)	**** 0.225 (0.054)	**** 0.327 (0.050)	**** 0.386 (0.030)
<i>BC_j</i>	0.685 (0.065)	**** 0.717 (0.191)	**** 0.711 (0.166)	**** 0.999 (0.150)	**** 0.617 (0.083)
<i>MNB_j</i>	-0.144 (0.067)	** 0.594 (0.199)	*** 0.339 (0.177)	* 0.313 (0.148)	** 0.151 (0.088)
<i>BTrust_j</i>	0.223 (0.040)	*** 0.078 (0.131)	0.754 (0.131)	*** 0.580 (0.105)	**** 0.665 (0.063)
<i>Gender_{ij}</i>	-0.095 (0.020)	*** -0.112 (0.054)	** -0.014 (0.050)	** -0.111 (0.044)	** -0.070 (0.026)
<i>Age_{ij}</i>	0.013 (0.003)	**** 0.005 (0.009)	0.014 (0.008)	* 0.017 (0.007)	** 0.013 (0.004)
<i>Age_{ij}²</i>	-0.000 (0.000)	**** -0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)	** -0.000 (0.000)
<i>Inc(2)_{ij}</i>	0.145 (0.033)	****			
<i>Inc(3)_{ij}</i>	0.76 (0.034)	****			
<i>Inc(4)_{ij}</i>	0.377 (0.031)	****			-0.303 (0.025)
<i>Inc(5)_{ij}</i>	0.696 (0.031)	****			
<i>Educ(2)_{ij}</i>	0.317 (0.022)	**** 0.314 (0.065)	**** 0.291 (0.062)	**** 0.244 (0.057)	**** 0.420 (0.035)

	Model 21		Model 22		Model 23		Model 24		Model 25	
	<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>		<i>Save_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First quintile	income	Second quintile	income	Thirst quintile	income	Fourth and fifth quintile	income
<i>Educ(3)_{ij}</i>	0.759 (0.030)	****	0.648 (0.102)	****	0.786 (0.094)	****	0.597 (0.080)	****	0.853 (0.040)	****
<i>RL_j</i>	-0.037 (0.041)		-0.043 (0.063)		-0.082 (0.065)		-0.034 (0.046)		-0.033 (0.043)	
<i>BConc_j</i>	-0.006 (0.001)	****								
λ_{BTrust}	-3.439 (0.695)		-0.387 (0.170)	**	-0.682 (0.166)	****	-0.380 (0.128)	***	-0.480 (0.080)	****
λ_{Inc}	0.907 (0.695)									
<i>Constant</i>	-3.198 (0.979)	****	-4.501 (0.768)	****	-4.328 (0.769)	****	-4.037 (0.611)	***	-3.818 (0.654)	****
Instrumental variables (first stage regressions)										
	<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>		<i>BTrust_{ij}</i>	
<i>Protestant_j</i>	0.583 (0.000)	****	0.577 (0.055)	****	0.645 (0.055)	****	0.601 (0.056)	****	-1.679 (0.028)	****
<i>Population_j</i>	0.083 (0.000)	***	0.153 (0.003)	****	0.153 (0.003)	****	0.149 (0.003)	****	0.102 (0.002)	****
	<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>		<i>Inc_{ij}</i>	
<i>GDP.pc_j</i>	-0.000 (0.000)	*								
<i>Protestant_j</i>	0.330 (0.065)	****								
<i>Population_j</i>	0.061 (0.007)	****								
<i>Wald – χ^2_1</i>	2392.940	****	168.560	****	168.800	****	260.660	****	1288.860	****
VIF max [†]	5.160		4.370		4.010		4.170		1.610	
LR-test	278.010	****	10.780	****	22.040	****	13.090	***	596.070	****
Observations	26,138		4,715		4,729		5,088		11,605	
N. of Countries	24		24		24		24		24	

Table 12: Multilevel probit regression for the decision to borrow (control function). The sample includes countries where the assets controlled by MNBs with an ESG ranking exceed 50% of assets controlled by all MNBs.

	Model 1		Model 2		Model 3		Model 4		Model 5	
	<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>		<i>Borrow_{ij}</i>		<i>Account_{ij}</i>	
	<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>		<i>Mixed-Probit</i>	
			First quintile	income	Second quintile	income	Thirst quintile	income	Fourth quintile	fifth quintile
<i>Social_j</i>	0.003 (0.001)	****	0.003 (0.002)	*	0.006 (0.001)	****	0.003 (0.001)	****	0.004 (0.001)	****
<i>Empl_{ij}</i>	0.341 (0.019)	****	0.247 (0.044)	****	0.293 (0.045)	****	0.351 (0.044)	****	0.402 (0.031)	****
<i>BC_j</i>	2.706 (0.055)	****	2.830 (0.132)	****	2.999 (0.142)	****	2.762 (0.125)	****	2.490 (0.094)	****
<i>MNB_j</i>	-0.197 (0.079)	**	0.226 (0.214)		-0.019 (0.201)		-0.188 (0.108)		-0.112 (0.136)	
<i>BTrust_j</i>	-0.006 (0.040)		0.386 (0.117)	***	0.104 (0.112)		0.071 (0.108)		0.039 (0.077)	
<i>Gender_{ij}</i>	-0.094 (0.018)	****	0.006 (0.043)		-0.098 (0.041)	**	-0.119 (0.041)	***	-0.109 (0.027)	****
<i>Age_{ij}</i>	0.035 (0.003)	****	0.052 (0.006)	****	0.035 (0.006)	****	0.030 (0.005)	****	0.031 (0.004)	****
<i>Age_{ij}²</i>	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****	-0.000 (0.000)	****
<i>Inc(2)_{ij}</i>	0.147 (0.027)	****								
<i>Inc(3)_{ij}</i>	0.264 (0.027)	****								
<i>Inc(4)_{ij}</i>	0.339 (0.027)	****							-0.280 (0.023)	****
<i>Inc(5)_{ij}</i>	0.570 (0.028)	****								
<i>Educ(2)_{ij}</i>	0.408 (0.021)	****	0.337 (0.049)	****	0.293 (0.045)	****	0.283 (0.048)	****	0.535 (0.035)	****
<i>Educ(3)_{ij}</i>	1.104 (0.034)	****	0.838 (0.090)	****	1.001 (0.097)	****	0.828 (0.008)	****	1.157 (0.050)	****
<i>RL_j</i>	-0.007 (0.027)		0.040 (0.046)		-0.041 (0.047)		0.052 (0.047)		-0.141 (0.043)	
<i>BConc_j</i>	-0.001	*								

	Model 1	Model 2	Model 3	Model 4	Model 5					
	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>	<i>Borrow_{ij}</i>	<i>Account_{ij}</i>					
	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>	<i>Mixed-Probit</i>					
		First quintile	Second quintile	Third quintile	Fourth and fifth quintile					
	(0.001)									
λ_{BTrust}	-1.482 (1.135)	-0.411 (0.136)	**** (0.138)	0.259 (0.131)	** (0.131)	0.021 (0.044)	-0.002 (0.044)	****		
λ_{Inc}	3.390 (0.614)									
<i>Constant</i>	-5.382 (0.580)	**** (0.594)	-4.478 (0.594)	**** (0.635)	-3.761 (0.635)	**** (0.518)	-3.883 (0.518)	**** (0.620)	-2.183 (0.620)	****
Instrumental variables (first stage regressions)										
	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>	<i>BTrust_{ij}</i>
<i>Protestant_j</i>	0.696 (0.006)	**** (0.048)	-1.703 (0.048)	**** (0.049)	-1.685 (0.049)	**** (0.044)	-1.655 (0.044)	**** (0.044)	-1.639 (0.027)	**** (0.027)
<i>Population_j</i>	0.154 (0.000)	*** (0.003)	0.100 (0.003)	**** (0.003)	0.100 (0.003)	**** (0.003)	0.097 (0.003)	**** (0.003)	0.095 (0.002)	**** (0.002)
	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>	<i>Inc_{ij}</i>
<i>GDP.pc_j</i>	-0.000 (0.000)									
<i>Protestant_j</i>	0.750 (0.172)	****								
<i>Population_j</i>	0.074 (0.008)	****								
<i>Wald – χ^2_1</i>	3067.840	****	536.700	****	551.510	****	721.540	****	1311.850	****
VIF max†	3.670		4.840		3.460		5.390		5.490	
LR-test	86.520	****	10.730	****	8.210	***	1.740	*	57.790	****
Observations	26,138		4,715		4,729		5,088		11,605	
N. of Countries	24		24		24		24		24	

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HOW MUCH DOES NOMINAL SHARE PRICE MATTER?

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Abstract

The paper examines the relation between nominal share price and price momentum, explicitly controlling for nominal share price levels. The results show that very high/low nominal share price stocks lack price momentum and utilize more systemic risk which remains even controlling for stock splits. While splitting a stock allows firm managers to keep the nominal share price constant, thereby increasing firm value and attracting more investors, it also increases the likelihood of uninformed trading by those with limited budgets and risk share capacity. As a result, splitting a stock causes stock information to diffuse more slowly, leading to higher price momentum.

Keywords: *Price Risk; Momentum Crash; Stock Split/Dividend*

JEL Codes: G11, G12, G14

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1 Introduction

Finance theory has suggested that, in a frictionless market, a firm's nominal share price should have no impact on its corporate value. Since a firm's nominal share price, strictly speaking, is merely the ratio of a firm's market capitalization over its number of shares outstanding which should have no relation to its corporate value. However, previous empirical studies (Dyl and Elliott (2006) and Weld, Michaely, Thaler, and Benartzi (2009)) have shown that corporate financial managers apply strategies to maintain investor perceptions of an optimal trading range for a firm's stock to ensure their average nominal share price rests within a narrow and roughly constant range over time. This phenomenon, though common, is not easily explained by standard economic theories such as marketability, pay-to-play, or signaling.¹

There has been a great deal of research on the nominal share price strategy. However, much of this research examines the strategy from the firm manager's point of view. By contrast, this study contributes to the nominal share price literature by examining the nominal share price puzzle from the investor's perspective. Specifically, we examine the impact of a firm's share price on investor trading under the various circumstances of price levels. In this paper, we study the use of stock splitting as a means of maintaining a consistent nominal share price and the impact of this practice on a firm's price momentum.

Figure 1 illustrates our idea through examining the case of General Electric (GE). From 1926 to 2018, we see that GE split its stock seven times (red fonts) and provided stock dividends twice (blue fonts) resulting in a cumulative split of 4705.61:1. GE has contained its nominal share price around average \$57.23 since the Great Depression. Furthermore, if we mark the time of GE being selected into the “BUY” and “SELL” portfolios of momentum strategy² in green and red dots, respectively. GE was chosen into the ‘BUY’ portfolio of the momentum strategy when its nominal price was at a typically high status occurring before

¹See Weld, Michaely, Thaler, and Benartzi (2009) for a discussion of these respective hypotheses in the context of stock splitting.

²See definitions of “BUY” and “SELL” portfolios of momentum strategy in the Section 2.4 a stock split in 1954.

[Place Figure 1 about here]

To assess the impact of the nominal share price on price momentum, we conduct an empirical study of a sample of stocks obtained from the Center for Research in Security Prices (CRSP). For our sample, we select all primary domestic stocks listed on the New York Stock Exchange (NYSE) from 1926-2013, the American Stock Exchange (AMEX) from 1962-2013, and the Nasdaq (NASDAQ) from 1972-2013. In our study, we examine not only how a stock split can affect the nominal share price and price momentum, but also how a stock dividend affects these. This approach differs from that of most previous empirical studies that focus on only the effect of the stock split. However, as we can see in Figure 1, GE’s stock splits and stock dividends both impact its nominal share price levels and momentum. Consequently, we examine both stock split and dividend effects to make our empirical evidence more fruitful and address the gap in the literature.

Examining the effects of stock splits and dividends, we first find that the number of firms choosing each strategy varies considerably over both time and stock exchanges, as seen in Table 1. From 1926 to 2013, we find that around 32% (42%) of firms choose stock splits (dividends) on the NYSE and AMEX while 35% (23%) of NASDAQ firms choose stock splits (dividends). Regarding the effect of each choice on subsequent stock prices, we find a 3% (7%) reduction in stock price after a stock split (dividend) on the NYSE and AMEX; by contrast, we find a 125% increase (7% decrease) in stock price after a stock split (dividend) on the NASDAQ. These findings are consistent with the results of Minnick and Raman (2014) who argue that a subsequent price reduction on the NYSE and AMEX may reflect the increase over time in household wealth and institutional trading vehicles, such as mutual funds, which allow small investors to diversify without relying on low-priced stocks.

Our mixed results for the impact on price levels in the tech-heavy NASDAQ may reflect the unique stock split motivation of technology firms. That is, these firms may choose stock

splits as a means of reforming outstanding shares and increasing the nominal share price to sustain firm growth.

Next, examine the effect of stock splits and dividends on price momentum. Specifically, we examine whether stock splits allow firms to lower their low nominal share price to attract more investors but also with an impact on price momentum. Following the previous momentum literature, we utilize only the returns on common shares for the firms in our sample. We then assign stocks that meet the data criteria stated in Section 3 into ten equally-weighted portfolios on the ending day of each formation month. To reduce any micro-structure effect associated with low-priced stocks, we include stocks with a price as low as we didn't exclude those stocks with a price below \$1, i.e., penny stocks, during our portfolio formation. Doing so allows us to investigate the momentum effect for a general framework explicitly controlling for price levels. It also mitigates concerns related to sample selection bias. Including these low-priced stocks during the formation period, we construct momentum portfolios considering different nominal price levels according to a stock's nominal share price in $[0, 1)$, $[1, 50)$, $[50, 100)$, $[100, 150)$, $[150, \infty)$, and denote these portfolios by levels I to V, respectively.

Table 4 presents the main results for our study of the effect of nominal share prices on price momentum. From Table 4, we see that momentum portfolios formed by stocks with a very low/high (I and V, respectively) nominal share price significantly underperform compared to those with a nominal share price level in the normal range of $[1, 150)$, which show promising momentum effects. Charting the momentum strategy from the year 1927 forward, we see from Figure 8 that momentum portfolios formed by stocks with a very low/high nominal share price range lose momentum over time.

This result reinforces the conclusion of Barberis, Huang, and Santos (2001), who posit that a representative agent derives direct utility from both consumption and anticipation. As such, an agent who is wealth constrained considers nominal share price levels in assessing investment risk. For this agent, holding higher nominal share price stocks tends to be riskier than holding lower ones. Similarly, holding higher-priced stocks entails greater wealth volatility. These patterns mean investors are conscious, even speculative, in their investment decisions.

By contrast, we argue that investors in penny stocks cannot implement a long-short strategy as they cannot identify when a stock is spiking. Recent studies support this argument by showing that unsophisticated investors are attracted to lower-priced stocks as they believe the lower price limits potential loss while allowing for tremendous gains should the stock increase in price. These investors care about the short-term profits of their investment. This speculative mindset makes a low price stock portfolio more volatile, which in turn reduces the momentum effect.

The remainder of this paper is organized as follows. Section 2 describes our data and methodology and provides summary statistics of our sample. Section 3 presents the main findings and discusses the empirical results for our hypothesis. Section 4 concludes.

2 Data and methodology

To determine our sample, we obtain CRSP monthly price data for all stocks traded on the NYSE and AMEX as well as the NASDAQ from 1926 to 2013. Only common shares with a 10 or 11 CRSP share-code are selected for our analysis. For our measure, we use company level market capitalization (in \$million), which reflects the firm's adjusted price times its adjusted total shares outstanding. The 48-industry classification scheme adapted from the definitions of Fama and French (1997) is applied to the CRSP data.

2.1 Stock splits and stock dividends

As mentioned, most previous studies on the effect of nominal share price focus on only the strategy of a stock split. However, as we argue in Figure 1, GE's share price momentum reflects the effects of both stock splits and dividends. Consequently, for every stock in our sample, we calculate their split ratio to quantify the price changes induced by a stock split/dividend. Split ratio is inferred by the change in the cumulative factor to adjust prices,

i.e.,

$$\text{Split Ratio (SR)} \equiv \frac{\text{CFACPR}_t - \text{CFACPR}_{t-1}}{\text{CFACPR}_{t-1}}$$

where CFACPR is denoted as the cumulative factor to adjust prices. Table 1 summarizes the sample statistics for the firms in our sample, including stock splits (with a CRSP distribution code of 5523), post-split prices, stock dividends (with a CRSP distribution code of 5533), and post-dividend prices. The top panel presents the results for stocks listed on the NYSE and AMEX while the bottom panel presents the results for stocks listed on the NASDAQ. Columns one and two reports the total number of stocks traded in the different sample year periods. Columns three to six represent the total number of stock splits, the average pre-split price, the average post-split price for splitters, and the average split ratio, respectively. Columns seven to ten represent the same data for stock dividends.

[Place Table 1 about here]

Examining the statistics in Table 1, we first find the fraction of firms that choose issue a stock split/stock dividend shows a relatively recent decrease across our sample period. Specifically, we find that stock splits/stock dividends reach their peak in the early 20th century and decline from there. To illustrate, from 1926 to 2013, we find that around 32% (42%) of firms choose stock splits (dividends) on the NYSE and AMEX. We further find that their stock price decreases by -3% (7%) after the stock split (dividend). Our results are consistent with the

results of Minnick and Raman (2014) who show that stock splits have declined over time. They explain this finding as to the result of an increase in both household wealth and institutional trading vehicles, such as mutual funds, which allow small investors to diversify without relying on low-priced stocks.

By contrast, the statistics in Table 1 show that 35% (23%) of our NASDAQ firms choose stock splits (dividends). These results may reflect the predominance of technology growth firms on the NASDAQ. These firms often need to retain a greater proportion of their earnings to reinvest in the company. An interesting feature of stock splits on the NASDAQ is that these stocks show a 125% increase in price after the split, a finding which counters the argument in the stock split literature that splits cause a decline in the subsequent price. In this case, we conjecture that NASDAQ firms choose stock splits to reform their outstanding shares, increasing the nominal share price.

2.2 Stock splits and stock dividends by industry

We then examine whether our stock split and stock dividend statistics vary across industries. Industry differences are important as previous research as far back as King (1966) and, later, Fama and French (1997) and Moskowitz and Grinblatt (1999) has demonstrated an industry effect on stock price movements. To classify each firm in our sample, we follow Fama French's 48-industry classification scheme. Table 2 shows the percentages of stock split and stock dividend by industries on the NYSE and AMEX and NASDAQ in our sample period.

[Place Table 2 about here]

From Table 2, we see that the top five industries with the greatest percentage of stock splits on the NYSE and AMEX are Retail (8.21%), Machinery (5.11%), Utilities (4.90%), Petroleum and Natural Gas (4.83%), and Banking (4.58%). The top five industries with the greatest percentage of stock dividends on the NYSE and AMEX are Retail (7.83%), Construction Materials (5.50%), Petroleum and Natural Gas (5.06%), Machinery (4.97%), and Banking (4.80%) for firms on the NYSE and AMEX. For the firms on the NASDAQ, the top five industries with the greatest percentage of stock splits are to have stock split are Banking (15.17%), Business Services (12.46%), Trading (7.72%), Electronic Equipment (5.75%), and Retail (5.29%), while the top five industries with the greatest percentage of stock dividends are Banking (35.30%), Trading (15.95%), Insurance (4.66%), Wholesale (4.28%), and Retail (4.19%).

Figures 2 & 3 further examine the time-varying distributions of stock splits and stock dividends through our sample years on NYSE and AMEX and NASDAQ, respectively. These figures show that firms in the Banking industry have more stock dividends than those in other industries, reinforcing the above findings from Table 2.

[Place Figures 2 & 3 about here]

2.3 Nominal share price, firm size, and returns

Numerous studies (such as Banz (1981); Reinganum (1983); Keim (1983); Lamoureux and Sanger (1989); Fama and French (1993); Heston, Rouwenhorst, and Wessels (1999)) have found that nominal share price and firm size are highly correlated, and that firm size and stock returns are negatively related. Consequently, we are interested in how firm size impacts our findings related to the nominal share price. Specifically, we are interested in whether our share price effect remains after controlling for firm size.

Previous research suggests it is possible that firm size may cause our observed share price to be either negatively related or unrelated to future returns. This conjecture is in contrast to the positive price-return relationship predicted in the lottery stock literature. Figure 4 depicts our findings regarding price, based on firm size deciles determined by NYSE market capitalization breakpoints. The results in Figure 4 demonstrate that, after the 1990s, our largest quantile starts to deviate from the norm by aiming for overly high prices. These high stock price levels create barriers for uninformed investors to enter the market because of budget constraints and limited risk-sharing capacity.

As mentioned, recent studies show that unsophisticated investors are attracted to lower priced stocks as they believe the lower price limits potential loss while allowing for tremendous gains should the stock increase in price. For instance, Kumar and Lee (2006) find support for investor sentiment in the formation of returns and report co-movement in stocks with high retail concentration; Kumar (2009) documents negative returns for lottery stocks which are preferred by individual investors and are characterized by low prices; and Birru and Wang (2016) find direct evidence that investors overestimate the skewness of low-priced stocks, especially around share splits, resulting in future negative returns for these stocks.

In Figure 4, we expand this stream of literature by exploring the intersection of share price and stock returns across different market capitalizations. Since price and firm size are highly correlated, and size and returns are negatively related, it follows that price should be either negatively related or, at best, unrelated to future returns, which is contrary to the low price – low return (positive price-return relationship) documented in the lottery stock literature.

[Place Figure 4 about here]

The left panel of Figure 4 shows that the large firms in our sample have consistently higher share prices than the small firms. Examining the price trend over time by firm size quartile, we find that, after the 90s, the largest quantile starts to deviate from the norm by aiming for overly high prices. One explanation for this trend could be attributed to the aspiration of large-capitalization companies to belong to the “\$1,000 club.”

Examining this phenomenon more closely, we consider the case of one tech giant, Google, with a nominal stock price well outside the usual narrow band. On October 18, 2013, Google's stock surged to \$1,011.41 a share, a feat recognized as a milestone in its remarkable ascent from its \$85 public offering price on August 19, 2004, when a total of 19,605,052 shares were offered. Indeed, investors view companies like Google as members of the "\$1,000 stock club," a type of trophy or achievement that signals success, domination, and growth. Although a share price of \$1,000 has little bearing on the future performance of either the firm or the exchange, a soaring stock price captures market attention, even that of index funds.

2.4 Momentum portfolio

The momentum effect is a widely-documented phenomenon both in the US stock market and other financial assets and stock markets. For example, Okunev and White (2003) find a momentum effect in currencies; Erb and Harvey (2006) find a momentum effect in commodities; and Moskowitz, Ooi and Pedersen (2012) find a momentum effect in exchange-traded futures contracts. Further research documents a momentum effect in both developed (Rouwenhorst (1998)) and emerging (Rouwenhorst (1999)) markets. This anomaly contradicts the efficient market hypothesis, the weak-form of which says that past stock price movements should provide no information about future stock price changes. In other words, investors should have no logical reason to prefer recently rising stocks to recently falling ones. Researchers continue to conjecture over the profit from the momentum effect, which cannot be explained by controlling for other risk factors such as firm size or book-to-market ratio or by higher-risk or trading costs for high-performance stocks.

To construct our momentum portfolio, we use all stock returns from the CRSP database for our sample firms listed on the NYSE (starting in 1962), AMEX (1963), and NASDAQ (1973). We utilize only the returns on common shares with a 10 or 11 CRSP share code. Close-end funds, real estate investment trusts (REITs), unit trusts, American depository receipts (ADRs), and foreign stocks are excluded from the analysis.

Following the previous literature, we assign stocks that meet the data criteria mentioned above into ten equally-weighted portfolios, P1 to P10, based on their cumulative returns on the ending day of each formation month. We first rank the stocks based on their past J -month returns, excluding the most recent month. The 10% of firms with the highest-ranking period returns are grouped into portfolio P10, which we designate as the "BUY"-decile portfolio, and those with the lowest 10% ranking period returns are grouped into portfolio P1, which is the "SELL"-decile portfolio. The return on a zero-investment "BUY-SELL" portfolio is the difference between the returns on the BUY- and SELL-decile portfolios in each period. Each portfolio is held for one month following the formation month. We calculate the holding monthly returns of "BUY-SELL" portfolios using the equally-weighted returns. Firms do not change deciles within a month, except in the case of delisting. To provide greater confidence in

our approach, in further analyses, we categorize firms using an overlapping portfolio that holds a series of portfolios selected in the current month and the previous month and finds similar results.

To construct our momentum portfolios, we assume $J = 12$ and denote by (12-1) to indicate momentum. In Section 3.2, we provide results using different settings of $J=3, 6, 9,$ and 12 as a robustness check. The selection of 12-month returns is currently the most broadly used definition of momentum and these returns are available through the PR1YR factor of Carhart (1997). Moreover, as Benartzi and Thaler (1995) note, since tax filings and mutual fund reports occur once a year, most individual investors use a 12-month period for sincerely evaluating their investment performance. Finally, institutional investors typically conduct annual reviews of their money managers' performance. These reasons suggest a 12-month return is an appropriate selection for our momentum analysis.

Figure 5 plots the time series of (12-1) momentum portfolio returns. From Figure 5, we see that the highly-skewed returns of the momentum strategies suggest that the market under-reacts to public information in “normal” environments, resulting in consistent price momentum. However, in extreme market environments, stocks with previous sharp losses embody a very high premium, and investors who implement a momentum strategy would experience strings of negative returns, especially after a market collapse. For example, a momentum investor would have lost 41.89% in the US stock market at the turning-point occurrence in April 2009. These momentum crashes can even cluster across a span of several months. Daniel and Moskowitz (2016) characterize the strong momentum reversals that are caused by the significant negative skewness of the (12-1) momentum portfolio.

[Place Figure 5 about here]

3 Momentum under various nominal share price levels

This section presents our main empirical findings related to nominal share price levels and price momentum patterns.

3.1 Very low/high nominal share price stocks

Our momentum portfolios are constructed according to nominal share prices across different levels from $[0, 1), [1, 50), [50, 100), [100, 150), [150, \infty)$, labeled from I to V, respectively. At each price level, as in Section 2.4, we follow the same method to construct the momentum strategy and hold for one month (i.e., $K = 1$) following the formation month for each portfolio. Here we present the results for $K=1$ case, in Section 3.2, we use a different set of $K=3, 6, 9,$ and 12 as a robustness check. Figure 6 presents the portfolio returns of implementing a momentum strategy in the nominal share price levels I and V (i.e., $[0, 1)$ and $[150, \infty)$), with low-priced (high-priced) stocks in the top (bottom) panel.

[Place Figure 6 about here]

From Figure 6, we see that momentum portfolios constructed with extreme nominal share price stocks yield an upside-down return pattern in economic recession periods such as the oil crisis in 1973 and the Dot-com Bubble in 2000. In comparison, Figure 7 provides the returns for portfolios constructed with nominal share price stocks from levels II to IV (i.e., [1, 50), [50, 100), and [100, 150)) where the top (middle, bottom) panel is for II (III, IV) stocks, respectively.

[Place Figure 7 about here]

To compare all categories of nominal price levels, we list the average portfolio returns for “BUY”-decile, “SELL”-decile, and “B-S”-decile portfolios in Table 3.

[Place Table 3 about here]

Figure 8 provides the cumulative returns from momentum portfolios for stocks with nominal share price levels I to V, from 1927 to 2013, a total of 1,044 months. The cumulative return on an implementable strategy is based on investing at time zero and fully reinvesting at each subsequent time point. During the investment period, no cash is put in or taken out. From time t to T , the cumulative return is computed as:

where r_s is the s -period portfolio return. On the right side of the plot, we show the final values for each of the five portfolios: -26.12 (I), 13.34 (II), 10.09 (III), 12.00 (IV), and -1.30 (V). Overall, these results show that using a momentum strategy for stocks with nominal share price levels I, II, and III yields significantly high returns.

[Place Table 8 about here]

3.2 Robustness check for (J , K) momentum portfolios

As a robustness check, we extend the above analysis by constructing investment portfolios where J varies from 3, 6, 9, to 12, and K varies from 1, 3, 6, 9, to 12. All the stocks in these analyses satisfy the criteria prescribed in Section 2.

[Place Table 4 about here]

The results in Table 4 show penny stocks momentum portfolio returns are all significantly negative while the portfolio returns for stocks with a nominal share price in $[150, \infty)$ are slightly positive, albeit insignificantly so. Again, we find that momentum portfolios comprised of stocks with nominal share prices between \$1 to \$150 yield significantly positive returns. In particular, a momentum portfolio consisting of stocks with nominal share prices between \$100 to \$150 yields a portfolio return for ($J = 12$, $K = 1$) of 2.377%, on average.

4 Conclusions

This study examines how nominal share price levels achieved through stock splits or stock dividends impact momentum investors. We investigate the possibility that the

representation of a very low/high nominal share price may lead to a low degree of cognitive availability, as stated in Tversky and Kahneman (1973), which may reduce the informational-processing demands, as well as Chuang and Ho (2014), find the momentum effect can be substantial if low-price-risk stocks form the portfolio. Specifically, we investigate whether a very low/high nominal share price impacts subsequent investor choices and price momentum.

Understanding the role of the price is important in research on investor behavior and finance, which has recently focused on many aspects of the psychology of pricing: price awareness, the formation and use of reference prices, price acceptability, price partitioning, and willingness to pay. Similarly, recent marketing research has studied how price presentation impacts deal perception and behavior. Therefore, an understanding of price presentation effects is insightful for retailers as well as for brand managers.

Price presentation in the market relates to investor perceptions, as investors construct their own internal price for a given firm. This internal price reference then impacts that investor's subsequent investment decisions. Overall, our findings inspire additional research given the central role played by price in the field of finance. In addition, they shed light on the usefulness for researchers in studying the price risks of stocks.

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Tables

Table 1: Summary of nominal share prices, stock splits, and stock dividends

Stocks on the NYSE and AMEX

Stock split (DISTCD = 5523) Stock dividend (DISTCD = 5533)

Years	Stocks	$\bar{p}^* \bar{p}^{*-1}$	Splits	SR	$\bar{p}^* \bar{p}^{*-1}$	Splits	SR		
1926-1933	834	\$52.93	\$115.23	96	36%	\$68.15	\$82.11	428	-8%
1934-1943	902	\$20.63	\$41.16	71	88%	\$48.00	\$56.16	93	-12%
1944-1953	1089	\$30.93	\$63.73	233	-8%	\$32.95	\$40.18	655	-13%
1954-1963	2201	\$38.17	\$72.06	575	-34%	\$34.03	\$35.78	1,943	-5%
1964-1973	3379	\$32.44	\$56.88	1,418	-25%	\$24.17	\$26.41	2,669	-7%
1974-1983	3204	\$23.60	\$38.80	1,862	-31%	\$13.86	\$14.47	1,704	-6%
1984-1993	3498	\$24.98	\$42.17	1,833	6%	\$17.01	\$17.40	687	-5%
1994-2003	3869	\$30.59	\$52.63	1,690	-3%	\$21.93	\$23.87	531	-8%
2004-2013	2796	\$32.28	\$58.72	623	113%	\$43.52	\$45.74	142	-5%
Mean		\$28.95	\$50.69	95.47	-3%	\$27.00	\$29.62	100.59	-7%

Stocks on the NASDAQ

Stock split (DISTCD = 5523) Stock dividend (DISTCD = 5533)

Years	Stocks	$\bar{p}^* \bar{p}^{*-1}$	Splits	SR	$\bar{p}^* \bar{p}^{*-1}$	Splits	SR		
1973-1983	5710	\$16.73	\$25.90	2,083	-7%	\$13.24	\$14.55	2,342	-9%
1984-1993	8721	\$16.58	\$25.60	3,324	163%	\$15.20	\$15.78	1,576	-6%
1994-2003	8724	\$23.17	\$38.50	3,601	120%	\$17.89	\$18.89	1,938	-6%
2004-2013	4070	\$17.77	\$27.82	1,030	282%	\$17.09	\$18.35	458	-4%
Mean		\$19.10	\$30.53	114.07	125%	\$15.21	\$16.24	71.75	-7%

This table represents the summary statistics of stock splits (CRSP code=5523) and stock dividends (CRSP code=5533) for stocks listed on the NYSE and AMEX (top panel), from 1923 to 2013, and on the NASDAQ (bottom panel), from 1973 to 2013. SR is defined as equation (1)

Table 2: Stock split and stock dividend by industries

NYSE and AMEX NASDAQ

Split Dividend Split Dividend

Agric	21	0.25%	28	0.32%	20	0.20%	5	0.09%	Food	214	2.55%	253	2.86%	136	1.35%
73	1.26%	Soda	56	0.67%	63	0.71%	10	0.10%	8	0.14%	Beer	42	0.50%	39	0.44%
9	0.09%	4													

0.07% Smoke 40 0.48% 41 0.46% 2 0.02% 1 0.02% Toys 80 0.95% 141 1.59% 65 0.65% 36
0.62% Fun 77 0.92% 165 1.86% 145 1.44% 42 0.73% Books 111 1.32% 85 0.96% 71 0.71%
25 0.43% Hshld 268 3.19% 285 3.22% 179 1.78% 80 1.39% Clths 165 1.96% 249 2.81% 72
0.72% 33 0.57% Hlth 128 1.52% 49 0.55% 241 2.40% 53 0.92% MedEq 132 1.57% 39 0.44%
247 2.46% 41 0.71% Drugs 199 2.37% 106 1.20% 330 3.29% 44 0.76% Chems 252 3.00% 380
4.29% 111 1.11% 61 1.06% Rubbr 89 1.06% 165 1.86% 76 0.76% 36 0.62% Txtls 111 1.32%
172 1.94% 31 0.31% 7 0.12% BldMt 313 3.73% 487 5.50% 170 1.69% 153 2.65% Cnstr 121
1.44% 75 0.85% 55 0.55% 36 0.62% Steel 210 2.50% 317 3.58% 72 0.72% 29 0.50% FabPr
45 0.54% 112 1.27% 26 0.26% 14 0.24% Mach 429 5.11% 440 4.97% 265 2.64% 81 1.40%
ElcEq 132 1.57% 207 2.34% 220 2.19% 71 1.23% Autos 232 2.76% 309 3.49% 83 0.83% 77
1.33% Aero 101 1.20% 138 1.56% 19 0.19% 7 0.12% Ships 33 0.39% 20 0.23% 2 0.02% 2
0.03% Guns 29 0.35% 36 0.41% 11 0.11% 2 0.03% Gold 35 0.42% 61 0.69% 29 0.29% 11
0.19% Mines 72 0.86% 62 0.70% 12 0.12% 12 0.21% Coal 16 0.19% 20 0.23% 8 0.08% 6
0.10% Oil 406 4.83% 448 5.06% 257 2.56% 129 2.23% Util 412 4.90% 348 3.93% 96 0.96%
137 2.37% Telcm 185 2.20% 74 0.84% 272 2.71% 43 0.74% PerSv 61 0.73% 61 0.69% 136
1.35% 56 0.97% BusSv 369 4.39% 176 1.99% 1251 12.46% 157 2.72% Comps 154 1.83% 103
1.16% 306 3.05% 39 0.68% Chips 292 3.48% 303 3.42% 577 5.75% 163 2.82% LabEq 149
1.77% 118 1.33% 168 1.67% 54 0.94% Paper 166 1.98% 178 2.01% 94 0.94% 52 0.90% Boxes
74 0.88% 101 1.14% 36 0.36% 15 0.26% Trans 203 2.42% 301 3.40% 186 1.85% 36 0.62%
Whlsl 279 3.32% 329 3.72% 412 4.10% 247 4.28% Rtail 690 8.21% 693 7.83% 531 5.29%
242 4.19% Meals 152 1.81% 176 1.99% 279 2.78% 73 1.26% Banks 385 4.58% 425 4.80%
1523 15.17% 2038 35.30% Insur 251 2.99% 121 1.37% 322 3.21% 269 4.66% RIEst 56 0.67%
97 1.10% 61 0.61% 41 0.71% Fin 334 3.98% 256 2.89% 775 7.72% 921 15.95% Other 30
0.36% 0 0.00% 39 0.39% 12 0.21% Total 8401 100.00% 8852 100.00% 10038 100.00% 5774
100.00%

This table represents the percentages of stock splits and stock dividends on the NYSE and AMEX (left panel) and NASDAQ (right panel). The industry classification scheme was extracted from Kenneth French's web site.

Table 3: $K=1$, 1965-2013

$K=1$

Portfolios SELL BUY B-S

$p \in [1, \infty)$ 1044/1044 0.005% 1.756% *** 1.273% *** (0.003) (0.003) (0.002)

$p \in [0, 1)$ 633/640 8.281% *** 4.101% *** -4.139% *** (0.012) (0.010) (0.011)

$p \in [1, 50)$ 1044/1044 0.474% 1.752% *** 1.278% *** (0.003) (0.003) (0.002)

$p \in [50, 100)$ 1044/1044 0.454% ** 1.420% *** 0.966% *** (0.002) (0.002) (0.002)

$p \in [100, 150)$ 512/570 -0.491% 1.585% *** 2.377% *** (0.003) (0.005) (0.006)

$p \in [150, \infty)$ 279/294 1.268% *** 1.001% -0.470% (0.005) (0.009) (0.010)

This table reports the monthly portfolio returns of the momentum strategy from January 1965 to December 2013. The portfolios are constructed by assigning the stocks into one of the ten portfolios based on their cumulative returns over the previous 12 months ($J=12$) with the most recent month excluded, as described in Section 2.4. During the formation periods, the momentum portfolios are also constructed according to the nominal share price levels in $[0, 1)$, $[1, 50)$, $[50, 100)$, $[100, 150)$, $[150, \infty)$, labeled from I to V, respectively. The 10% of firms with the highest-ranking period returns are assigned to the “BUY”-decile portfolio and the 10% of firms with the lowest-ranking period returns are assigned to the “SELL”-decile portfolio. The one-month holding period return on a zero-investment “B-S” portfolio is the difference between the returns on the “BUY”-decile portfolio and those on the “SELL”-decile portfolio in each period. Standard errors are given in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%.

Table 4: ($J = 12, K = 1, 3, 6, 9,$ and 12) Portfolios, 1965-2013

$p \in [0, 1)$ $K=1$ 3 6 9 12 $J=3$ -4.329% *** -3.370% *** -2.359% *** -1.622% *** -1.418% *** (0.008) (0.006) (0.005) (0.005) (0.004)

6 -4.840% *** -3.913% *** -2.838% *** -2.230% *** -1.906% *** (0.010) (0.008) (0.007) (0.007) (0.007)

9 -4.602% *** -3.623% *** -2.304% ** -2.051% ** -1.942% *** (0.011) (0.010) (0.009) (0.008) (0.007)

12 -4.139% *** -2.949% *** -2.052% ** -2.132% *** -2.085% *** (0.011) (0.010) (0.009) (0.008) (0.007)

$p \in [1, 50)$ $K=1$ 3 6 9 12 $J=3$ 0.619% *** 0.487% *** 0.498% *** 0.459% *** 0.408% *** (0.002) (0.001) (0.001) (0.001) (0.001)

6 0.705% *** 0.749% *** 0.760% *** 0.713% *** 0.487% *** (0.002) (0.002) (0.002) (0.001) (0.001)

9 0.886% *** 0.934% *** 0.907% *** 0.675% *** 0.402% *** (0.002) (0.002) (0.002) (0.002) (0.001)

12 1.278% *** 1.048% *** 0.773% *** 0.507% *** 0.221% (0.002) (0.002) (0.002) (0.002) (0.001)

$p \in [50, 100)$ $K=1$ 3 6 9 12 $J=3$ 0.499% ** 0.490% *** 0.508% *** 0.501% *** 0.475% *** (0.002) (0.002) (0.001) (0.001) (0.001)

6 0.691% *** 0.795% *** 0.834% *** 0.775% *** 0.639% *** (0.002) (0.002) (0.002) (0.002) (0.001)

9 0.848% *** 1.026% *** 0.914% *** 0.786% *** 0.612% *** (0.002) (0.002) (0.002)
 (0.002) (0.002)

12 0.966% *** 1.016% *** 0.886% *** 0.656% *** 0.487% *** (0.002) (0.002)
 (0.002) (0.002) (0.002)

$p \in [100, 150) K=1$ 3 6 9 12 $J=3$ 1.434% *** 0.543% * 0.424% 0.272% 0.199% (0.004)
 (0.003) (0.003) (0.002) (0.002)

6 1.250% ** 0.938% ** 1.008% *** 0.663% ** 0.590% ** (0.005) (0.004) (0.004)
 (0.003) (0.003)

9 1.964% *** 1.324% *** 1.178% *** 0.896% ** 0.645% ** (0.005) (0.004) (0.004)
 (0.003) (0.003)

12 2.377% *** 1.568% *** 1.144% *** 0.765% ** 0.800% ** (0.006) (0.005) (0.004)
 (0.004) (0.003)

$p \in [150, \infty) K=1$ 3 6 9 12 $J=3$ 0.281% 0.487% 0.574% 0.490% 0.241% (0.009) (0.006)
 (0.004) (0.004) (0.004)

6 0.763% 0.889% 0.388% 0.424% 0.099% (0.010) (0.008) (0.006) (0.005) (0.005)

9 0.932% 1.262% 0.762% 0.658% 0.546% (0.010) (0.009) (0.007) (0.006) (0.006)

12 -0.470% 0.657% 0.395% 0.424% 0.259% (0.010) (0.009) (0.007) (0.007) (0.006)

This table reports the monthly portfolio returns of the momentum strategy by considering different combinations of (J, K) , where J varies from 3, 6, 9, to 12 and the holding months of K vary from 1, 3, 6, 9, and 12 from January 1965 to December 2013. All the stocks examined to satisfy the criteria prescribed in Table 3. The one-month holding period return reported is the difference between the returns on the “BUY”-decile portfolio and those on the “SELL”-decile portfolio, i.e., on a zero-investment “B-S” portfolio in each period. Standard errors are given in parentheses. *, **, and *** indicate statistical significance at the 10%, 5%, and 1%.

Figures

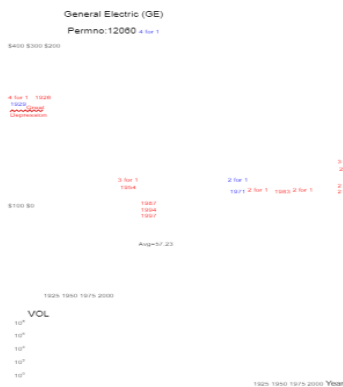


Figure 1: The nominal share price, stock splits (red font), and stock dividends (blue font) of General Electric, from 1926 to 2018 (green dots represent GE being selected in the “BUY”-decile portfolio of the momentum strategy while red dots are in the “SELL”-decile portfolio)

Figure 2: Stock splits (DISTCD=5523) and stock dividends (DISTCD=5533) on the NYSE and AMEX by industries, from 1926 to 2013

Figure 3: Stock splits (DISTCD=5523) and stock dividends (DISTCD=5533) on the NAS DAQ by industries, from 1973 to 2013

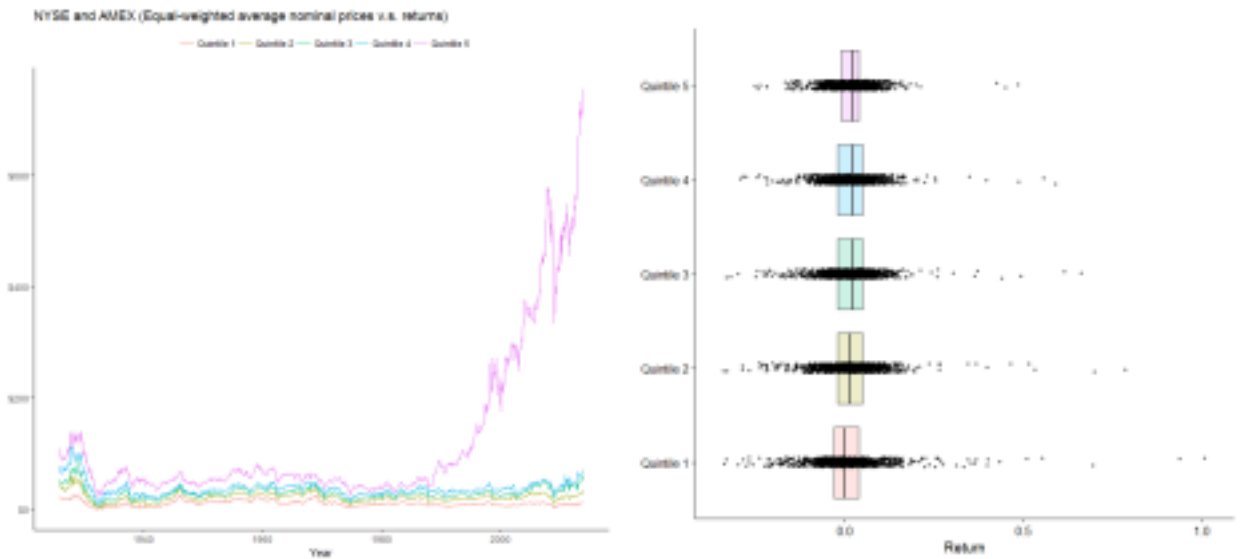


Figure 4: Average prices and returns by firm size quantiles on the NYSE and AMEX and the NASDAQ, from 1926 to 2013



Figure 5: Momentum portfolio returns for stocks with nominal share prices in $[1, \infty)$, from 1927 to 2013 (dashed blue lines are the sample period of Jegadeesh and Titman (1993))

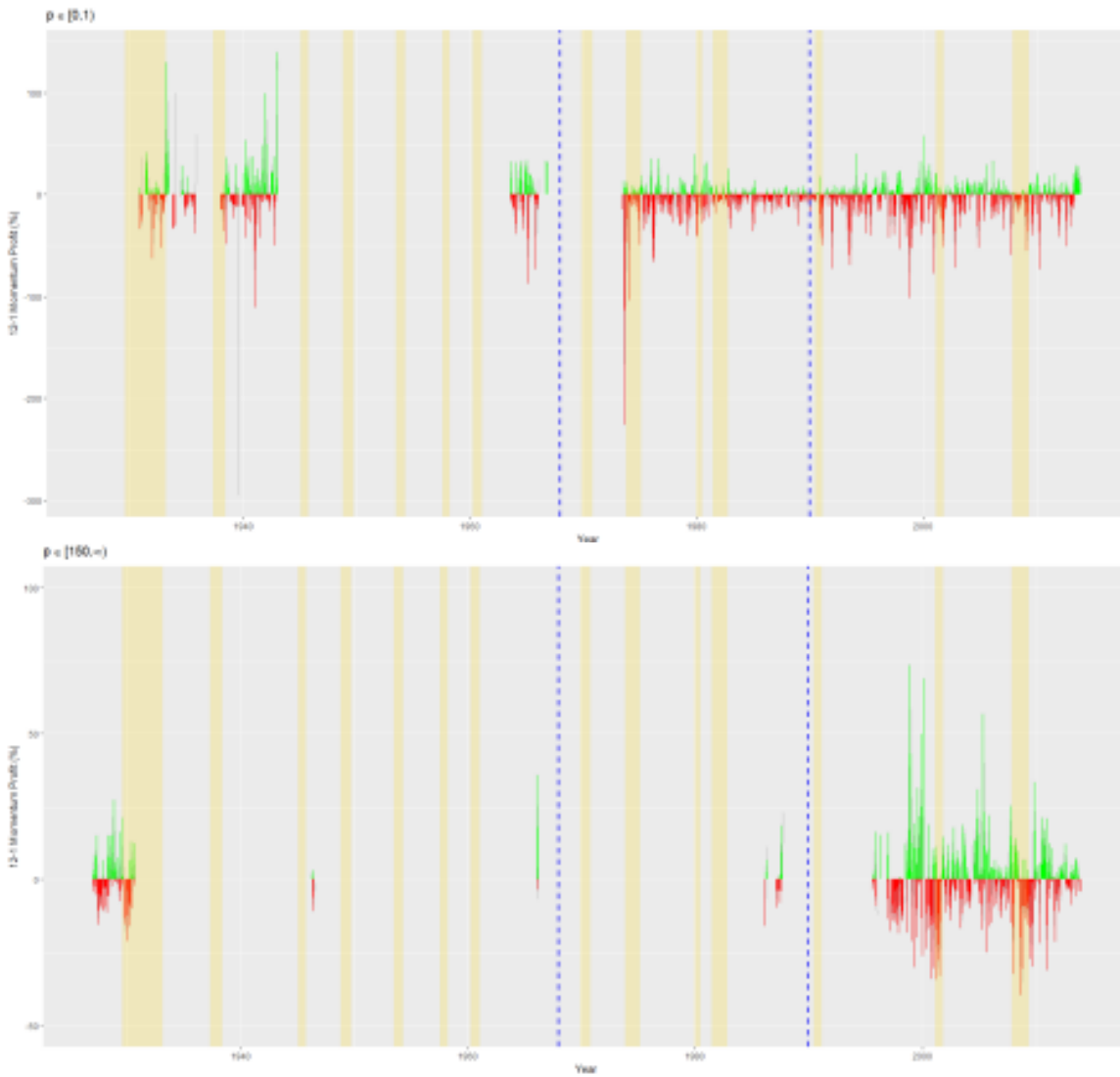


Figure 6: Momentum portfolio returns for stocks with nominal share prices in $[0, 1)$ (top) and $[150, \infty)$ (bottom), from 1927 to 2013 (dashed blue lines are the sample period of Jegadeesh and Titman (1993))

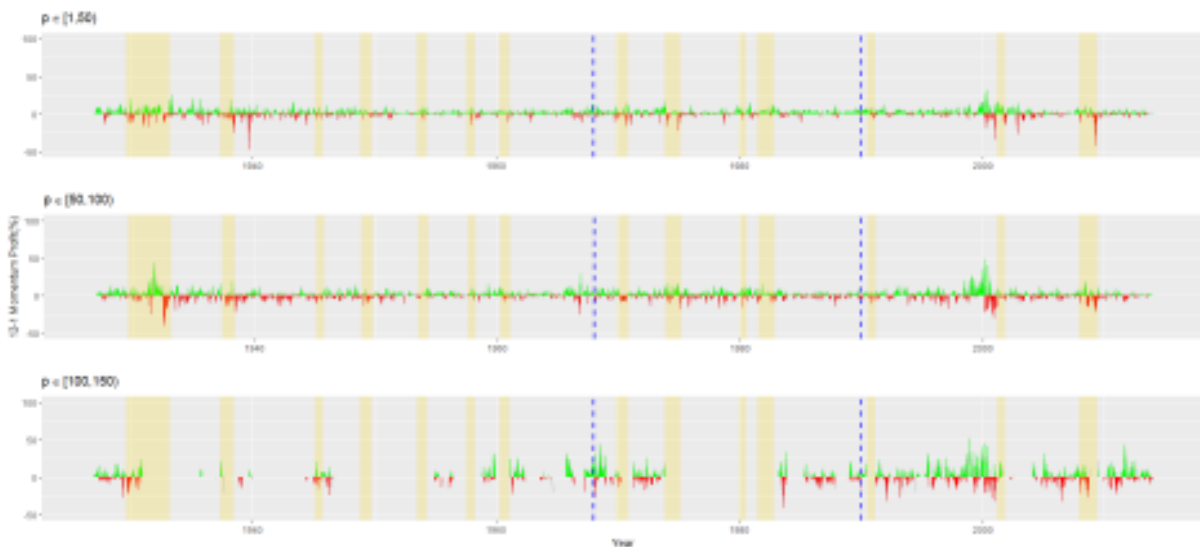


Figure 7: Momentum portfolio returns for stocks with nominal share prices in $[1, 50)$ (top), $[50, 100)$ (middle), and $[100, 150)$ (bottom), from 1927 to 2013 (dashed blue lines are the sample period of Jegadeesh and Titman (1993))

Figure 8: Cumulative returns of equation (2) of momentum profits by different nominal share price levels in $[0, 1)$, $[1, 50)$, $[50, 100)$, $[100, 150)$, $[150, \infty)$, labeled from I to V, from 1927 to 2013

AN EMPIRICAL ANALYSIS OF THE IMPACT OF BANK STABILITY ON ECONOMIC GROWTH

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Abstract

Financial development in each country often has a certain contribution to economic development, in which the level of financial stability is an important factor promoting the development of financial markets. The study was carried out in 34 typical countries in Asia and Oceania, and at the same time, quantitative analysis was carried out through the method of feasible generalized least squares regression and Driscoll – Kraay standard errors, the research results confirm that financial stability has not had a good impact on economic growth. However, the study confirms the positive impact of foreign direct investment and financial development on economic growth, affirming that the trade and financial liberalization policies that countries are pursuing are likely to bring positive signals for economic growth.

Keywords: *finance, stability, growth, foreign investment*

Tóm tắt

Sự phát triển tài chính tại mỗi quốc gia thường có đóng góp nhất định đối với phát triển kinh tế, trong đó mức độ ổn định tài chính là nhân tố quan trọng thúc đẩy sự phát triển của thị trường tài chính. Nghiên cứu được thực hiện tại 34 nước điển hình tại khu vực châu Á và châu Đại dương, đồng thời thực hiện phân tích định lượng qua phương pháp hồi quy bình phương tối thiểu khả thi tổng quát (FGLS) và mô hình hiệu chỉnh sai số Driscoll – Kraay, kết quả nghiên cứu khẳng định ổn định tài chính chưa có tác động tốt đến tăng trưởng kinh tế. Tuy nhiên, nghiên cứu khẳng định tác động tích cực của vốn đầu tư trực tiếp nước ngoài và phát triển tài chính đến tăng trưởng, khẳng định chính sách tự do hóa thương mại và tài chính mà các quốc gia đang theo đuổi có khả năng mang lại những tín hiệu tích cực đối với tăng trưởng kinh tế.

Từ khóa: tài chính, ổn định, tăng trưởng, đầu tư nước ngoài

1. Introduction

Financial markets play an important role in mobilizing, circulation and allocation of capital in the economy. The developed financial market has the ability to help the economy reduce transaction costs and help businesses access financial resources at cheaper costs, and at the same time, investment projects are likely to gain the best financial performance. Therefore, all countries have significantly implemented appropriate monetary policies to stabilize the financial system, improve the financial market supervision capacity system and help the economy develop sustainably (Song et al., 2023).

Domestic and foreign shocks can have an effect on financial markets. The US financial

crisis in the period 2008 - 2009 had a negative impact on the financial markets, especially the banking and insurance systems, causing a decline in the world economy. Since 2020, the COVID-19 pandemic has had a far-reaching impact on many economic activities, countries implemented social distancing, logistics operations and supply chains were disrupted, financial markets were strongly affected by the bad effects of the macro-economy, and at the same time, the economy in many countries fell into recession. It can be said that shocks often cause instability in financial markets and thereby negatively affect economic growth. In addition, Asia is a dynamically developing region in the world. The region has been forming global financial centers concentrated in East Asia and associated with the high economic growth of Japan, South Korea, China, and Singapore. The Asian economy is playing an increasingly larger role in the global economy, gradually emerging as a leader in global economic growth.

Research on the relationship between financial stability and economic growth has been studied by several authors. Most studies confirm a positive relationship between financial stability and economic growth, typically the study of Song et al. (2023), Stewart & Chowdhury (2021), Klein & Weill (2022). However, Ho & Saadaoui (2022) argued that increase in risks in the banking system is not conducive to growth and may reduce economic growth. Therefore, the objective of this study is to assess the relationship between financial stability and economic growth in 34 typical countries. The study uses advanced quantitative methods to quantify this relationship, the research results are a clear evidence to clarify the relationship between financial stability and growth.

Apart from the introduction, the remainder of this study is divided into four parts. Part 2 of the study discusses previous studies, and part 3 discusses data collection and research methods. Sections 4 and 5 of the study present the results, discuss the research results and the general conclusions of the study.

2. Previous studies

The relationship between financial stability and economic growth has been demonstrated through a number of recent case studies, notably Song et al. (2023), Stewart & Chowdhury (2021), Klein & Weill (2022). Most studies confirm the positive impact of financial stability on growth, such as Song et al. (2023), Stewart & Chowdhury (2021); however, there may be no clear evidence for this relationship, as research by Ho & Saadaoui (2022) suggested that as bank credit expands, the systemic risk increases and this is not beneficial to growth, even in some cases can reduce economic growth.

The 2008 financial crisis had far-reaching effects on global economic growth, increasing risks to the financial system, especially the banking sector. Song et al. (2023) argued that there may be a trade-off between economic growth and financial risk at the micro and macro levels. In which, financial risk at commercial banks and joint stock banks is higher than risk at state banks and policy banks, thereby showing that state and policy banks have a higher

level of stability due to often higher support from the public sector. Meanwhile, commercial banks and joint stock banks often operate with little support from the state sector, these banks must find ways to adapt, self-regulate and improve supervision in order to keep system stability. The authors believed that economic growth can also have the opposite effect on financial stability through direct and indirect mechanisms, when economic growth helps the banking sector to manage loans and become more efficient. Meanwhile, Stewart & Chowdhury (2021) said that stabilizing in the banking system is the top concern of governments, whereby banking stability is associated with the implementation of Basel III standards. Due to the 2008 financial crisis, Basel standards have tightened risk management activities in financial markets, especially banks. Using the Generalized method of moments (GMM) on data of 140 global countries between 1995 and 2017 and suggesting that stabilizing banks is likely to reduce the negative impact of banking crises on growth, it has the potential to increase economic resilience in times of crisis, and this effect is confirmed in high- and middle-income countries.

Research by Klein & Weill (2022) suggests that bank profitability has an impact on economic growth because banks have higher stability. The authors argued that financial stability is beneficial for growth, therefore, bank profits are likely to increase financial stability and be the cause of growth. This is explained by reasons such as: bank profits increase retained earnings, increase the bank's core capital and bring higher benefits to shareholders and the bank's resources in the capital market. In addition, profitable banks often improve their ability to withstand risks in financial markets, and that creates a greater incentive to monitor loans. Klein & Weill (2022) conducted an assessment of 132 countries on big data between 1999 and 2013 and simultaneously used the GMM technique and confirmed a positive relationship between bank profitability and economic growth in the short term. both term and long term. Thereby affirming that bank profits bring practical benefits to improve the financial system's efficiency and create benefits for the economy.

Governments and central banks often use public resources to support the financial system whenever the financial system is exposed to systemic risk, even in some cases the government may implement several packages of bailouts to offset financial market failures and maintain system stability. The bailout package is usually used for the purpose of injecting more capital into the bank or supporting the liquidity of the system. Research by Dinger et al. (2022) argued that bailout can increase financial stability, but it can have adverse effects on economic growth due to moral hazard and increase risk bias in the banking system. As a result, the ultimate effect of a bailout on economic growth is often ambiguous, with positive effects in some cases and negative effects in others. Dinger et al. (2022) also confirmed the positive effect of liquidity support on economic growth, however, bailout in the form of refinancing has no effect on growth, but has a positive impact and liquidity ability. Furthermore, Wu et al. (2021) suggested that there could be an impact of economic uncertainty on the relationship between monetary policy and bank risk. Specifically, banks may increase their risk-taking behavior

when central banks loosen monetary policy as businesses increase their profit-seeking incentives, increasing collateral for loans and loans. bank debt increased. Crises are often associated with risks to the economy and then monetary policy is an important tool to stimulate economic growth through investment expansion from the public or private sector.

The development of the financial system is the driving force for economic growth. Since the onset of the East Asian financial crisis, there have been more assessments of the relationship between markets and economic growth. Ho & Saadaoui (2022) conducted in the ASEAN region from 1993 to 2019 and suggested that the effect of finance on growth is relatively different and forms the threshold of impact. In the short term, there is a short-term impact of bank credit on growth, however, as bank credit expands, systemic risks increase and this is not conducive to growth, even in the short term, especially in some cases it can reduce economic growth. This reflects that the banking system should balance and expand credit appropriately to make the capital allocation process efficient and promote economic growth.

There have been several studies on the relationship between the role of banks, the financial system and growth. Studies confirmed that loan quality and credit system have an influence on growth, especially in the context of a bank-oriented economy. In the capital market in a low-developed country, bank credit is the only source for businesses to access financial resources. Silva et al. (2020) argued that credit provided to businesses from domestic private banks has a correlation with economic growth, however, credit provided from state banks seems to have only a negative impact on economic growth in the post-crisis period, which reflects that credit from private banks has a more positive effect on economic growth than state banks. The reason is explained that because private banks are often proactive in business and have high adaptability in the context of business fluctuations, they often have the ability to manage risks to ensure the stability of the system and to maintain growth.

3. Data collection and methodology

3.1. Data collection

This study was conducted in 34 countries and territories in Asia, and Oceania. The countries and territories are: Afghanistan, Australia, Bangladesh, Bhutan, Brunei, Cambodia, China, Fiji, Hong Kong, India, Indonesia, Japan, Kiribati, South Korea, Laos, Macao, Malaysia, Maldives, Mongolia Ancient, Myanmar, Nauru, Nepal, New Zealand, Pakistan, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Sri Lanka, Thailand, Timor-Leste, and Vietnam. Data were collected from the General Statistics Office of each country and the World Bank. Some data is collected from the International Monetary Fund.

3.2. Methodology

Based on the study Stewart & Chowdhury (2021), the research model is shown as follows:

Model 1:

$$PCI_{it} = \beta_{0i} + \beta_1 FT_{it} + \beta_2 FDI_{it} + \beta_3 FD_{it} + \beta_4 TECH_{it} + \beta_5 TO_{it} + \beta_6 LEVEL_{it} + \mu_i + \mu'_{it}$$

Where:

PCI_{it} represents for the economic growth of country i at year t , as measured by per capita income (USD) at 2010 constant prices;

FT_{it} , represents for the financial stability of country i at year t , as measured by the Zscore;

FDI_{it} , is the net foreign direct investment attraction of country i at year t ;

FD_{it} , represents for the financial development of country i at year t , as measured by domestic credit to the private sector (% of GDP);

TO_{it} , is a measure of trade in services relative to the size of the economy (% of GDP) of country i at year t ;

$TECH_{it}$, is a measure of the level of technology access of the economy of country i at year t , measuring the level of mobile subscription usage;

$LEVEL_{it}$ is a dummy variable, measuring the level of economic development of country i at year t .

In addition, β_{0i} is intercept; $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6$ are, respectively the estimated coefficient of the following parameters: financial stability, foreign direct investment, financial development, trade, access to technology; and level of economic development; μ_i, μ'_{it} are, respectively, error terms. In addition, in order for the estimated results to have a uniform value, the study uses logarithms for variables GDP, FD, FDI, TO, TECH used for analysis.

In this study, the authors use GMM system regression analysis, since the data collected from 34 countries over a period of 8 years, i.e. $N > T$, satisfies the use of GMM analysis to remove internality. generated in the estimated model. In addition, the study also uses feasible generalized least squares (FGLS) method. The advantage of this analysis that can give the best results is that it can handle variable variance and autocorrelation, which are possible defects in the estimated model. In addition, the study through FGLS aims to assess the robustness of the estimation results.

4. Results

4.1. Descriptive statistical analysis

Table 1. Descriptive statistics

Variable	PCI	FT	FDI	FD	TECH	TO	LEVEL
Mean	13119.36	19.88	1.86e+10	76.83	1.16e+08	28.65	0.29
Std.Dev	18340.12	9.20	4.52e+10	53.67	2.87e+08	26.54	0.45
Min	568.34	2.77	-4.16e+09	3.20	6800	4.48	0
Max	71992.15	43.92	2.91e+11	233.21	1.65e+09	108.54	1
Skewness	1.51	0.65	3.736936	0.63	3.53	1.46	0.90
Kurtosis	3.86	3.36	18.12456	2.41	14.84	4.15	1.81

Source: Author's calculations

Table 1 presents statistical results describing the variables used in the regression model. In terms of income per capita, the minimum value reached 13119.36 USD/person, the minimum value and the maximum value reached 568.34 and 71992.15, respectively, showing a large variation in income per capita and level economic development in countries. Regarding financial stability, this value reached an average of 19.88, in which the minimum and maximum values were 2.77 and 43.92, respectively, showing a large difference in financial stability.

4.2. Correlation analysis

Correlation analysis aims to predict the possibility of multicollinearity in case the correlation coefficient of the pairs of independent variables is high and greater than 0.8. The results of Table 2 show that the pairs of independent variables have correlation coefficients all lower than 0.8, so there is no possibility of multicollinearity in the regression model.

Table 2. Correlation analysis

Variable	PCI	FT	FDI	FD	TECH	TO	LEVEL
PCI	1.0000						
FT	0.0581 (0.4316)	1.0000					
FDI	0.2393* (0.0001)	-0.0284 (0.6946)	1.0000				
FD	0.5704* (0.0000)	0.0954 (0.1990)	0.5033* (0.0000)	1.0000			
TECH	-0.1370* (0.0383)	-0.0692 (0.3640)	0.6762* (0.0000)	0.1503* (0.0319)	1.0000		
TO	0.3427* (0.0000)	0.1449* (0.0449)	0.0188 (0.7640)	0.1292 (0.0551)	-0.2798* (0.0000)	1.0000	
LEVEL	0.8431* (0.0000)	0.0785 (0.2679)	0.4829* (0.0000)	0.6922* (0.0000)	0.1176 (0.0756)	0.1193 (0.0560)	1.0000

Source: Author's calculations

Table 3: VIF analysis

Variable	VIF	1/VIF
TECH	4.16	0.240538
FDI	3.85	0.259898
TO	2.56	0.390037
LEVEL	2.20	0.453655
FD	2.20	0.454160
FT	1.26	0.791189
Mean VIF	2.71	

Source: Author's calculations

In addition, the VIF analysis aims to once again check the multicollinearity in the estimated model. Table 3 shows that the component VIF and mean VIF are both less than 10, thereby confirming that there is no possibility of multicollinearity.

4.3. Regression analysis and discussion

Table 4. Regression analysis – dependent variable GDP

Variable	Regression analysis			
	FGLS	p-value	Driscoll-Kraay	p-value
FT	-0.0179***	0.001	-0.0179***	0.001
FDI	0.1609***	0.000	0.1609***	0.002
FD	0.3672***	0.000	0.3672***	0.000
TECH	-0.3107***	0.000	-0.3107***	0.000
TO	-0.0269	0.742	-0.0269	0.512
LEVEL	1.8504***	0.000	1.8504***	0.000
_cons	8.6447***	0.000	8.6447***	0.000
Wald chi2(6)/ F(6,6)	1050.40		28646.40	
Prob > chi2	0.000		0.000	

*Note: *** corresponds to 1% confidence level.*

Source: Author's calculations

Table 4 presents the regression results of the relationship between financial stability and economic growth. According to the research results, there is a negative and statistically significant impact of financial stability on economic growth. That is, there is a negative impact of financial stability on economic growth in Asian and Oceanian countries. This reflects that a country with a high level of financial stability is likely to have a low growth rate, and a country with a low level of stability is likely to have a high growth rate. All can be explained that there

are many countries whose level of development depends on the expansion of bank credit. The process of rapid credit expansion is often not accompanied by the stability of the system, even reducing financial stability and can pose risks in the long run. However, credit expansion is likely to have a definite impact on growth in the short term. In addition, Ho & Saadaoui (2022) argued that as bank credit expands, systemic risk increases and this may affect growth in the long run. In contrast, highly developed countries have well-developed banking systems and often low bank credit, so financial stability in these countries is high, and these countries also have a high level of financial stability, and a lower economic growth.

Research results also confirm the positive relationship of foreign direct investment capital and growth. As known, foreign direct investment capital flows are often associated with long-term investment commitments in the host country. This resource is often used to invest in fixed assets for long-term economic development. The research results confirm the benefits of attracting foreign direct investment, and this result is similar to the study of Magazino & Mele (2022), which suggested that foreign direct investment is likely to have an advantage on technology, innovation, and productivity spillover of foreign enterprises to domestic enterprises. Hsiao and Hsiao (2006) also argued that FDI inflows often have a direct impact on growth, and that this inflow can have an indirect impact on the country's ability to export and add additional economic benefits to the country.

The research results also confirm the positive impact of financial development on economic growth, which means that the financial market develops through the ability to provide credit to the private sector and that promotes economic growth. According to Boikos et al. (2020), financial liberalization is a fundamental factor to help the economy overcome the effects of finance and is the engine of growth. Financial liberalization improves the supervision of the banking system and maintains the stability of the financial system, thereby improving loan quality, investment quality, and capital allocation efficiency, risk dispersion and financial development to economic growth.

5. Conclusion

Financial markets play an important role in mobilizing, circulating and allocating capital for the economy. The development of financial markets often requires countries to maintain financial stability and economic growth goals. The study was carried out in 34 typical countries in Asia and Oceania, performing quantitative analysis through the method of generalized feasible least squares regression and Driscoll – Kraay standard errors, the research results confirm that financial stability has not had a good impact on economic growth. The study confirms the positive impact of foreign direct investment and financial development on growth, thereby affirming that the policy of trade and financial liberalization always brings positive signals to economic growth.

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THE EFFECT OF DIVIDEND POLICY ON SHARE PRICE IN REAL-ESTATE INDUSTRY: AN EMPIRICAL STUDY IN VIETNAM

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Abstract

This study investigates the effect of dividend policy on share prices. The author analyzed 21 listed companies on Ho Chi Minh stock exchange under real-estate sector which have earned profits and paid dividend for shareholders in the period from 2015 to 2020. The main objective of the study is to examine whether dividend policy of these companies influence on their share price and if so how they affect. The research model consists of one dependent variable that is Share price and six independent variables including Dividend yield, Dividend payout ratio, Retention ratio, Earnings per share, Return on equity and Profit after tax. The study is analyzed by quantitative method and hence the collected data is tested and evaluated by statistical analysis methods such as descriptive statistic, correlation analysis and multiple analysis. All the data is calculated and analyzed through STATA 14.0. The results indicate that Return on equity has negative significant relationship with share price and it also have the most influence. In addition, Earnings per share are tested to show that it has a positive and significant relation to Share price. Dividend yield is negatively affect Share price but it is significant correlated. In contrast, Dividend payout ratio and Profit after tax have positive but not significant influence on Share price. Retention ratio is also proved to not relevant to Share price. Besides, there are three proposed hypotheses being accepted. The author concluded that dividend policy have significant effect on share price of listed real-estate companies in Vietnam.

Keywords: Dividend policy, Share price, Ho Chi Minh stock exchange, Listed company, Real-estate

1. INTRODUCTION

Dividend is a factor which attracts investors because not only strategic shareholders but also the individual investors can make a financial profit from being paid dividend. That is a reason why dividend is considered as a popular income for investors. And hence dividend policy becomes an issue to which investors attach special importance. Dividend policy is also an instrument that is used to regulate between profit distribution and retained earning in order to satisfy both capital investment demand and shareholders' wealth and requirements about attracting new investors. Therefore, dividend decision is viewed as a complex aspect that company managers must consider in creating a reasonable dividend policy to maximize shareholder's wealth and not affect firm's performance (Hashemijoo et al., 2012).

The question of whether dividend policy affects share prices still remains controversial among financial researchers. Many researches have been conducted all over the world, however, the results about the relationship between dividend policy and share price have not

been consistent so far. While Miller and Modigliani (1961), Hakansson (1982), Black and Scholes (1974) confirmed the irrelevance of dividend policy and share price, Gordon (1963), Baker, Farrelly, and Edelman (1985) and Baskin (1989) believed that relationship between dividend policy and share price exists. In context of Vietnam, the quantity of investors who have interest in the source of income from dividend is more and more thus there have been different researches about this issue and the Vietnamese authors also had inverse studies. While Dang Thi Quynh Anh and Pham Thi Yen Nhi (2015) research gave a conclusion that dividend policy affects share price volatility, Phuong and Ân (2019) showed an opposite result to prove that there is no relationship between dividend policy and share price. However most of the empirical researches in Vietnam have assessed the whole market instead of a specific industry. Therefore this research is going to focus on real-estate industry which has a high market capitalization in the period from 2015 to 2019. The author selected the listed firms on Ho Chi Minh stock exchange under real-estate sector to study and analyze if dividend policy of those companies actually has effect on their share price.

The general purpose of the research is to analyze the impact of dividend policy on share price of listed real-estate firms in Ho Chi Minh stock exchange market. To make it clear and more understandable, the author will accomplish this aim by meeting some specific objectives. Firstly, clarifying the actual situation and reviewing the framework of dividend policy. Secondly, examining the relationship between dividend policy and share price of listed real-estate firms in HCM stock exchange. Thirdly, analyzing the impact of dividend policy on firm's stock price under real-estate sector. Finally, drawing inferences about the listed real-estate firms' dividend policy and share price on the basis of analysis.

2. LITERATURE REVIEW

2.1 Theories of dividend policy

2.1.1 Dividend Irrelevance Theory

Miller and Modigliani (1961) established and developed the dividend irrelevance theory. They had a belief that dividend policies of a company do not affect on its share price or its capital structure. According to these authors, if an investor is paid a dividend that is higher than his expectation, he can choose to reinvest the share of that company with the excess cash flow. On the other hand, if a company pays a dividend which is less than what investors expected, he can sell a part of his shares to get the amount of dividend that he wants to receive. In both scenarios, the investors has no relevance to the company's dividend policy because they are able to create their own cash flows. Some researchers still had a sympathy with the irrelevance of dividend policy hypothesis of Modigliani and Miller (1961). Brennan (1971) gave a conclusion that if there is any denial of this theory, it must be dependent on an elimination of the assumption of symmetric market rationality and the assumption of the independence of irrelevant information. He proposed that some affirmations must be required

to reject the second assumption. The first one is the investors are not rational. The next one is share prices are based on both past event and expected future prospects. The last one is the investors do not understand the share valuation process. Black and Scholes (1974) also supported the theory of Modigliani and Miler. Their study evaluated 25 portfolios of common stock in New Yorrk Stock from 1936 to 1966 in order to test the association between dividend yield and expected return. Their findings show that the investors who pay or exempt tax, concentrate their portfolio in low or high yield securities cannot explain if they make expected return go up or down. Therefore, there is no an evidence about the effect of dividend yield on share returns.

2.1.2 Dividend Relevance Theory

(Gordon, 1963) and Lintner (1962) proposed the bird-in-hand theory of dividend policy in response to the dividend irrelevance theory of Modigliani and Miller. This theory stated that investors prefer cash flow from dividends to cash flow from capital gains because of the uncertainty and risk capital gains. As a result, the investors require a larger return when company's capital gains or dividend ratio is higher because investors are risk averse and they believe that income from being paid dividend is more certain than that from future capital gains. There are many studies being carried out to present a same point of view about relevance dividend theory. Baker et al. (1985) surveyed 562 listed firms from three industries on New York Stock exchange and most of the answers from the respondents were they believe dividend policy affects share value. Hussainey, Mgbame, and Chijoke-Mgbame (2011) took an examination on the listed firms to assess the association between dividend policy and share price changes in the UK stock market. They demonstrated that the relationship between dividend yield and share price changes is positive while the relationship between dividend payout ratio and stock price changes is negative. Harshapriya (2016) analyzed the influence of dividend policy on share price of listed commercial banks in Colombo Stock Exchange. His findings illustrated there is a positive relationship between dividend yield and the volatility of share price but it is not significant. However, this study was consistent with the bird-in-hand theory which approves shareholders prefer current dividend income to capital gain.

2.1.3 Signaling theory

The theory of Modigliani and Miller (1961) presented that company's investors and managers have symmetric information about the firm. It was countered by the signaling theory which was come up by (Solomon, 1963) and (Ross, 1977). This theory indicated that company's managers tend to have more accurate and timely information than investors. That creates a distance between them so company's managers use dividend as a tool to convey private information to their shareholders. Signaling dividend theory suggests that announcement of an increase in dividend payment presents a positive signal about the bright future prospects of a company. There are two issues about signalling theory being examined. Firstly, share price tend to move in the same direction with dividend announcement. Pettit (1972) claimed that the

proportion of dividend payment seems to hold a good information about the prospects of a company, that can be demonstrated by the movement of share price. Share price tend to go up when a firm announces an increase in dividend payout and vice versa. The second question is whether dividend changes are able to make market to predict the future earnings of a company. Watts (1973) selected 310 firms to test the hypothesis that current and past dividend supply more useful information to make a prediction about future earnings than in current and past earnings. After examining, he reported that the information of dividend is incidental.

2.1.4 Tax preference theory

In contrary of the bird in hand theory, the tax preference theory indicates that investors prefer capital gains to dividend because dividend tax rate is higher than capital gains tax rate (Litzenberger & Ramaswamy, 1980). The investors who are taxed at a high rate will require a low dividend payout ratio. This reduces the cost of equity of firms and increases the value of stock and maximizes the value of the business. Therefore, this theory suggests that tax is an important factor investors use to consider their investment and a determinant affecting the dividend policy as well. By using the UK data from 1975 to 1993 Morgan and Thomas (1998) researched about the relationship between stock return and dividend yields. Based on tax preference theory, they found out that dividend yields has a positive relation to stock return. Contrary to their result, Baker, Powell, and Veit (2002) did a survey with the managers from 630 NASDAQ firms and then showed a finding that there is weak or no support for the tax-preference theory.

2.2 The effect of dividend policy on share price

Baskin (1989) researched the relationship between dividend policy and share volatility by observing 2344 companies in the United States in the years from 1967 to 1986. He used regression method to build a model showing the relationship between dividend policy and share price volatility. His findings revealed a strong adverse relationship between dividend yield and dividend payout ratio which was greater than the association between share price volatility and any other variables. His analysis showed a significant negative relationship between dividend yield and dividend payout and share price volatility. Baskin claimed that the share price volatility can be directly controlled by a company's dividend policy thus the company's managers can use this relationship to adjust firm's risks attracting investment. Allen and Rachim (1996) conducted a study about the relationship between dividend policy and stock price volatility of 173 listed firms in Australia in the period of 1972 to 1985. Their study also showed that there is a positive relationship between stock price and earnings volatility but a negative relationship with dividend payout ratio. Zakaria, Muhammad, and Zulkifli (2012) took sample of listed companies on Kuala Lumpur Stock Exchange under construction and materials sector in the period of 2005 to 2010. The least square regression was used to figure out that the change in share price is significantly impacted by dividend payout ratio. But there is no significant effect between investment growth and earnings volatility on the company's share

price. Ilaboya and Aggreh (2013) selected 26 sample of listed firms in different sectors over a period of 2004 to 2011 in Nigerian Stock Exchange. They got a result that dividend yield has a significant and positive impact on share price volatility, however, the relationship between dividend payout ratio and share price volatility is negative and insignificant. Masum (2014) estimated 30 listed banks on Dhaka Stock Exchange from 2007 to 2011. It reported that dividend yield and profit after tax negatively insignificantly impact on share price. However, the research found out that earnings per share, return on equity, retention ratio have positive significant relationship with share price. Sharif, Adnan, and Jan (2015) analyzed samples of 45 non-financial listed firms on KSE-100 index which paid dividends from 2001 to 2012. The results showed that dividend per share, retention ratio, profit after tax insignificantly relate to share market price while dividend payout ratio, earning per share have significant positive relationship with share price. Singh and Tandon (2019) did a research about the effect of dividend policy on share price of 50 listed companies on the National Stock Exchange in the period of 2008 to 2017. The results showed that dividend payout ratio and retention ratio have no effect on share price while return on equity, dividend yield, profit after tax negatively affect share price. Only earnings per share have a positive relationship with share price. There are many researchers in around the world undertaking a study to explore the relationship between dividend policy and share price volatility. The results have diverse conflicts based on the theory, the selected data and the research methods the authors applied. Some support M&M theory, some are consistent with relevance dividend policy theory and some give out a mixed conclusion. However most of them examine the whole listed firms on different stock exchange market and not determine the influence of dividend policy on firm's price per share. Therefore, to fill the research gap this study will estimate the effect of dividend policy on share price, specifically on the listed firms under real-estate sector.

3. METHODOLOGY

3.1 Hypotheses

Many researches about the association between dividend policy and share price have been carried out. By reviewing them, three hypotheses are formed based on the research of the previous authors.

H₁: Dividend Payout Ratio significantly affects Share price

Sharif et al. (2015) explained that the relationship between dividend payout ratio and share price is significant and positive based on the support of the bird-in-hand theory. In research of (Baskin, 1989) and (Allen & Rachim, 1996), they had the same findings that dividend payout negatively impact on share price

H₂: Dividend Yield significantly affects Share price

Ilaboya and Aggreh (2013) conducted a research on firms in Nigerian stock market to conclude that the association between dividend yield and share price is positive and significant while Masum (2014) used fixed and random effect model to test and give a result that dividend

yield has negative and insignificant correlation with share price.

H₃: Retention ratio significantly affects Share price

This factor is also chosen to be an variable that has effect on share price. Masum (2014) determined that retention ratio significantly affects share price however Sharif et al. (2015) studied and had a contrary result that the relationship between retention ratio and share price is insignificant.

H₄: Earnings per share significantly affect Share price

Khanet et al (2011) observed 50 companies at Karachi Stock exchange and found out that earnings per share has a significant association with share price. According to the research of Sharif et al. (2015), the relationship between earning per share and share price is significant relation to share price.

H₅: Return on equity significantly affect Share price

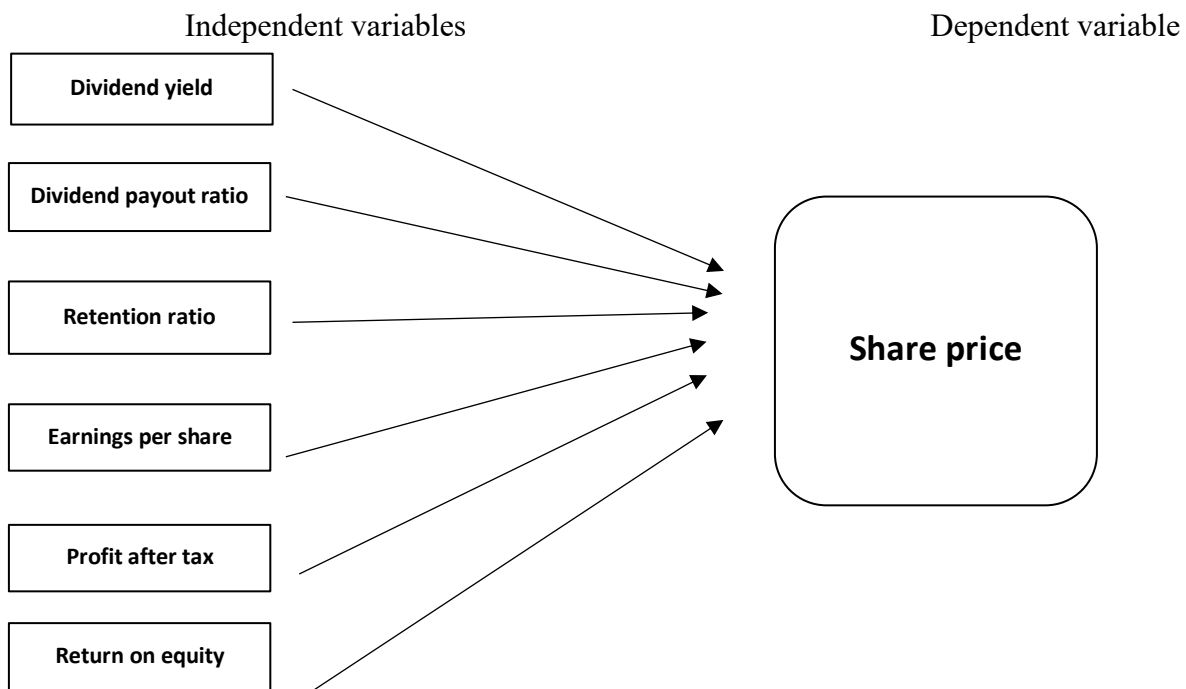
Sharif et al. (2015) conducted a study to investigate the relationshi between dividend policy and share price and their findings showed that Return on equity has satistically significant association with stock market price.

H₆: Profit after tax significantly affect Share price

Masum (2014) chose and tested Profit after tax as a variable which negatively significantly affects Share price of commercial banks in Bangladesh. Singh and Tandon (2019) also came out a same result with variable Profit after tax.

3.2 Research model

Figure 1: Suggested Research Model



(Source:conducted by authors, 2021)

In this study, the author suggests a combination of two research model based on the

study of Masum (2014) and Sharif et al. (2015) however it has a slight adjustment in order to match with industrial characteristics. The illustration of all variables and their relationship is presented in Figure 1.

3.3 Research method

In order to carry out the research, hypotheses and statistical model are needed establishing to test, and hence it is appropriate to adopt quantitative method.

3.3.1 Research subjects

This study concentrates on the listed firms on Ho Chi Minh Stock Exchange (HOSE). HOSE index includes 11 sectors but the author selected only these firms under real-estate industry in the period of 2015 to 2019. The data is collected based on secondary data obtained from firms' annual financial report and the websites such as cophieu68.vn or vietstock.vn. The selecting samples have to meet the requirements in the following:

- Companies are listed before 01/01/2015 and their financial reports have to be disclosed fully within the prescribed period
- The shares of companies are traded continuously during the period
- Companies must have at least one dividend payment during the period.

Table 3.1 Sample selection

Characteristics	Quantity
Full requirements	48
Less: not listed before 01/01/2015	15
Less: no dividend payment	12
Total	21

(Source:conducted by authors, 2021)

3.3.2 Techniques used for analysis

The collected data will be processed by STATA and Excel software and then using them to test. Besides, there are several techniques being applied to

- Descriptive statistic
- Correlation coefficient analysis
- Regression analysis

$$SP = \alpha_i + \beta_1 DY_{it} + \beta_2 DPS_{it} + \beta_3 RR_{it} + \beta_4 EPS_{it} + \beta_5 PAT_{it} + \beta_6 ROE_{it} + \epsilon_i$$

In which: SP: Share price
 DY: Dividend yield
 DPS: Dividend payout ratio
 RR: Retention ratio
 EPS: Earnings per share
 PAT: Profit after tax
 ROE: Return on equity
 α : constant term of the model
 β : coefficient term of the model
 ϵ : error term in the equation
 i: ith company
 t: time period

4. FINDING AND ANALYSIS

4.1 Data Analysis

4.1.1 Descriptive statistic

Table 4.1: Descriptive statistic of the research variables

Variable	Observation	Mean	Std. Dev	Min	Max	Skewness	Kurtosis
SP	105	14.263	10597.46	1080	74851	2.10048	11.7014
DY	105	4.04219	4.650455	0	20.41	1.137745	3.746189
DPR	105	2774975	35.25902	0	202.9328	2.03455	9.188453
RR	105	72.25025	35.25902	-102.9328	100	-2.03455	9.188453
EPS	105	2070.457	2018.206	-914	15147	3.002993	18.54458
ROE	105	10.96371	8.308091	-6.23	59.02	1.798899	11.94969
PAT	105	250237.6	342220.5	-35527	1886219	2.489308	9.977091

(Source:conducted by authors, 2021)

As seen in the table, the average value of share price is 14.263 with a standard deviation of 10597.46, showing that the data are widely dispersed from the mean. The mean of dividend policy measure which are dividend yield and dividend payout ratio are 4.04219 with standard deviation of 4.650455 and 2774975 with standard deviation of 35.25902 respectively. The data of both variables are wide dispersion because the standard deviation of them are higher than the mean. Retention ratio's average value is 72.25025. Earnings per share has a mean value of 2070.457 and standard deviation of 2018.206. The average ROE is 10.96371 with a standard deviation of 8.308091. PAT is the variable having the highest mean which is 250237.6 and its standard deviation is higher.

The minimum value of DY and DPR are equally zero. It is due to the fact that for several observations, the cash dividend or stock dividend during the period of 2015 to 2019 equal to zero. PAT has the largest range among the variables from -35527 to 1886219. Taking a look at skewness of SP, DY, DPR, EPS, ROE and PAT, they are above 1. That indicates that these data are skewed right and affected by outliers in the right tail. Meanwhile, the skewness of RR is -2.03455 that means the distribution of retention ratio data is negatively skewed, showing that few firms keep their profits to reinvest. Looking at the results, these figures of all variables are higher than 3. That means the data of these variables are leptokurtic distribution and peaked.

4.1.2 Result of Correlation

Table 4.2: Correlation between the research variables

	SP	DY	DPR	RR	EPS	ROE	PAT
SP	1.0000						
DY	-0.0672	1.0000					
DPR	0.0434	0.5042	1.0000				
RR	-0.0434	-0.5042	-1.0000	1.0000			
EPS	0.7135	0.0640	0.0468	-0.0468	1.0000		
ROE	0.5859	0.0533	-0.0146	0.0146	0.9008	1.0000	
PAT	0.1284	-0.2383	-0.0730	0.0730	0.1961	0.3849	1.0000

(Source:conducted by authors, 2021)

Firstly, it can be seen that SP has a weak positive relation to DPR with $r = 0.0434$. PAT is a variable that positively correlates with SP ($r = 0.1284$). That could be said when the value of dividend payout ratio or profit after tax increase, the value of share price also goes up. In contrast, there is a negative relationship between SP and DY. The correlation between SP and RR is also negative with $r = -0.0434$. The results indicate that both EPS and ROE have a positive correlation with SP with the value of 0.7135 and 0.5859 respectively. SP is the most correlated with the variable EPS and the least correlated with RR.

4.1.3 Regression Analysis and Hypothesis Testing

4.1.3.1 Regression Analysis

Table 4.3: ANOVA

Source	SS	Df	MS	F-value	Sig
Model	6.3425e+09	5	1.2685e+09	23.53	0.0000
Residual	5.3374e+09	99	53912974.2		
Total	1.1680e+10	104	112306160		

(Source:conducted by authors, 2021)

In the table, it can be seen that F-value is 23.53 and the significance level is 0.000 (less

than 0.05). That indicates the regression model is consistent with the population.

Table 4.4: Regression analysis's results

SP	Coefficient	Std.Error	P-value	t-statistic	R ²
DY	-322.393	189.9033	0.093	-1.70	0.5430
DPR	19.64876	24.1732	0.418	0.81	
RR	-19.64876	24.1732	0.418	-0.81	
EPS	5.224978	.9049576	0.000	5.77	
ROE	-396.9507	235.7976	0.095	-1.68	
PAT	.0007465	.0025981	0.774	0.29	

(Source:conducted by authors, 2021)

The regression examination of research model revealed the R square is 0.5430. That means the model explains about 54.3% of the deviation in the dependent variable. DY has a negative effect on SP. The p-value of DY is 0.093 which is lower than 0.10, showing that DY statistically significant at level of 10%. The beta coefficient of DPR is 19.64876, indicating that the relationship between DPR and SP is positive. The prob-value of t-statistic (p=0.418) is higher than 0.1, making DPR statistically irrelevant. The outcome is consistent with the results of (Ilaboya & Aggreh, 2013) and (Singh & Tandon, 2019). The association between RR and SP is negative with the beta coefficient of -19.64876. The p-value is 0.418 which is higher than 0.10. It is evident that RR is not significant with SP. The finding is found to be same as the study's results of (Sharif et al., 2015) and (Singh & Tandon, 2019). EPS has a positive beta coefficient (5.224978) with a prob-value of 0.000. This implies that there is a positive and significant correlation between EPS and SP. (Masum, 2014), (Singh & Tandon, 2019)'s findings are also found the same result. There is a negative association between ROE and SP due to the coefficient of -396.9507. However, this relationship is significant at 10% level. The outcome is the same as the study's result of (Singh & Tandon, 2019) while in contrast to the finding of (Masum, 2014). PAT is found to have a positive impact on SP with beta coefficient of .0007465. The findings suggest that PAT is statistically insignificant with SP. The result is consistent with (Masum, 2014)'s study which reported that profit after tax insignificantly impact on share price.

In conclusion, the result of regression analysis after testing research model is presented as follow:

$$SP = -322.393*DY + 5.224978*EPS - 396.9507*ROE$$

4.1.3.2 Hypotheses Testing

H₁: Dividend Payout Ratio significantly affects Share price

The results show the relationship between Dividend payout and Share price is not

significant with the p-value of 0.418 so the hypothesis (H₁) is rejected.

H₂: Dividend Yield significantly affects Share price

The p-value of Dividend yield is 0.0193, showing that it significantly correlates to Share price. Therefore, hypothesis (H₂) is accepted.

H₃: Retention ratio significantly affects Share price

The result suggests that the association between Retention ratio and Share price is insignificant because p-value is higher than 0.10. Hence, hypothesis (H₃) is rejected.

H₄: Earnings per share significantly affect Share price

The significant level of 0.000, showing that the variable has a significant relationship with Share price and the hypothesis (H₄) is accepted.

H₅: Return on equity significantly affect Share price

The statistic figure shows that Return on equity has p-value of 0.095, indicating that it significantly related to Share price. Therefore, the hypothesis (H₅) is accepted. This factor also has the biggest negative influence on Share price. That result is in line with the result obtained from the study of (Masum, 2014) showing ROE has the largest coefficient.

H₆: Profit after tax significantly affect Share price

The analyzed outcome suggests that Profit after tax insignificantly impacts on Share price due to p-value of 0.774 (> 0.10). So the hypothesis (H₆) is rejected.

4.2 Discussion

The author did an analysis based on 6 factors including Dividend yield, Dividend payout ratio, Earnings per share, Return on equity and Profit after tax which were guessed to have an impact on Share price by calculation level of significance of them. Only 3 factors which are Dividend yield, Earnings per share and Return on equity have statistically significant effect on the real-estate listed firms' share price. Hypothesis (H₅) which is about the significant effect of Return on equity on Share price is accepted. It also indicates that Return on equity is the factor that has the most significant influence with the regression coefficient of -396.9507. That result is in line with the result obtained from the study of (Masum, 2014) showing ROE has the largest coefficient. The study proved that Earning per share significantly affect Share price. This result is also supported and evaluated by the research of (Singh & Tandon, 2019). The relationship between them is positive, showing the higher the dividend yield, the higher share price which support the signalling theory. Dividend yield is tested to illustrate that it is significantly correlated to Share price. This study's outcome shows the same result as the finding of (Singh & Tandon, 2019). Therefore Dividend yield is also a factor that manager should consider in making decision on paying out dividend. With this research result, it can answer the research question that there is correlation between dividend policy and share price. Three factors has

proved to have positive and negative relations to share price. By analyzing, the authors found out how share price is effected by Dividend yield, Earnings per share and Return on equity.

5. CONCLUSION

5.2 Conclusion

This study is conducted to investigate the impact of dividend policy on share price with a focus of 21 listed companies on Ho Chi Minh stock exchange under real-estate industry for a period of 5 years from 2015 to 2019. The outcome indicated that Dividend payout ratio, Earnings per share, Return on equity and Profit after tax are variables that have positive relationship with Share price while Dividend yield and Retention ratio are factors which negatively correlate to dependent variable. The author applied the multiple regression analysis to assess the effect of independent variables on Share price. The statistical result illustrated that Return on equity has the greatest significant influence on Share price with beta coefficient of -396.9507. Dividend yield positively significantly impact on Share price with beta coefficient of -322.393 and p-value of 0.093. And the last factor is tested to have significant effect on Share price is Earnings per share. In contrast to above variables, Dividend payout ratio, Retention ratio and Profit after tax are analyzed to have irrelevant relationship toward Share price.

For the future research, it is suggested that non-listed companies can be considered and compared to investigate whether there is any difference in dividend policy between listed and non-listed companies. The study can be carried out to evaluate a large group of companies and industries for more detailed results of impact of dividend policy in Vietnam and the number of independent variables can be increased in order to make more valid and reliable results. The period of time can also increase from 5 years to 10 years.

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PARALLEL SESSION 4

**INNOVATION
MANAGEMENT**

RESEARCH ON INNOVATION AND PRODUCTIVITY: A MODIFIED CDM MODEL FOR VIETNAM

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Abstract

Innovation plays an important role in the productivity growth of nations, industries, and firms. Although Vietnam's economy has been growing rapidly for decades, innovation activities have not yet developed commensurately, as evidenced by low labor productivity growth and low innovation ratings. Due to the comprehensive and systematic nature, the CDM model has become a standard framework for innovation studies since its inception. Based on the CDM model approach, this study created a modified version for innovation analysis in Vietnam using firm-level panel data of manufacturing firms in the period 2012-2018. In particular, the study not only fully applied the 3-stage model of the CDM approach for Vietnam, but also expanded the list of potential explanatory factors in accordance with the fundamental theory and data conditions. This study found out the positive role of the business environment, competition, and export participation in the innovation process. In addition, the productivity distance to the frontier has a negative effect on R&D intensity and a good effect on innovation output. This research then recommends boosting business environment reforms, fostering competition, and assisting exporting enterprises to foster innovation in Vietnam. In addition, the innovation policy should target less productive enterprises, which have a higher probability of successful innovation but smaller R&D spending capacity.

Keywords: *Innovation, productivity, CDM model*

1. Introduction

1.1. Background

Innovation is defined as "the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method" (OECD, 2005). This definition demonstrates that innovation is the process of creating and accumulating knowledge, which in turn brings competitive advantages at both the national and firm's level. At the macro - level, innovation plays as a major factor in economic growth (Rosenberg, 2006). At the firm - level, innovation can be considered as a key force to improve its productivity or performance (Crepon, Hughes, and Mairesse, 1998). Innovation is also

related to "the knowledge-based economy," a popular economic trend in the modern world. Innovation activities result in the development and widespread adoption of new technologies such as information technology, automation, and artificial intelligence. Those factors are correlated with the key strategies in the "knowledge-based economy" which are investment activities on intangible assets, such as research and development, education, and training, where the return on those investments determines the success or failure of nations and companies in the global business environment (OECD, 2005).

Research on innovation and its relationship to corporate performance has attracted much attention from the 1960s to the 1980s. Studies in this period focused on research and development (R&D) expenditures, which were seen as a proxy for innovation activity (Teplykh, 2016). Due to the fact that the nature of R&D activities (research and development of new knowledge) and the application of R&D results (commercializing them for better business results) may be asynchronous, and the effect of time lag from R&D on business results, this assumption is not particularly convincing.

Innovation research has made significant strides since the 1990s. Crepon et al. (1998) created a structural model (the CDM model) that elucidates particular phases of the innovation process. This approach reorganizes and clarifies the innovative process by various stages: the factors that determine innovation efforts (innovation input), the results of innovation input (innovation output), and the results of innovation output (productivity). R&D expenditures are the input variables of the innovation equation, whereas innovation output (knowledge gains) is the determining variable that has a direct impact on productivity. Consequently, by applying the structural model to three stages of the innovation process, the authors address the endogeneity of innovative inputs and outputs as well as the selectivity of biases. The authors discovered a positive and significant relationship between R&D decisions, R&D spending, innovation output, and productivity based on this proposed model. The CDM model has become the primary framework for research on innovation and productivity in over 40 countries based on microdata (Loof, Mairesse, and Mohnen, 2017). This model provides a complex and detailed view of the process of innovative activity in firms, which is one of the reasons for its popularity (Teplykh, 2016). The improved research data on the innovation process also bolsters studies employing the CDM model. Since 1992, the European Commission has conducted the "Community Innovation Survey" (CIS), which provides the data necessary to analyze the innovation process in European nations (European statistics, n.d.). Using the survey data, several studies on innovation in European nations such as France (Crepon, Hughes, and Mairesse, 1998), Italy (Marin, 2013), Germany (Baumann and Kritikos, 2016), and Norway (Castellacci, 2010) were conducted.

In conclusion, the CDM framework provided an all-encompassing and methodical approach to innovation and productivity. The primary benefit of this approach is that it eliminates the endogeneity and selectivity issues that plague the innovation process.

Consequently, the results will be consistent and unbiased. The literature reviews will describe in greater detail how the CDM model is continuously improved and modified to better account for contemporary innovation.

1.2. Literature review

International study applied and modified the CDM model. Numerous researchers have implemented and expanded the CDM model, as reviewed by Loof et al (2017). Appendix B illustrates the evolution of the CDM model from its inception to its current state. In general, the following three improvement groups for the CDM model have been implemented:

Castellacci (2010), Marin (2014), Bauman and Kritikos (2016), and Mohan et al. (2017) are credited with the transition from a static to a dynamic model (from cross-sectional to panel data), which is supported by a superior and more organized database. As innovation is the process of bringing about long-term change within a firm, static data has many limitations when assessing its impact. Immediate impact assessment may not produce good, statistically significant results of innovation on productivity. Including time series in the model enables the authors to capture the effect of innovation on productivity over the long term. The dynamic model enables the analysis of the return on investment on accumulated knowledge and R&D expenditures, which is crucial to the innovative decisions of firms.

The second improvement is a new approach for innovation output. The original version of Crepon et al. (1996) proxied innovation output with two variables: patents per employee and innovation sales per employee. Castellacci (2010) utilized new product turnover as a proxy for innovation output. These variables are good proxied for innovation results but cannot distinguish the type of innovation thus limiting the possibility of in-depth research on innovation strategy. Specifically, OECD's (2005) defined and classified innovation activities as product innovation, process innovation, organizational innovation, and marketing innovation. Beginning with Hall et al. (2009), the results of innovation activity divided the innovation output into product innovation and process innovation. Other innovation activities were added, such as the distinction between environmental innovation and other innovations made by Marin (2014) in order to examine the impact of innovation on the environment. Marin (2014) measures environmental innovation in terms of environmental patents owned by firms based on administrative data collected by Italian firms. The author finds that large polluters tend to focus more on environmental-related technological innovation strategies. In addition, the results from environmental innovation activities can be dwarfed by other more effective innovation activities.

The third extension is considering the role of other factors, for example, competition (Castellacci, 2010), barriers to innovation (Mohan et al., 2017). These factors help to explain the innovation process of firms more comprehensively. Castellacci (2011) focuses on the impact of competition on the link between innovation and productivity. Using a firm-level panel

data set from an innovation survey for Norway, the author developed a refined version of the CDM model for competition. Even though the oligopolistic sectors may be more likely to try new things, the competitive industries make it easier for new ideas to improve technological and economic performance. Mohan et al. (2017) research the specific barriers affecting potential innovators, and that the motivation to innovation for Caribbean firms is to introduce a product or process. The main barriers to innovation identified by the authors are financing and cost, knowledge (qualification, technical, and flexibility), market (client, time), policy and regulation (international standards, culture, protection against copycats, innovation policy). Accordingly, market-related factors show the strongest influence on innovation decisions.

In summary, the above improvements help the CDM model to more closely reflect the reality of innovation activities, in which it helps to solve the problem of the lag of innovation activities to business results, and to clearly interpret the output of innovation activities. Innovation and policy recommendations become more comprehensive and practical when the list of explanatory variables is expanded.

Study applied the CDM model in Vietnam. In Vietnam, there is no study on innovation that applies the full CDM model. Most of them pay attention to one or two stages of the innovation process, for example, Tran and Santarelli (2013); O'Toole, Trang, and Yen (2018); Nam and Tram (2019); Trang and Nam (2020).

Tran and Santarelli (2013) rely on the Vietnam General Statistics Office's annual enterprise database from 2000 to 2005. The innovation process is divided into two stages: decision and expenditure on research and development, and performance equation. R&D and expenditure are explained by young innovative companies (YIC), private innovation firms (PICs), small and young firms (SY), and other control variables. The authors found the positive impact of R&D and innovation on firms' profitability and the growth of sales. However, they do not observe the innovation output, which is the result of the innovation efforts and R&D investment. Besides, they use the return on sales as the outcome, not productivity, as in international studies on innovation.

O'Toole et. al. (2018) used the Small and Medium Enterprise survey (SME survey), which was conducted by the Central Institute for Economic Management (CIEM), the Institute of Labour Science and Social Affairs (ILSSA), the Development Economics Research Group (DERG) at the University of Copenhagen, and UNU-WIDER from 2005 to 2015 (once every two years). They applied two stages of the CDM framework, which are innovation output and innovation outcome. In the innovation output equation, the innovation output (represented by new products and new processes) is determined by the innovative investors in the past (which is the approximation of the latent investment intensity). The innovation outcome is represented by labor productivity and capital productivity. They discovered a clear relationship between innovation and labor productivity, and that relationship varies depending on size and sector.

However, the first stage, which determines the innovation input, has not been studied, and the innovation investors are not a good proxy for the latent investment intensity. Also, the small sample size of this database (11,460 observations from 3,283 firms in 10 of Vietnam's 63 provinces) may make it less likely that the results are accurate.

Nam and Tram (2019) focus on aspects of the business environment that determine innovation persistence. In this, they used the panel data from SME survey combined with yearly panel data of the Provincial Competitive Index (PCI), which is represented for the business environment. Using a dynamic random probit estimation, the authors discovered that the persistence of moderately complex innovation, as defined by both single-dimensional and multidimensional innovation, exists only in a poor business environment. Therefore, policies to improve the business environment may stimulate innovation in SMEs. However, they do not point out the direct effect of the business environment on the innovation decisions of firms, and they also have the same problem of representation of the database as O'Toole et. al. (2018).

Trang and Nam (2020) consider the impact of distance to the frontier on innovation. The authors used a combination of SME surveys and PCI surveys to discover the effect of distance to the frontier (which is calculated by the proportion of productivity to that industry leader). They found that the negative impact of distance to the frontier on innovation outputs is moderated by enhancing the local business environment. Therefore, they showed that laggard enterprises are favorably affected by innovation when the business environment is enhanced.

In conclusion, the above studies only observed one or two stages of the CDM framework, which does not fully understand the innovation process in Vietnam. In which, the role of the business environment has not been fully clarified. No study has paid attention to the innovation input in Vietnam, which is at the lowest rank in the world (WIPO, 2021). This study will fill in that gap.

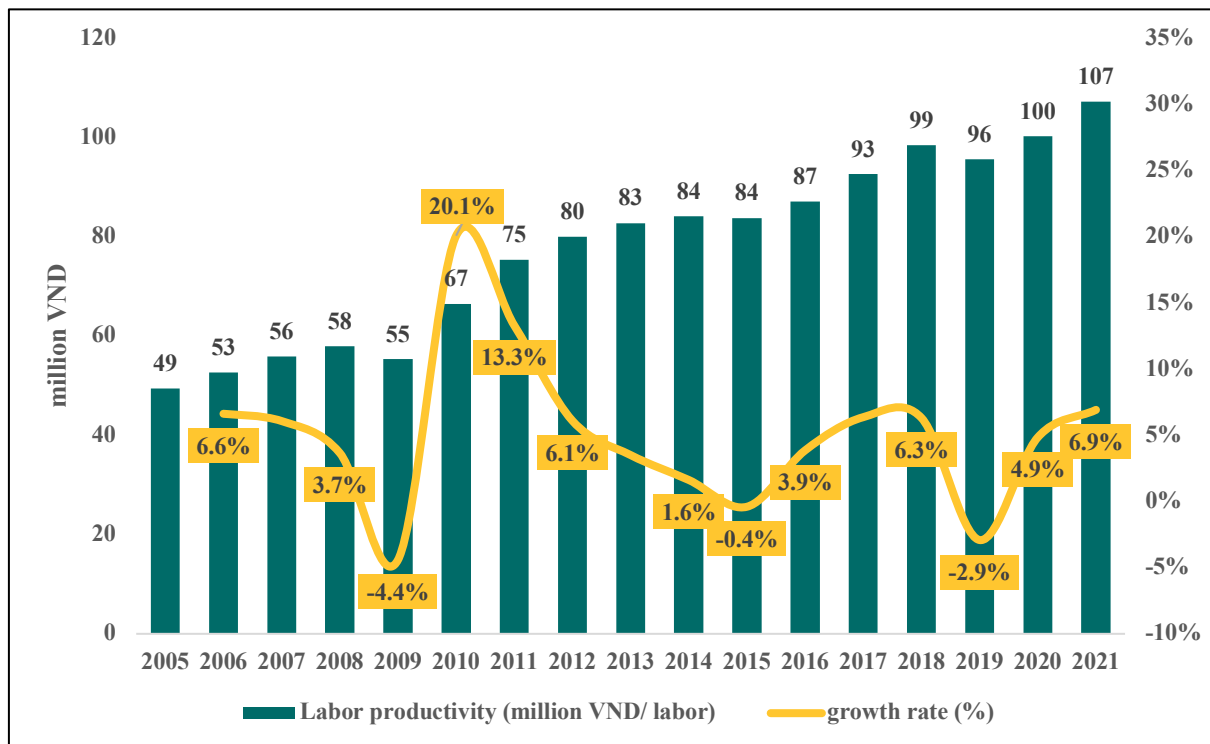
1.3. The current situation of innovation and productivity in Vietnam

Vietnam's economy has developed rapidly over decades (2001 - 2021), reflected in the high average growth rates in GDP (6.3%), export (21.9%), and import (31.4%), and foreign direct investment (FDI) net inflows (20.6%) (World Bank, n.d.). Along with that, the Vietnamese enterprises community is constantly growing. According to the General Statistics Office (GSO) of Vietnam (2021), the number of firms at the end of 2020 reached the number of 811,538 firms, which has increased by 2.4 times compared to 2010. However, Vietnam's economic growth has slowed down in recent years, mainly due to: (i) the growth model based on resource exploitation has reached its limit when natural resources are exhausted; (ii) Vietnam has become a middle-income country, so it no longer receives many incentives for economic development investment from international organizations such as WB, IMF; (iii) the competitiveness of Vietnamese enterprises is still slow to be renewed and upgraded.

The productivity of the manufacturing sector has been trending towards growth over

time, although the growth rate fluctuates, as illustrated in Figure 1. The productivity growth of the manufacturing sector appears to have followed business cycles, with a downtrend during the financial crisis (2008 - 2010) and COVID-19 pandemic (2020 - 2021) and recover well after that. In general, the average growth rate of manufacturing productivity is only 2.02%/ year in that period, which is at a low level. Compared to other ASEAN countries, Vietnam's manufacturing productivity (measured by value-added per employee) is still low. It is less than half of what it is in the Philippines, one-third of what it is in Malaysia, one-fourth of what it is in Thailand, and one-eighth of what it is in Indonesia (UNIDO and MOIT, 2019).

Figure 2: Labor productivity of the Manufacturing sector in Vietnam, period 2005 - 2021



Sources: GSO.

One of the key factors that could contribute to the improvement of manufacturing productivity is the innovation ability. Table 1 illustrated the Vietnam's ranking on Global Innovation Index (GII), which is calculated by the World Intellectual Property Organization (WIPO). On general, the GII of Vietnam is improving significantly during the period 2010 - 2021 from rank 71 to rank 44. Vietnam performs innovation outputs better than innovation inputs since its innovation outputs sub-index is at the higher rank. This improvement is from the success of business sophistication through credit access, knowledge absorption, and knowledge diffusion, which were contributed by high-technology exports, high-technology imports, and FDI inflows (WIPO, 2020). However, this improvement is not steady due to the low rank of the innovation inputs index, which shows that Vietnamese firms seem to put little effort into innovation.

Table 13: Ranking of the Global Innovation Index and their sub-indexes of Vietnam, period 2010 - 2021

Year	Global Innovation Index	Innovation inputs	Innovation outputs
2010	71	77	67
2011	51	63	42
2012	76	83	59
2013	76	89	54
2014	71	100	47
2015	52	78	39
2016	59	79	42
2017	47	71	38
2018	45	65	41
2019	42	63	37
2020	42	62	38
2021	44	60	38

Sources: WIPO.

Innovation activities in Vietnam mainly focus on technological innovation, in which domestic and small and medium enterprises (SMEs) have low innovation rates. According to Nhung (2018), in investment in innovation, the structure of expenditure on research and development is still low (12% of total expenditure on innovation) compared to expenditure on technological innovation (88% of total expenditure on innovation). The author also points out that the low quality of labor is part of the reason for the low innovation rate. The rate of innovation is high in large, or FDI firms and firms with high-quality human resources; and innovation results in 62% of total revenue (Nhung, 2018). This finding shows that although the investment rate for innovation in Vietnam is low, the quality of innovation is very high, which means that innovation outputs are very efficient (this result is in line with the calculation of WIPO). Also, small and medium-sized enterprises (SMEs) and domestic companies seem to be able to do innovative activities.

1.4. Contribution of this study

Methodologically, this study not only expands the CDM model's list of explanatory factors for innovation process, but also clarifies their role in innovation activity, namely: (i) Innovation strategy (products, processes): firm pursuing an innovation strategy will increase the ability to implement innovation; (ii) Business environment: positive business environment directly affects the probability of a firm to innovate and indirectly affects the outputs and outcomes of innovation activities; (iii) Market competition: higher levels of competition lead to more efficient innovation; (iv) Productivity gap: less productive firms have a higher probability of innovating; and (v) Export participation: export participation positively

influenced innovation.

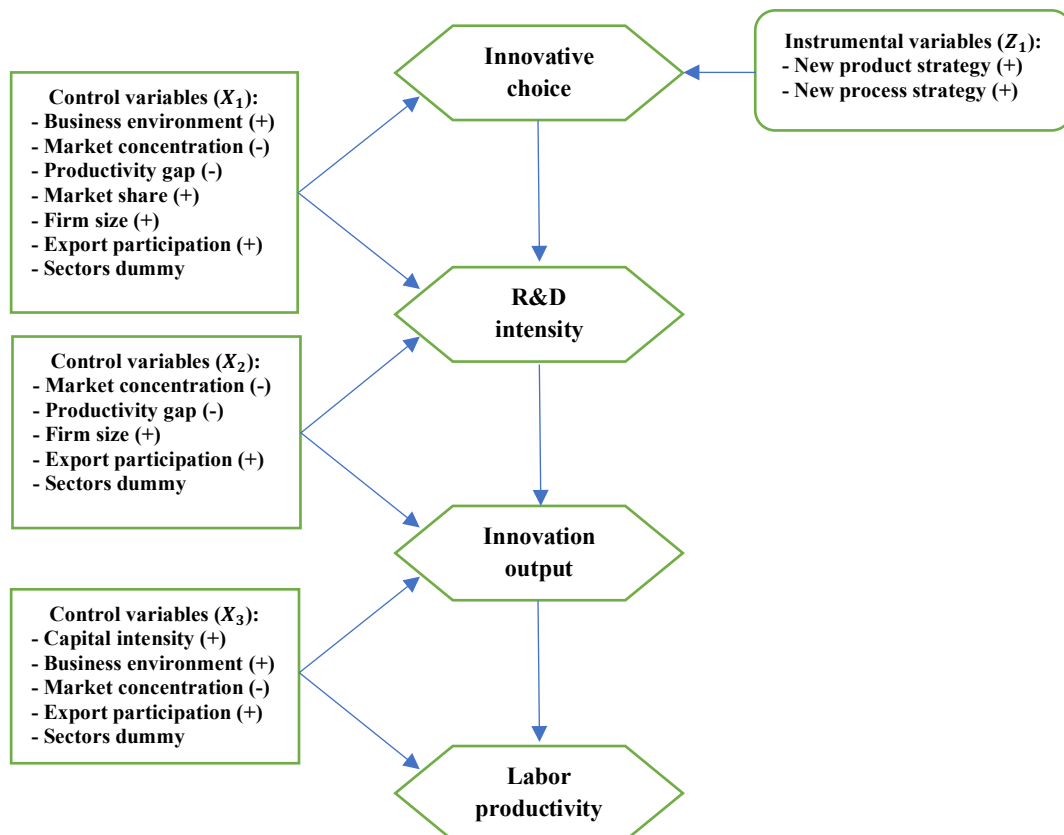
Experimentally, this is the first study to apply the comprehensive CDM model to the analysis of innovation in Vietnam. Accordingly, the process of innovation and knowledge accumulation of Vietnamese enterprises is comprehensively considered from the stage of strategy formulation, technology investment, to product development and application to improving the productivity of enterprises. Consequently, the results of the study can be used to clarify the characteristics of innovation activities in Vietnam in order to propose fundamental policies to increase the quantity and quality of innovation activities in Vietnam.

2. Methodology and Data

2.1. Methodology

This section discusses the CDM framework and how to modify it to apply to Vietnam. Following Johansson and Lööf (2008), Hall et al. (2009), Baumann and Kritikos (2016), and Mohan et al. (2017), this study aims to extend the basic CDM framework to the dynamic model with the panel data in Vietnam in the period 2012–2018. To fully analyze the whole process of innovation, this study is also divided into three stages: innovation input, innovation output, and innovation outcome. The theoretical framework is illustrated in Figure 2:

Figure 3: Theoretical framework



NOTE: The (+) means the positive impact, the (-) means the negative impact

Sources: Author's compilation.

The 1st stage: innovation input

Following Crepon et al. (1998), the factors affecting innovation input are divided into 2 steps of the Heckman's selection model. The logic behind it is the selection decisions of firms. According to Crepon et al. (1998), firms need to decide whether they should invest in research and development (R&D) activities based on the firm's expected return to research investment. If this indicator is larger than the constant threshold, a firm will engage in R&D activities (R&D intensity will be greater than zero). If this indicator is smaller, then the firm will not engage in R&D (R&D intensity will be zero). Therefore, the OLS estimation of R&D intensity will be biased in the case where the latent R&D expenditure is smaller than zero.

Innovative choice:

$$ID_{it} = \begin{cases} 1, & \text{if } ID_{it}^* = X_1\alpha + Z_1\gamma + e_{it} > \hat{c} \\ 0, & \text{if } ID_{it}^* = X_1\alpha + Z_1\gamma + e_{it} \leq \hat{c} \end{cases} \quad ;(1.1)$$

R&D intensity:

$$IE_{it} = \begin{cases} IE_{it}^* = X_1\beta + \varepsilon_{it}, & \text{if } ID_{it} = 1 \\ 0, & \text{if } ID_{it} = 0 \end{cases} \quad ;(1.2)$$

Vector Z_1 includes the instrumental variables (IVs) that are expected to affect the innovative choice (selection criteria) only. Two IVs are possible to use: new product strategy (npd_{it}), new process strategy (npc_{it}). Because if a firm intends to follow the strategy of a new product or process, it will have a higher probability of engaging in innovation (relevance conditions hold). However, the strategy of a firm to follow innovation is not related to the amount of money they should invest in R&D (exogeneity condition hold). Those IVs are expected to have a positive impact on innovative choice.

Vector X_1 includes the control variables that are expected to influence both the innovative choice and the R&D intensity. The business environment is expected to have a positive impact on R&D intensity. The market concentration is expected to have a negative impact on R&D intensity. The productivity gap is expected to have a negative impact on R&D intensity. The market share, firm size, and export participation are expected to have a positive impact on R&D intensity. Vector α , β , and γ are the parameter vectors.

The 2nd stage: innovation output

The innovation output is defined by several indicators in the literature reviews, including the number of patents per employee and innovative sales (Crepon et al., 1998, Johansson and Loof, 2008), product innovation and process (Hall (2009), Baumann and Kritikos (2016), Mohan et al. (2017)). The successful technological innovation is defined as the innovation output in this study.

Innovation output equation:

$$IO_{it} = \begin{cases} 1, & \text{if } IO_{it}^* = IE_{it}^*\gamma + X_2\delta + u_{it} > \hat{m} \\ 0, & \text{if } IO_{it}^* = IE_{it}^*\gamma + X_2\delta + u_{it} \leq \hat{m} \end{cases} ;(2)$$

The variable that is represented for innovation input is IE_{it}^* , which is the predicted R&D intensity estimated from the Heckman's selection model in the first stage. The actual R&D intensity (IE_{it}) is not appropriate to use because of two problems. The first thing is that there may be an omitted variable in equation (2) that affects both the dependent variable (IO_{it}) and R&D intensity (endogeneity problem), for example, the firm's innovative ability (the creativity of the firm's director, innovative intangible assets). In that case, the OLS estimation will be biased. The second problem is the availability of data on R&D expenditures. Usually, the proportion of firms that recognize R&D expenses is very low, especially for SMEs. This happens in both developed (Crepon et al., 1998) and developing countries (Mohan et al., 2017). Therefore, the model may suffer from a selection bias problem. Using predicted R&D intensity will overcome both problems. The predicted R&D intensity is expected to have a positive impact on innovation output. The IVs for innovation input are the business environment (PCI_{jt}) and market share (mks_{it}). The business environment is represented by the Province Competitive Index - PCI, which "measures economic governance and promotes local socio-economic development in each of the country's 63 provinces" (USAID, n.d.). This IV will affect the innovation input because, in an effective and convenient business environment, firms are more likely to invest more in innovation (relevance condition hold). But this IV will not affect the innovation output equation. This is because the innovation output equation is the internal process of the firm, so its success and failure are assumed to be affected only by the firm's capacity (exogeneity condition hold). Following Crepon et al. (1998), the market share is assumed to influence indirectly through the R&D expenditures in the innovation equation, so it is also an IV in this study. Both IVs are expected to have a positive impact on innovation input.

Vector X_2 determine all the control variables for equation (2). They are sectoral and firm's specifications that may affect the success or failure of innovation process: market concentration, productivity gap, firm size, export participation, and sector dummy. Vector δ is the parameter vector.

The 3rd stage: innovation outcome or productivity function

Following Crepon et al. (1998), a Cobb-Douglas production function was used to clarify the impact of innovation output on productivity.

Innovation outcome (productivity equation):

$$q_{it} = IO_{it}^*\pi + X_3\rho + \varepsilon_{it} ;(3)$$

The variable that is represented for the innovation output is IO_{it}^* , which is the expected probability of successful innovation estimated from the probit model in the second stage. Baumann and Kritikos (2016) argued that the latent innovation output represented the

knowledge capital in the production function. Using the expected probability of successful innovation, we may avoid the problems of endogeneity and selection bias. Firstly, there may be an omitted variable in equation (3) that affects both the dependent variable (q_{it}) and innovation output, for example, labor's ability (work creativity, work proficiency). If the labor's ability is higher, the probability of success in the innovation process is higher, and the labor productivity (which is not related to innovation) is also higher. So, the endogeneity problem exists, and the estimated regression will be biased. Secondly, as usual, the proportion of firms that succeed in innovation is very low, especially for SMEs, which leads the model to selection bias problem. The probability of successful innovation is expected to have a positive impact on labor productivity. The IV for innovation output is the latent innovation input (the expected R&D expenditures). This is based on the assumptions of Crepon et al. (1998), in which the R&D is expected to create new knowledge (product and process innovation), which will directly increase productivity. By using this IV, the estimated result from equation (3) will be unbiased and consistent.

Vector X_3 determine all the control variables for equation (3), which follows the logic of production function and previous studies, and includes the following: capital intensity, business environment (to identify the impact on productivity), market concentration, export participation, and sectors dummy. Vector ρ is the parameter vector.

2.2. *Data and Summary Statistics*

This study uses a firm-level panel dataset, gathered and processed from two dataset: the yearly enterprise survey and sampling survey on the technology used. This yearly enterprise survey is a large-scale survey, conducted by the General Statistics Office in Vietnam (GSO) since 2000, covers all enterprises operating in Vietnam. They have collected several general information about enterprises such as: sectors, ownership, financial statements, income statements, labor costs, etc.. The sampling survey on the technology used selected a sample from the manufacturing firms to investigate more details about the technology. Specifically, they collected information about the current situation of using technology, machines, and equipment for production and communication; structure and relationship with the suppliers; structure and relationship with the customers; technology transfer channel; capacity of innovation; and technological improvement. The definitions of the indices and variables used in this study are listed in Appendix A.

After a data clean process, we have 5,026 firms which are observed in 7 years from 2012 to 2018 (29,632 observations in total), in which one firm could be observed more than 1 time. Table 3 shows the data structure categories by firm size, export, import, ownership type, and sector.

Table 14: Data structure by size, export, import, ownership type, and sector

Categories	Obs	%Obs	# Firms	% Firms
By firm size				
Micro	1,230	4.15	154	3.06
Small	19,476	65.73	3,437	68.38
Medium	2,431	8.2	405	8.06
Large	6,495	21.92	1,030	20.49
By export				
Non - exporter	15,958	53.85	2,790	55.51
Exporter	13,674	46.15	2,236	44.49
By import				
Non - importer	18,465	62.31	3,201	63.69
Importer	11,167	37.69	1,825	36.31
By ownership				
State	173	0.58	39	0.78
Private	19,860	67.02	3,441	68.46
FDI	9,599	32.39	1,546	30.76
By sector				
Food and Beverages	4,645	15.68	817	16.26
Textiles and Footwear	4,230	14.28	710	14.13
Chemical and Pharmaceuticals	2,023	6.83	332	6.61
Wood	4,770	16.1	785	15.62
Metal	785	2.65	137	2.73
Machinery	1,816	6.13	317	6.31
Electronics	470	1.59	76	1.51
Vehicles	1,019	3.44	173	3.44
Others	9,874	33.32	1,679	33.41
Total	29,632	100	5,026	100

NOTE: Obs means Number of observations. The classification of firm size is followed the Decree 56/2009/ND-CP about supporting the Small and Medium Enterprises development.

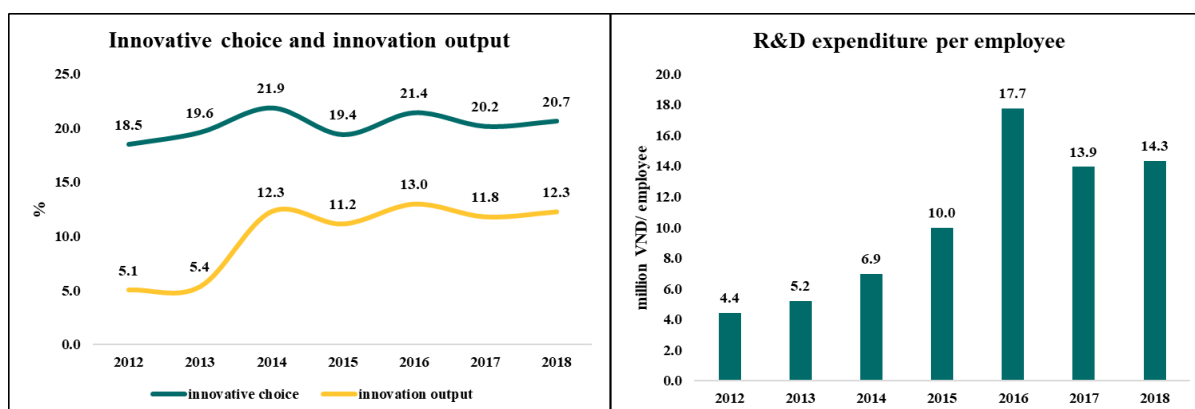
Source: Author's calculation.

The proportion of small firms is largest in the sample (65.73% observations and 68.38% firms), followed by large firms (21.92% observations and 20.49% firms). The proportion of medium-sized firms is small (8.2% of observations and 8.06% of firms), which is reflected in the realistic: Vietnam has very few medium-sized enterprises (Ministry of Planning and Investment, 2020). There are 44.49% of firms that do export and 36.41% of firms that do import. The state-owned firms take a small proportion (0.78%), while the non-state-owned

firms take the largest proportion (68.46%). FDI firms play an important role in this sector (30.76% of firms). Most of the firms do business in the Food and Beverage industry (16.26%), Wood (15.62%), Textiles and Footwear (14.13%); very few firms are active in Electronics (1.51%), Metal (2.73%), and Vehicles (3.44%).

Figure 3 illustrates the innovation input and innovation output the manufacturing firms in the period 2012 - 2018. In which, the proportion of firms that decide to do R&D fluctuates strongly in a long-term uptrend, meanwhile, the average R&D intensity shows a strong uptrend in that period. This shows that companies are becoming more and more interested in investing in new technologies and making themselves more competitive. The innovation output (illustrated by the proportion of technological success) increased dramatically over time. This is because, for developing countries like Vietnam, firms can improve the technology that can make them more productive at a lower cost. This improvement in innovation output could be considered as evidence for the high rank of innovation output in the Global Innovation Index (GII) of Vietnam as mentioned in Chapter 1.

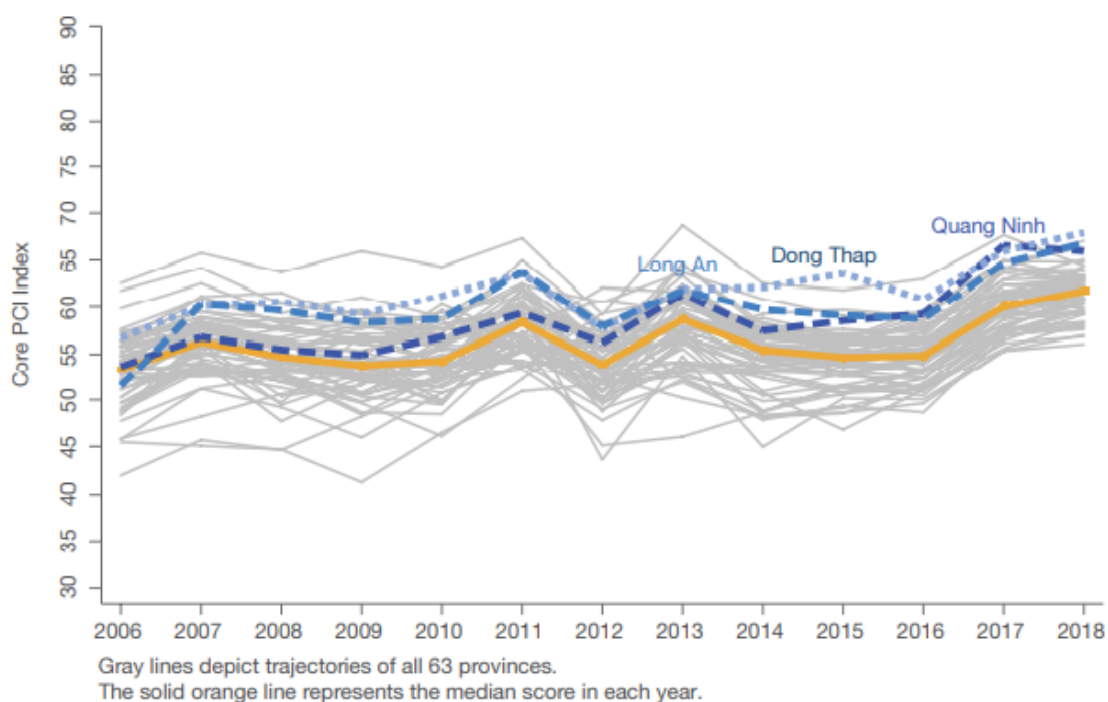
Figure 4: Innovation input and innovation output of Vietnamese manufacturing firms, period 2012 - 2018



Source: Author's calculation.

Figure 4 illustrates the PCI index of 63 provinces in Vietnam from 2006 to 2018. In general, the median score of the PCI index of 63 provinces in Vietnam rose over time dramatically from 2006 to 2018. The PCI lines of the provinces tend to converge, showing that the gap in scores between provinces is also narrowing. It shows that the business environment in Vietnam has improved strongly in recent years, and this has happened relatively synchronously in provinces and cities across the country. Some provinces have very impressive achievements, such as Quang Ninh province, which continuously leads in PCI scores, and Da Nang city, which always has high rankings. Meanwhile, the leading economic provinces such as Hanoi and Ho Chi Minh City have only modest rankings (9th and 10th respectively in 2018).

Figure 5: Trends of change in the Core PCI Index over Time



Sources: VCCI and USAID, 2018.

3. Results

3.1. The first stage: innovation input

Table 3 illustrated the regression results of the equation (1.1) and (1.2), which represent the Heckman Selection Model of innovation input.

Table 15: Regression results of the innovation input equation

VARIABLES	(1.1)	(1.2)
	Heckman (step 1) Innovative choice	Heckman (step 2) R&D intensity
New product strategy	0.0278 (0.0171)	
New process strategy	0.127*** (0.0183)	
Business environment	-0.00439* (0.00247)	0.0803*** (0.00835)
Market concentration	-0.539 (0.573)	-0.363 (1.896)
Productivity gap	0.777* (0.404)	-6.584*** (1.397)

Market share	-15.50** (6.284)	69.88*** (25.60)
Firm size	-0.0172** (0.00752)	-0.538*** (0.0251)
Export participation	-0.0682*** (0.0195)	0.172** (0.0704)
lambda		-1.286** (0.576)
Constant	-1.323*** (0.423)	7.661*** (1.723)
Observations	29,632	29,632
Sector FE	YES	YES

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

In the first step of the Heckman Selection model, the probability of R&D engagement is more dependent on the process innovation strategy than on the product innovation strategy (perhaps because process innovation seems easier to implement for Vietnamese firms). Specifically, if the firm has a strategy for process innovation, the probability of that firm engaging in R&D activity increases by 12.7%.

In the second step of Heckman's selection model, the coefficient of the lambda is statistically significant, showing that Heckman's selection model is suitable in this case. The coefficient of the business environment is positive and statistically significant, showing that the R&D intensity is positively correlated with the business environment improvement (on average, if the PCI score increases by 1 point, the R&D intensity may increase by 8.03%). This result is consistent with many previous studies on the role of the business environment in innovation, such as Moncada-Paterno-Castello (2014), Mohan et. al. (2017). The productivity gap coefficient is negative, suggesting that if the firm is further away from the market frontier (lower productivity), R&D intensity will be lower. This result is very practical, because low-productivity enterprises (mostly small and medium-sized enterprises) often have low business efficiency, thereby limiting their ability to invest in innovation. The coefficients of market share and export participation show consistent results (positive and statistically significant effects). The negative coefficient of firm size (by the number of employees) can be explained by the fact that the average R&D intensity will go down as the firm grows.

3.2. *The second stage: innovation output*

Table 4 illustrate the equation (2), including the latent regression and the Average Partial Effect (APE) of that regression.

Table 16: The average partial effect of the innovation output equation

VARIABLES	(2)	(2')
	Innovation output Latent regression	Innovation output APE
Predicted R&D intensity	0.103*** (0.0327)	0.0176*** (0.00562)
Market Concentration	-3.135*** (0.895)	-0.538*** (0.154)
Productivity gap	1.026** (0.465)	0.176** (0.0799)
Firm size	0.142*** (0.0183)	0.0244*** (0.00314)
Export participation	0.0193 (0.0244)	0.00331 (0.00419)
Constant	-3.334*** (0.597)	
Observations	29,632	29,632
Sector FE	YES	YES

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

There exists a clear link between the predicted innovation input and the innovation output, which is consistent with previous studies, such as Crepon et. al. (1998), Johansson and Loof (2008), and Baumann and Kritikos (2016). On average, the probability of innovation output will increase by 1.76% if the predicted R&D intensity increases by 1 million VND per employee. Market concentration has a negative effect on innovation output, implying that firms in competitive sectors outperform those in monopoly sectors in terms of innovation output. Productivity gap shows a positive effect on innovation outcomes, meaning that if the firm is further away from the market frontier (lower productivity), the probability of successful innovation is higher. This result may be because low-yield firms have more room to innovate. Firm size (by labor) shows the positive impact on innovation output, which means that large firms have more success in innovation than smaller firms.

3.3. The third stage: innovation outcome

Table 5 illustrate the equation (3) of the manufacturing firms in Vietnam.

Table 17: The estimated result of the innovation outcome equation

VARIABLES	(3) labor productivity
Predicted innovation output	3.779*** (0.426)
Capital intensity	0.239*** (0.00695)
Business environment	0.0302*** (0.00254)
Market concentration	-0.652 (0.552)
Export participation	0.307*** (0.0198)
Constant	1.139*** (0.151)
Observations	29,632
Sector FE	YES

Standard errors in parentheses

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

There exists a clear relationship between the predictive probability of innovation output and labor productivity, which is consistent with previous studies on innovation in the world and in Vietnam, such as Crepon et al. (1998), Johansson and Loof (2008), Long and Anh (2017), Burcu et. al. (2016), and Baumann and Kritikos (2016). Specifically, if the predicted probability of innovation output increases by 1%, labor productivity will increase by 3.779%. This effect has been correctly adjusted (unbiased) according to the 2SLS model, thereby eliminating the problem of unobserved factors that may be correlated with the dependent variable (innovation output). Besides, this effect is much larger than capital equipment growth (0.239%), suggesting that the model of promoting productivity growth in depth through innovation is more decisive than the model of breadth growth through capital accumulation.

The other control variables also show a good result. The business environment shows a positive and significant impact on labor productivity (on average, if the PCI score increases by 1 point, labor productivity may increase by 3.02%). Export participation shows a positive and significant impact on labor productivity (exporters are 30.7% more productive than non-

exporters, on average).

4. Discussion and recommendations

This study demonstrates that there is a close relationship between innovation inputs, innovation outputs, and labor productivity in Vietnam's manufacturing sector, with innovation inputs generating more innovative outputs and innovative outputs contributing to higher labor productivity. This result aligns with the CDM model theory and prior research. It also implies that Vietnamese businesses should invest more in innovation activities and promote innovation input in order to sustainably increase productivity.

In addition, the study reveals that the business environment has a positive effect on innovation inputs and labor productivity in Vietnamese manufacturing companies. Better business conditions will encourage companies to invest more in research and development. Therefore, the Vietnamese government should promote business environment reforms, including the reduction of informal costs, the improvement of the quality of policy issuance by local governments, the reduction of administrative processing time, the promotion of local dynamics, etc. In addition, the competitiveness of the industry has a positive effect on innovation outcomes. This suggests pro-competition and anti-monopoly policies.

On the other hand, the frontier productivity gap has complex effects on innovation. It negatively impacts R&D intensity but positively impacts innovation outcomes. This finding suggests that policy should encourage innovation in firms that are less productive but have a greater likelihood of innovation success. Participation in exports has a positive effect on innovation inputs and labor productivity. This indicates that the Vietnamese government should support exports, as this can encourage businesses to invest more in R&D and increase productivity.

Future research in this area can take several forms: (i) delving into one of the three stages of the CDM structure for Vietnamese enterprises; (ii) analyzing industry differences in the CDM structure (such as textiles, footwear, electronics, and electrical equipment – industries with high export turnover in Vietnam), thereby proposing specific solutions to promote and push the innovation process for each industry; and (iii) analyzing local differences in the CDM structure (such as between Hanoi and Ho Chi Minh City; North - South; urban - rural areas) to propose local and regional innovation policies.

Appendix A. Definition of indices, variables, and vectors

Indices:

$i = \text{firm}, i = 1, 2, \dots, 5026.$

$j = \text{industrial classification of Manufacturing in Vietnam}, j = 1, 2, \dots, 9.$

$k = \text{province}, k = 1, 2, \dots, 63.$

$t = \text{year}, t = 2012, 2013, \dots, 2018.$

Variables Definitions:

Variable	Variable name	Variable definitions
ID_{it}	Innovative decision	Binary variable: $ID_{it} = 1$ if firm invest on R&D activities. $ID_{it} = 0$ otherwise
IE_{it}	R&D intensity	Continuous variable: $IE_{it} = \log\left(\frac{R\&D \text{ expenditures}}{\text{employee}}\right)$
IO_{it}	Innovation output	Binary variable: $IO_{it} = 1$ if firm gains successful technological improvement $IO_{it} = 0$ otherwise
q_{it}	Labor productivity	Continuous variable: $q_{it} = \log\left(\frac{\text{value added}}{\text{employee}}\right)$
npd_{it}	New product strategy	Binary variable: $npd_{it} = 1$ if firm follow the new product strategy $npd_{it} = 0$ otherwise
npc_{it}	New process strategy	Binary variable: $npc_{it} = 1$ if firm follow the new process strategy $npc_{it} = 0$ otherwise
PCI_{kt}	Provincial Competitiveness Index	Continuous variable.
HHI_{jt}	The Herfindahl–Hirschman Index	$HHI_{jt} = \sum mks_{ijt}^2$
pga_{it}	Productivity gap	Ratio variable which is from 0 to 1. $pga_{ijt} = \frac{q_{ijt}}{\max_j q_{ijt}}$
mks_{ijt}	Market share	$mks_{ijt} = \frac{rev_{ijt}}{\sum rev_{ijt}}$
l_{it}	Firm size by labor	$l_{it} = \log(\text{employee})$
exp_{it}	Export participation	Binary variable:

		$exp_{it} = 1$ if firm export to the international market $exp_{it} = 0$ otherwise
ki_{it}	Capital intensity	Continuous variable: $ki_{it} = \log\left(\frac{fixed\ assets}{employee}\right)$
p_{jt}	Sectors dummy	Binary variable: $p_{jt} = 1$ at the sector j of year t $y_t = 0$ otherwise

Vectors:

Vector of instrumental variables for equation (1.1):

$$Z_1 = \{npd_{it}, npc_{it}\}$$

Vector of control variables for equation (1.1) and (1.2):

$$X_1 = \{PCI_{kt}, HHI_{jt}, pga_{it}, mks_{ijt}, l_{it}, exp_{it}\}$$

Vector of control variables for equation (2):

$$X_2 = \{HHI_{jt}, pga_{it}, l_{it}, exp_{it}\}$$

Vector of control variables for equation (3):

$$X_3 = \{ki_{it}, PCI_{kt}, HHI_{jt}, exp_{it}\}$$

Appendix B. Literature Review on CDM model

Authors, year	Original/extended	Country	Static/Dynamic	Innovation input	Innovation output	Innovation outcome	Key finding
Crepon, Hughes, and Mairesse (1998)	Original	France	Static	Innovative choice R&D intensity	Patents per employee, innovation sales per employee	Labor productivity	Develop a structured framework for innovation process analysis. Their primary contribution is to avoid endogeneity and selectivity issues within the innovation process.
Johansson and Lööf (2008)	Extended	Swedish	Static	Innovative choice R&D intensity	innovation sales per employee	Labor productivity	Extend CDM model for OECD countries and identify the role of knowledge labor in innovation process
Hall, Lotti, and Mairesse (2008)	Extended	Italia	Static	R&D intensity	Product innovation, process innovation	Labor productivity	Distinguish innovation in SMEs by separating the innovation output into product innovation and process innovation
Castellacci (2010)	Extended	Norway	Dynamic	Innovative choice R&D intensity	Turnover from new product	Labor productivity	The role of competition is clarified in different stages of the innovation process and in the competitive structure of the industry
Marin (2014)	Extended	Italia	Dynamic		Environmental innovation, other innovation	Labor productivity	Extend to the role of environmental innovations
Baumann and Kritikos (2016)	Extended	Germany	Dynamic	R&D intensity	Product innovation process innovation	Labor productivity	Discover the difference in innovation process of micro firms
Mohan, Strobl and Watson (2017)	Extended	Caribbean	Dynamic		Product innovation, process innovation	Labor productivity	Clarify the role of several barriers (financing, cost, market, knowledge, policy, and regulation) to innovation

Sources: Author's compilation.

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BLOCKCHAIN-ENABLED SUSTAINABILITY LABELING.

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Abstract:

Blockchain technology is widely regarded as one of the most significant technological developments of the past decade. Despite the technology's increasing popularity and interest, little is understood about its present application and utilization in the fashion industry. This research delves into how customers view blockchain-enabled sustainability labels on clothing and how such labels affect their purchasing decisions. In a conjoint experiment, 277 participants judged the attractiveness of stimulus cards depending on their preferences in a fictional shop setting in India. When compared to the 'sustainability labeling,' 'pricing' and 'user ratings' were more influential on consumers' purchasing decisions. According to our findings, 37% of participants who prioritized sustainable living were more positively related to the phrase "blockchain-enabled sustainability labels." Our results imply that buyers must be educated on blockchain and its associated benefits to promote future sustainability in the fashion industry. In conclusion, these results offer fertile ground for further study on how sustainability labeling facilitated by blockchain technology in the fashion industry can benefit consumers and companies.

Keywords: *Conjoint experiment; blockchain; fashion industry; blockchain-enabled sustainability labels.*

1. Introduction

Prior to the seventeenth century, making clothes required considerable effort and time. The industrial revolution significantly changed the fashion business by introducing new technologies, which gave rise to ready-to-wear apparel and mass-production facilities (Vilaca, 2022). As a result, clothing production became more efficient, simple, and economical. Up to the middle of the 20th century, designers planned collections, months in advance to predict market tastes (Guercini, 2001). In the latter half of the 1990s, fast fashion firms began to take off. These firms were able to establish a name for themselves and penetrate the worldwide market by replicating the aesthetics and design elements of runway shows at a far lesser cost

(Heuer & Becker-Leifhold, 2018).

Currently, the global fashion industry is worth \$3000 billion, which is more than 2% of the global GDP (Fashion United, 2022). The size of the worldwide clothing market is projected to increase from \$551.36 billion in 2021 to \$605.4 billion in 2022, at a compound annual growth rate (CAGR) of 9.8% (Apparel Global Market Report, 2022). In 2000, 50 billion new clothes were produced, and this number has quadrupled in the subsequent 20 years (Ellen MacArthur Foundation, 2021). These figures demonstrate that the typical individual now purchases 60% more clothes than they did in 2000 due to the frenetic speed of garment manufacture. As a consequence, people not only purchase more but also create more fashion waste (Niinimäki, et al., 2020).

The fashion industry has a significant energy and natural resource footprint and causes several environmental issues (Niinimäki, et al., 2020). Multiple scientific studies indicate that the disposable nature of fast fashion and the throwaway culture is a significant environmental, health, social, and economic issue. (Shirvanimoghaddam, Motamed, Ramakrishna, & Naebe, Death by waste: Fashion and textile circular economy case, 2020). This business is predicted to generate around 2.79 billion tons of CO₂ emissions, 118 billion cubic meters of polluted water, and generates more than 92 million tonnes of textiles waste per year (Dahlbo, Aalto, Eskelinen, & Salmenperä, 2017; United Nations, 2018). Our natural resources are under strain as a result of mass consumerism and rising apparel demand. In the future, the industry will be compelled to put a greater emphasis on sustainability due to increased awareness of this concern (Khurana & Ricchetti, 2016).

Today, businesses are under constant pressure from the public to alter the way they operate. This is especially true in industries like fashion, which are known for their delocalization strategies for manufacturing activities (Turker & Altuntas, 2014). Due to rising public awareness of environmental issues, the fashion industry has adopted eco-friendly practices. There are now labels on clothing that indicate whether or not it was produced in a sustainable manner. Garments are tagged with labels to inform buyers about the brand and its values (Hyllegard, Yan, Ogle, & Lee, 2012). There has been a significant rise in the market share of products with a sustainability label (D'Souza, Taghian, & Lamb, 2006). Consumers are placing a greater emphasis on purchasing sustainable products as a sign of morality and responsibility toward the environment (Lin & Niu, 2008).

Tragically, a lot of businesses exploit the rising interest in sustainability and erroneously claim to use sustainability-oriented practices to increase profits. This is called "greenwashing," which is a term for an organization's actions or words that are dishonest, misleading, or incorrect but claim to be beneficial to the environment (Becker-Olsen & Potucek, 2013). In such situations, researchers claim that blockchain technology is used to build trust by offering more exhaustive and transparent supply chain information (Lim, Hashim, Poo, Poo, & Nguyen, 2019). Blockchain technology enables the identification and tracking of data linked with a product, making it more challenging to hide unethical practices (Agrawal, Sharma, & Kumar, 2018).

The blockchain is a distributed ledger used to establish a decentralized database of transactions. These blocks are protected by encryption, ensuring that data uploaded to the blockchain cannot be edited or tampered. It allows tracking of the whole supply chain of a garment, from when the raw materials are bought until the moment of sale. This ensures that consumers are informed of the origins of garments and whether or not they are produced ethically. Based on the results of (D'Souza, Taghian, & Lamb, 2006), sustainability labels are an essential aspect of conveying the environmental considerations of products to consumers. Blockchain-enabled sustainability labeling refers to a system that validates a product's sustainability using blockchain technology (Remme, Stange, Fagerstrøm, & Allan Lasrado, 2022).

Recently, there has been an uptick in sustainable labeling in the fashion industry, as this practice is seen as a way to both boost sustainability and transparency between consumers and fashion brands (Ma, Gam, & Banning, 2017). Therefore, the objective of this research is to evaluate if sustainability labeling enabled by blockchain technology can provide consumers with supply chain transparency and trust in the context of apparel shopping. The sustainability labeling system is a significant device for fashion brands and consumers. The adoption of blockchain technology enables the creation of a system that is not only sustainable but also traceable and responsible and one that will provide all relevant stakeholders with information about the manufacturing process.

This study is divided into four sections. First, a summary of previous research has been analyzed and discussed on blockchain technology and the labeling of sustainable products. Following that is a presentation of the in-depth approach used for the study. After, there will be a discussion, followed by a conclusion and a summary of the results. A discussion of the theoretical and managerial implications is included in the last portion of the study, along with some suggestions for additional research that may be carried out in the future.

2. Literature review

Blockchain was first conceived by Nakamoto in 2009. He described it as a method for developing data structure and encoding information transactions using data mining and the bitcoin protocol (Wang, Luo, Zhang, Tian, & Li, 2020). In 2020, Boukis described blockchain as an extensive, distributed digital database that keeps track of transactions. It is a collection of records and data structures called "blocks" that are cryptographically connected and protected (Boukis, 2020). For its transaction processing, blockchain technology uses a set of predefined cryptographic rules and procedures, called a protocol (Schlegel, Zavolokina, & Schwabe, 2018). The information contained inside a blockchain is archived online in an unalterable manner, maintaining a high level of both transparency and security. (Li et al., 2018 (Rejeb, Keogh, & Treiblmaier, 2020)). Some of the most important features of this technology are its decentralization, resistance to centralized control, transparency, traceability, data integrity, anonymity, and credibility (Lu, 2019) without relying on centralized third parties (Schlegel,

Zavolokina, & Schwabe, 2018). The consensus among scholars and practitioners is that blockchain is expected to alter a wide range of industries by enhancing transparency, increasing safety, and lowering transaction costs. (De, Mannan, & Reijers, 2020). Blockchain also creates a new way to do transactions and exchange value in an online setting (Wang, Luo, Zhang, Tian, & Z, 2020; Rejeb, Keogh, & Treiblmaier, 2020).

(Galvez, Mejuto, & Simal-Gandara, 2018) investigated the potential of blockchain technology to ensure the authenticity and traceability of food supply chain activities. Similar technologies are applied in the fashion and textile supply chains. Traceability is often defined as "the capability to identify and monitor the history, distribution, location, and usage of goods, components, materials, and services" (Agrawal, Sharma, & Kumar, 2018). Traceability may increase supply chain transparency, allowing for a more efficient interchange of information in response to client demand (Agrawal, Sharma, & Kumar, 2018). Traceability is the foundation that holds up the three pillars of sustainability: society, the environment, and the economy. Similarly, studies say traceability helps consumers identify and track product-related data. It might be used to determine the origin of the raw materials used to create an item of clothing (Agrawal, Sharma, & Kumar, 2018). In the previous three decades, consumer awareness of social and environmental problems has grown. This is primarily due to their rising concern about the environmental impact of products (Bocken, Pauw, Bakker, & Grinten, 2016). There is a challenge for organizations to boost the transparency of their value chain; blockchain has the ability to address this issue (Boukis, 2020). Because it will provide details about a product's lifecycle, blockchain technology may enable corporations to become more transparent (i.e., from the extraction of the raw materials to the producer, distributor, retailer, and consumer) allowing businesses to establish long-term consumer trust (Bengtsson, Bardhi, & Venkatraman, 2010; Boukis, 2020).

The use of digital technology has been incredibly beneficial in achieving sustainability (Akram, et al., 2022). Sustainability labeling is one of the most widely used advertising tools emphasizing a company's environmental claims about its products and services (Koo, 2011). Studies evaluating the effectiveness of sustainability labeling and marketing reveal that they are beneficial and advise the fashion industry to incorporate them (Ma, Gam, & Banning, 2017). (D'Souza, Taghian, Lamb, & Peretiatko, 2006) research shows that sustainability labels effectively inform customers about the positive effects a product has on the environment. In the fashion supply chain, blockchain eliminates issues such as information asymmetry, visibility, trust, and traceability. It enables the creation of a circular economy in which discarded clothing serves as the raw material for the production of new clothing (Alves, Cruz, Lopes, Faria, & Cruz, 2022). Among modern information technologies, a blockchain is a cutting-edge tool for facilitating traceability (Hastig & Sodhi, 2019). It enables efficient real-time monitoring and tracing of fashion operations, which helps visualize the amount of material used and created, and for the construction of a fashion circular economy (Wang, Luo, Zhang, Tian, & Li, 2020; Kumar Agrawal, Kumar, Pal, Wang, & Chen, 2021). There is substantial research on

blockchain and its function (Galvez, Mejuto, & Simal-Gandara, 2018); however, there is little information on blockchain's importance in the clothing purchase process in the form of sustainability labeling.

Following a review of the relevant literature, we suggest that blockchain technology has the potential to provide value for consumers as well as organizations operating in the fashion industry by delivering transparency and reliability through sustainability labeling. It can build significant levels of trust in consumers by sustainable labeling and establish fundamental standards for the industry. As previous research has shown, the product's price and consumer ratings have a significant impact on consumers' purchasing decisions (Setiawan, et al., 2021; Ventre & Kolbe, 2020). Thus we studied the effect of sustainability labeling enabled by the blockchain technology, along with two other attributes, namely price and consumer ratings. Accordingly, our research is guided by the following research question: What is the impact of sustainability labeling enabled by blockchain technology on consumer buying behavior for clothing?

3. Research Methodology

The purpose of the conjoint technique is to provide significant insights into the formation and pattern of customer preferences (Hair, Babin, Anderson, & Black, 2014). These methods have seen extensive usage in market research, particularly in the context of analyzing situations in which customers have many available choices (Green & Srinivasan, 1978). On the contrary, conjoint techniques have grown in popularity since the general use of computers and are still evolving in design, estimate, and applicability across various academic disciplines (Hair, Babin, Anderson, & Black, 2014). In the field of marketing research, conjoint analysis and other approaches related to choice modeling have been used for a number of years to investigate consumer behavior and preferences for a variety of product characteristics. The trade-offs in each of these techniques are evaluated by concurrently assessing a variety of essential qualities, which is the defining quality that separates them from one another.

In this research method, consumers are provided with a variety of alternatives from which to select in order to facilitate their decision-making about the levels of product characteristics that are most significant to them in comparison to those of other product characteristics. Conjoint experiments are excellent tools for assessing consumer preferences since they indicate which characteristics are more important to consumers than others in a particular product (Mohr, Webb, & Harris, 2005). Conjoint analysis requires respondents to select multiple "packages" of attributes. Due to the intricacy of this task, alternatives must be presented to participants. Typically, this is achieved by using stimulus cards or a self-completion questionnaire (Hair, Babin, Anderson, & Black, 2014). As conjoint has the ability to give insights into which attributes are more highly appreciated by consumers in making the purchase decision, we acknowledge this research technique is ideal for this research.

Specifically, this method compares the perceived importance of sustainability labeling enabled by blockchain technology to other influential aspects of the product, such as pricing and consumer ratings of that product.

3.1. *Participants*

We circulated the poll through email to our contacts and also made it available on a social networking site in order to gather the responses. A total of 277 individuals accepted the offer to participate in this research. Participants varied in age from 18 to 62 years old, with the majority (59%) falling between the ages of 22 and 27. Gender-related data were not reported for this investigation. The conjoint experiment was administered to participants using a web-based survey created with Google Forms. Due to the convenience of dissemination, both in terms of time and reach, an online survey was chosen as the method of choice.

3.2. *Research Procedure*

The participants were given information about a hypothetical situation in which they used their mobile phone for online purchasing of a white T-shirt. It was revealed to the participants that they were familiar with the online business and had purchased from them in the past. After that, the participants were shown 18 distinct buying scenarios, each including a variation in pricing, consumer rating, and sustainability label. They were asked to assess the chance that they would purchase the product in that scenario. The participants were presented with just one potential purchase scenario at a time and were asked to rate how likely they were to make a purchase before going on to the following scenario. All questions were mandatory.

3.3. *Research Design*

For this research, sustainable labeling was established on two unique levels: a "blockchain-enabled sustainability label" and a "no label." We introduced pricing and customer ratings as two additional variables in order to increase the credibility of the economic and environmental aspects. The price was calculated by doing a general price search at the same time that the study was being carried out, and it was then operationalized into three categories, namely "Low price," "Medium price," and "High price." Additionally, three different levels of customer ratings were operationalized: "Low consumer rating" (1 out of 5 stars), "Medium consumer rating" (3 out of 5 stars), and "High consumer rating" (5 out of 5 stars). The attributes and their levels that were taken into consideration for this study are presented in Table 1.

Table 1. Attributes and their levels.

Attribute	Levels
Sustainable labeling	1. Blockchain-enabled sustainability label
	2. No label
Price	1. Low price

2.	Medium price
3.	High price
Consumer ratings	1. Low consumer rating
2.	Medium consumer rating
3.	High consumer rating.

In the research, a total of 18 (3*3*2) stimulus cards were utilized, each of which included a unique mix of three factors: (a) Price *3, (b) Customer ratings *3, and (c) Blockchain-enabled sustainability labels *2. An example of a stimulus card, together with the scenario, is provided in the appendix of this document. On a scale ranging from 0 (very unlikely) to 5 (very likely), the likelihood of purchasing the product was used as the dependent variable in this experiment. It was requested of the participants that they state their ages. One question was posed in relation to the following assertion: "It is important to live a sustainable lifestyle" This statement was evaluated using a Likert scale that ranged from 0 (not at all important) to 5 (very important) to get a better understanding of consumers to view the concept of sustainability. The conjoint analysis method was used to estimate the utilities for each attribute level, and the SPSS statistical software was used to do further analysis.

4. Analysis and Results

There are correlations between the preferences that were observed and those that were calculated in terms of the likelihood of making an online purchase, as shown by the findings of the research (Pearson's $r = 0.97$, $p = 0.001$). We found that a negative effect was caused by low consumer ratings, a high price, and the absence of a label. Customers prefer purchasing products with high ratings from other customers yet are sold at a low price. According to the results, "Consumer Ratings" was the most important purchase attribute, accounting for 51.95% of the overall findings. "Price" got 43.03% of the overall significance, while "sustainable labeling" obtained 5.02% of the total significance. The utility estimates are shown in Table 2, and they illustrate the likelihood of purchasing the given product at each level of the three attributes considered in this scenario. The effect of the "blockchain-enabled sustainability label" was much lesser than that of "Low price" and "High customer rating."

Table 2. The impact of attributes and their levels on the likelihood of product purchase of all respondents (n=277).

Likelihood of purchasing		
Attributes and levels	Impact estimate	Standard error
Sustainable labeling		
1. Blockchain-enabled sustainability label	0.068	0.256
2. No label	-0.119	0.256

Price		
1. Low price	0.847	0.256
2. Medium price	0.087	0.256
3. High price	-0.860	0.256
Consumer ratings		
1. Low consumer rating	-1.027	0.256
2. Medium consumer rating	0.097	0.256
3. High consumer rating	1.140	0.256
(Constant)	2.550	0.183

The following conclusions were drawn from the responses to the question on the importance of adopting a sustainable lifestyle: 42% of those rated "not important" between 4 and 5 are made up of 117 people who do not think it is important to live a sustainable lifestyle. A total of n=58 (21%) of respondents gave a score of 3, indicating that they felt neither strongly nor weakly about adopting a sustainable lifestyle. One-third of respondents (n=102) assigned a rating of 1 or 2 to the importance of adopting a sustainable lifestyle. Based on this premise, we evaluated 102 participants who indicated they considered living a sustainable lifestyle was important to them.

There were correlations between the observed preferences and the likelihood of making an online purchase (Pearson's $r = 0.973$, $p = 0.001$). The "Consumer Ratings" attribute remained the most significant of the three, accounting for 49.96% of the total. "Pricing" was the second most important attribute, accounting for 37.03 % of the significance, while "sustainable labeling" received 13.01 %. Table 3 provides a summary of the group's responses to the question on the importance of adopting a lifestyle and estimates of the group's utility. The results indicate that the "blockchain-enabled sustainability label" had a significant impact than low prices and high consumer ratings. The level of "no label" continued to have negative impacts.

Table 3. The impact of attributes and their levels on the likelihood of product purchase of those who stated that living a sustainable lifestyle is important (n=102).

Likelihood of purchasing

Attributes and levels	Impact estimate	Standard error
Sustainable labeling		
1. Blockchain-enabled sustainability label	0.178	0.254
2. No label	-0.213	0.254
Price		
1. Low price	0.627	0.254
2. Medium price	0.137	0.254

3. High price	-0.730	0.254
Consumer ratings		
1. Low consumer rating	-1.138	0.254
2. Medium consumer rating	0.127	0.254
3. High consumer rating	1.034	0.254
(Constant)	2.830	0.130

The conjoint analysis revealed that respondents ranked customer reviews as the most influential factor in their apparel purchases, followed by pricing. Sustainability labels on apparel do not compare favorably to these two factors. As a result, this data suggests that consumers place less importance on sustainability concerns when making purchases. These results, however, provide credence to previous research demonstrating that customers place greater confidence in online reviews written by other consumers than in other sources (Mohr, Sengupta, & Slater, 2010; Ventre & Kolbe, 2020). When we repeated the study with a set of participants who gave a highly positive response to the importance of leading environmentally responsible lives, we discovered that the participants' preference for sustainability labeling improved, but pricing was compromised. This set of respondents rated the need to have a sustainable lifestyle highly. The sequence of the ratings provided by customers remained consistent. These findings provide support to the findings of prior research, which imply that customers who are more concerned about the environment are, to some extent, willing to prioritize ethical production over price when making purchases (Mohr, Webb, & Harris, 2005).

Customers were more likely to provide negative ratings about high-priced products and were more likely to prefer low-priced products. The findings of this research show that consumers value the sustainability labels that blockchain technology can make accessible and that their perception of a business without such labels is negative. The majority of individuals who did not feel passionately about living a sustainable lifestyle chose lower-priced and higher-rated clothing, and the use of sustainable labels had no significant influence on their purchasing decisions. Customers who are indifferent tend to choose items with the highest ratings and low or moderate prices. This shows that if sustainable products are competitively priced, this fraction of consumers may begin to make more environmentally conscious choices. On the contrary, we discovered that consumers who cared about the environment were often less sensitive to price variations. Environmental sustainability clearly comes with a high price tag, yet conscientious customers are willing to shell out more cash for the cause. This demonstrates how useful it is to have a label declaring the product sustainable. People look for these labels on the products they buy so they may feel good about the choices they are making (James & Montgomery, 2017). This is due to the fact that consumers' tastes are shifting in that direction and businesses are under constant pressure to alter their operations and concentrate on developing sustainable practices (Pimonenko, Bilan, Horák, Starchenko, & Gajda, 2020).

5. Discussion

Findings from studies on sustainability have sparked a flurry of activity in the realms of idea generation, political action, and policy revision worldwide (Scoones, 2010). An increasing number of individuals are thinking about the impact their actions have on sustainability, and the fashion business is no exception. As the fashion industry faces greater scrutiny for the harm it does to society and the environment, its suppliers, manufacturers, and retailers are putting more effort into creating and encouraging customers to buy their goods sustainably (Fletcher, 2008; Joergens, 2006). Many companies are presently researching cutting-edge sustainable technology to enter the sustainable fashion market. Regarding consumer adaptability and dependability, digitalization in the fashion industry facilitates the installation of a real-time, sustainable, and cutting-edge infrastructure (Akram, et al., 2022). Boukis (2020) recommends blockchain technology for achieving transparency in the supply chain by means of more credible identification and the storage of tamper-proof records of the complete supply chain, beginning with the raw ingredients and ending with the finished product in the hands of the customer. Similarly, other experts have pointed out that trust is intimately connected to transparency, and that it is possible to build trust by publicly displaying supply chains to customers (Bengtsson, Bardhi, & Venkatraman, 2010; Boukis, 2020).

Despite the widespread promise of blockchain technology, experts have identified certain possible risks with its implementation. Costs associated with running a blockchain-based system may be exorbitant because of the complexity of its network and the volume of transactions it processes (Agrawal, Sharma, & Kumar, 2018; Tian, 2016). Another drawback is that inaccuracies are permanently recorded on the blockchain (Schlegel, Zavolokina, & Schwabe, 2018). Furthermore, Boukis (2020) emphasizes the danger of security breaches with far-reaching consequences and negative brand image. The fact that blockchain technology is still developing, and other factors like human error, security, and technological integration, are also constraints (Agrawal, Sharma, & Kumar, 2018). In light of this, organizations should proceed with prudence when integrating blockchain technology into their operations. After analyzing how customers perceive apparel with blockchain-enabled sustainability labeling, we conclude that there is much opportunity for improvement with this innovation. Blockchain-enabled sustainability labeling will be one of the essential solutions to a variety of difficulties that are related to the fashion business if the industry is able to address the concerns that have been discussed above.

This study asserts that blockchain technology has the potential to bring trust and transparency to supply chains, which will help safeguard consumers and stakeholders from greenwashing (Becker-Olsen & Potucek, 2013). In addition, the use of blockchain technology makes it difficult for businesses to hide practices that are not sustainable. Both customers and stakeholders get dependable assurance from this, which paves the way for openness and allows them to investigate which businesses best suit their needs. If blockchain gains widespread

adoption, it will pressure all different kinds of businesses to be more open and honest with their customers. The companies will have to be transparent about how they procure the raw material, who is making the clothes and where, which materials are used, and how their practices are not environmentally or socially harmful. However, the findings of our research indicate that there is a necessity for consumers to be informed about blockchain technology first and then the advantages that are linked with it to improve future clarity and conviction in sustainability labeling. This can be accomplished by providing consumers with more information about blockchain technology and its associated advantages.

6. Implications and future scope

The fashion industry's sustainable practices are developing, making it vital to educate customers via essential instruments and awareness. As customers notice and use the information on the sustainability label to make a purchase, it turns out to be an excellent sustainability communication tool. However, the application of sustainability labeling for fashion articles has not been thoroughly investigated. As a result, the present research contributes to the limited body of knowledge on the utilization of sustainability labels by fashion consumers, with implications for retailers and management.

This research primarily applies to the Indian market and may not be generalizable to other cultures. While fashion consumers tend to share commonalities, demographic factors like age, gender, employment status, and socioeconomic background may provide varying levels of results. Self-efficacy and sustainability label knowledge are two factors that might be explored in future research that could broaden the scope of sustainability label adoption. In the future, researchers could investigate whether or not other factors, such as understanding sustainable products, moderate or mediate the impact of label usage. It would also be instructive to learn what customers hope to benefit from sustainable fashion labels since this might shed light on the motivations for their adoption. Even though this research examined the impact of sustainability labeling in the fashion industry, future research might use it for other product categories with some modification.

This research might be beneficial to marketers, as it reveals whether or not buyers who are exposed to sustainability labeling through blockchain ultimately make purchases. Modern businesses would benefit greatly from gaining an understanding of how consumers' preferences influence their purchasing behaviors and which variables they value most when making purchases. Managers in the sales department may benefit from knowing more about the aforementioned topic by building more focused sales strategies and establishing and enforcing environments that facilitate positive client interactions. It will mainly promote the adoption of blockchain-enabled sustainability labeling for apparel and keep consumers informed about the brand and origin of their products.

In the pursuit of a higher quality of life, making plans for the future in a sustainable manner means striking a balance between the competing pressures imposed by the world's social, economic, and environmental systems (United Nations, 2019). Our society needs to alter the way that garments are manufactured, implement environmentally friendly supply chains, and embrace cutting-edge technology in order to achieve these goals. For the industry to be able to satisfy the needs of its customers, it will need a higher level of transparency and responsibility, along with information sharing that places emphasis on ethics and sustainability (James & Montgomery, 2017).

Appendix

Imagine you intend to purchase a white T-shirt via an online shopping app. Assume you are familiar with this online business and have purchased products from them previously. The images will have three attributes which will vary:

1. Existing consumer feedback in the form of ratings: 1 star (Bad), 3 stars (Average) 5 stars (Good).
2. Price of the product: Low (399), Medium (699), and High (999) in Indian rupees.
3. The third attribute will be a product label indicating whether or not the product is sustainable.

Illustration of a stimulus card used in the study (1 out of 18):



Declaration of competing interest

The authors declare that they have no known conflicting financial interests or personal ties that may be seen as having influenced the work disclosed in this study.

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A PORTRAIT OF THE NEW BUSINESS LEADERS IN VUCA

Satoru Deguchi

What are the requirements of the new leaders in VUCA?

In order to discuss a portrait of the new business leaders in VUCA, I would like to use an approach to think about the requirements. If I am asked what is the necessary



and sufficient conditions of new business leaders in VUCA, my answer is that there will be no sufficient conditions but I might list the necessary conditions from the examples in the industry and my experience. I believe every situation and condition of the business is different. The business leaders face many issues but each issue has different background and then the suitable solution is different. Therefore the requirements to the leaders are also different situation by situation. By choosing several requirements necessary in VUCA, I would like to describe a portrait of the new leaders. Before discussing the requirements, let me discuss about the era of VUCA.

What is the era of VUCA?

At the beginning of November, Toyota Motors announced their mid year financial results. I have anticipated that Toyota may have huge profit this year because of the big change in exchange rate between yen and dollars. On the contrary, they announced the annual estimates of 400billion yen lower than previous year. In front of the press, Mr. Kon, vice president finance, left the remarks that it was quite difficult to foresee the future because of the huge changes happening in the auto industry which are larger than Lehman shocks in 2009.

As you may remember, the Lehman Shock brought huge damages not only to the financial sector but also to the other industries globally, including the automotive industry. GM and Chrysler declared chapter 11. The automotive parts industry has suffered even greater impact while the automotive manufacturers restructured their own business. The recovery of the industries took several years but during that period some of the industries have greatly changed.

In this VUCA era, triggered by rapid spread of COVID19 pandemic globally, it urged significant life and working style changes backed by the technology evolution. Video conference and remote work using cloud technology become quite common in most of the industries. The phenomenon accelerates social media, gaming and video communication industries, and also affects to change transportation, office rental, real estate and other industries. Then due to the shortage of containers, global supply chain interruption has occurred and the following IC demand/supply issues have affected to the global industries. Lastly geopolitical unstableness increased as Russia invaded Ukraine. As a result, energy, food supply shortage caused the price hike in every aspects of life. From these viewpoint, I agree that even the affects of Lehman shock could be limited to some extent compared to the current changes.

Here I would like to summarize the main elements of the era of VUCA.

- 1) Pandemic
- 2) Geopolitical instability
- 3) Speed of technology evolution

These elements tangled each other cause uncertainty, and the globalization that enables to utilize all the resources globally is now in question. COVID temporarily paralyzed movement of people globally. Clearly promotion of free trade was one of the growth reason in many industries. Those who feel less benefit from globalization support nationalism. Politically the rise of extreme right-wing ideology is being seen all over the world. Additionally Russia's invasion to Ukraine

On the other hand, evolution of technologies removes the barriers of transportation in many areas. Various video conference tools were widely used as a communication tool for remote work. Also cloud technology enables remote work together to create a document, a presentation, and an idea from different locations. Thus, these are many examples that this Pandemic accelerates the acceptance of particular technologies.

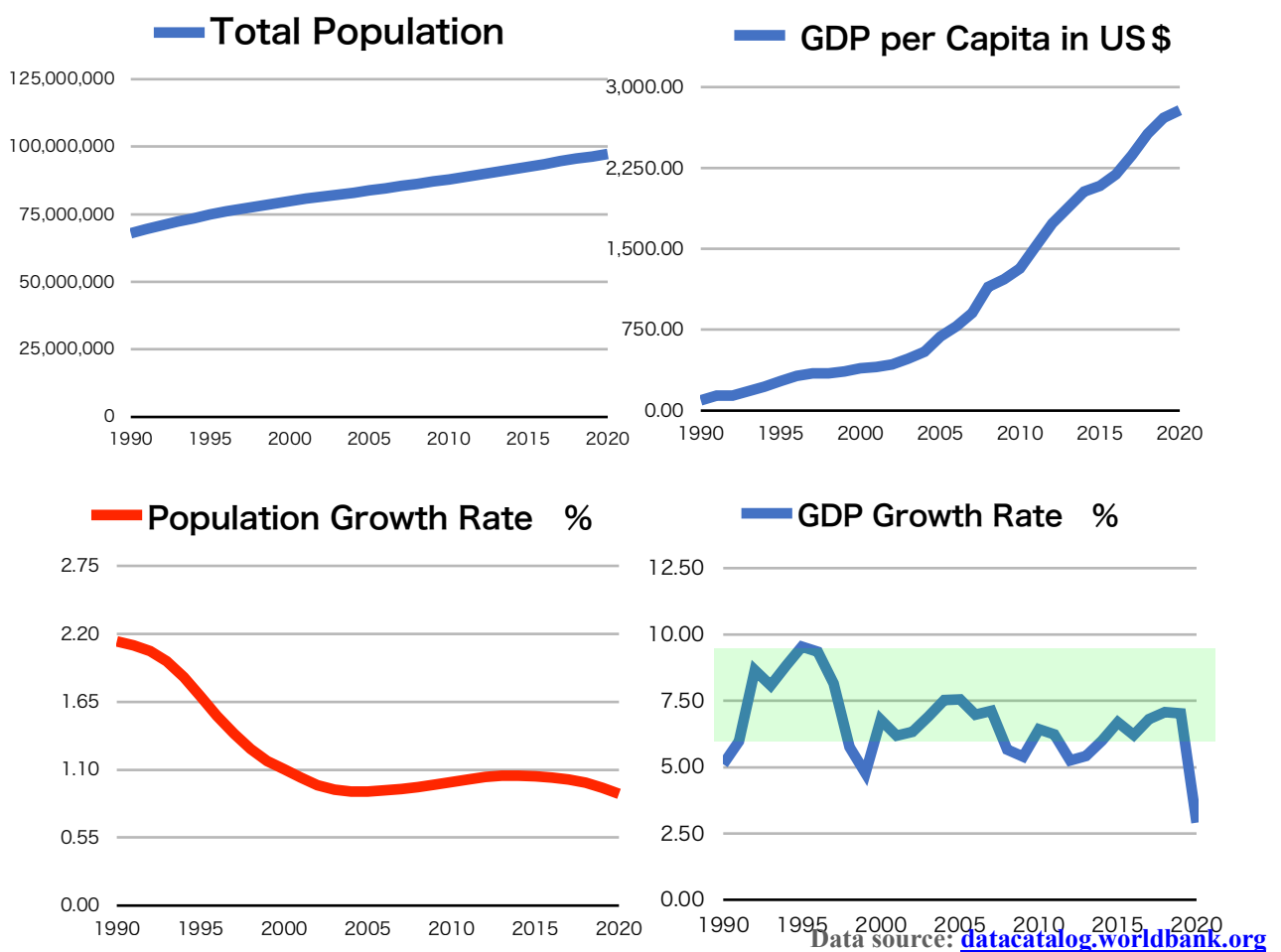
What is not changing rapidly?

As discussed above, evolution of new technologies in VUCA will create a lot of new business chances and risks of eliminating the current businesses. On the other hand, even in VUCA era there are several elements which is not changing rapidly in the business field. It depends on business leader where they focus on. Let's discuss some examples of not rapidly

changing facts.

The progress of global warming is an important issue which international community should tackle together. The situation will not change drastically but has steadily progressed and it causes more frequent and sever weather events, rising sea levels, melting polar ice caps and shifting ecosystems that can harm or eliminate many species on the earth. SDGs are set by the United Nations in 2015 including 17 goals and 169 targets towards 2030. From the business view point SDGs will create new opportunities. New business in accordance with SDGs are expected to grow in many business fields.

The followings are 30 years fundamental economic indicators of Vietnam.



As the total population has grown to reach 100,000 mark, the growth rate of population decreases. GDP growth rate varied year by year between 5 and 7.5 percent except 2020. GDP per capita has constantly grown to reach US\$3,000. In the long run, the economy of Vietnam has potential to grow further, while total population grows and the mindset of people remains to believe in growth. We just need to carefully watch the population growth rate.

Even in VUCA, the business growth opportunities still exist everywhere and the new innovative ideas are expected even in the current business. In order to materialize those opportunities, it is absolutely necessary to have strong leaders who manage their business and make decisions in ambiguous moments.

What is unchanged?: “KOKOROZASHI” of business

In the business, what is unchanged even in VUCA? It is quite important to think things by categorizing in three states, such as rapidly changing, slowly changing and unchanged, in the situation which is difficult to handle and to make a important decision.

When Paul O’Neill was appointed as the CEO of ALCOA(Aluminum Company of America) in 1987, in the meeting of a group of investors, he didn’t talk about revenue, expenses nor EBITDA, and just talked about “worker safety”. This story is from the book of “Power of Habit” authored by Charles Duhigg. The author explained this as the keystone habit” of ALCOA to change the entire company. In a 2012 CNN interview, O’Neill called it “discretionary energy” delivered when employees are treated with dignity and respect every day. . . A down payment on that is nobody ever gets hurt here, because we care about our own commitment to our safety, and we care about the people we work with. And it swells up to into everything you do, so it creates the sense of pride about the organization you’re involved in.”(Forbes “Have we learned the Alcoa ‘Keystone Habit’ Lesson?” Rod Wagner)

In case of O’Neil, “Worker Safety” is unchanged commitment throughout his tenure. I call this “Kokorozashi” of his business. One thing you would like to achieve. “Kokorozashi” is a Japanese word and this Chinese character consists of the two part, “Samurai” and “will”. Samurai means the soldier in Japan but during the long Edo era as the ruling class, they have sublimated the word “Samurai” as having public mindset and beautiful behavior. Kokorozashi of the business was expressed in various format. Konosuke Matsushita, the founder of Panasonic, set as the basic business principle and emphasized importance of having business principles. Later when the company went into the crisis, CEO Nakamura at that time, announced his strategy “Destroy and Create” and tried to change the company except the business principle. In other format, Johnson & Johnson has “Our Credo”, which was crafted in 1943 by former chairman Robert Wood Johnson. Our Credo clarifies the company’s 4 responsibilities, the first to the customer, then to its employee, to the community and the last to the share holders. In its website, they describe that they had overcome company crisis when

Our Credo

We believe our first responsibility is to the patients, doctors and nurses, to mothers and fathers and all others who use our products and services. In meeting their needs everything we do must be of high quality. We must constantly strive to provide value, reduce our costs and maintain reasonable prices. Customer orders must be serviced promptly and accurately. Our business partners must have an opportunity to make a fair profit.

We are responsible to our employees who work with us throughout the world. We must provide an inclusive work environment where each person must be considered as an individual. We must respect their diversity and dignity and recognize their merit. They must have a sense of security, fulfillment and purpose in their jobs. Compensation must be fair and adequate and working conditions clean, orderly and safe. We must support the health and well-being of our employees and help them fulfill their family and other personal responsibilities. Employees must feel free to make suggestions and complaints. There must be equal opportunity for employment, development and advancement for those qualified. We must provide highly capable leaders and their actions must be just and ethical.

We are responsible to the communities in which we live and work and to the world community as well. We must help people be healthier by supporting better access and care in more places around the world. We must be good citizens — support good works and charities, better health and education, and bear our fair share of taxes. We must maintain in good order the property we are privileged to use, protecting the environment and natural resources.

Our final responsibility is to our stockholders. Business must make a sound profit. We must experiment with new ideas. Research must be carried on, innovative programs developed, investments made for the future and mistakes paid for. New equipment must be purchased, new facilities provided and new products launched. Reserves must be created to provide for adverse times. When we operate according to these principles, the stockholders should realize a fair return.

Johnson & Johnson

Panasonic Basic Management Objective Recognizing our responsibilities as industrialists, we will devote ourselves to the progress and development of society and the well-being of people through our business activities, thereby enhancing the quality of life throughout the world.

somebody poisoned its famous medicine “Tylenol”.

Another example of “Kokorozashi” is the story of Satya Nadella, CEO of Microsoft, which is written in his book “Hit Refresh”. He has reflected on the soul of Microsoft’s existence and redefined it. He said in his book “My approach is to lead with sense of purpose and pride in what we do, not envy or combativeness.” In July 2014, he sent an all-company email saying “.....Microsoft is the productivity company for the mobile-first, cloud-first world. We will reinvent productivity to empower every person and every organization on the planet to do more and achieve more.”

As we have seen these examples, there are various format of “Kokorozashi”. These examples are all from the established large companies but even a small company with few employee, it is essential for the leaders to define their “Kokorozashi” and to communicate their people. Once you set and communicate it publicly, it becomes the core of your business and it will be very powerful in case of difficulty like VUCA.

What is the essence of business?

This question was clearly answered by Yoshiyuki Itami, emeritus professor of Hitotsubashi University in Japan. He defined in his lecture to the business executives that the essence of business is to make things happen with people. Therefore, in a company, which is a group of people, money, information and large amount of emotions flow. It is value transformation, using public resources such as people, material, time and money. These phrases remain still in my mind and I totally agree. While using public resources, it is natural that “Kokorozashi” of business needs to match the public requirement and that the company has responsibilities for stakeholders as defined by Our Credo of Johnson and Johnson .

In the above mentioned examples, O’Neil, former CEO of Alcoa called in his CNN interview “discretionary energy” delivered from employee when employees are treated with dignity and respect.... Also Nadella, CEO of Microsoft, told “...to lead with sense of purpose and pride in what we do...” Successful CEOs clearly understand the facts and act accordingly. However it was difficult for me to really understand the meaning and to take action with these phrases in mind as a leader when the business crisis happened.

What needs to be considered in crisis?

When Lehman shock hit the industry in 2008, I was in charge of global operations in the automotive business unit of Panasonic. The unit develop, manufacture, and sell custom made electronic automotive parts to the car manufacturers globally. The most heavily affected operation was US one. Month by month sales went down and finally down to the half of previous year. I flied to the United States and discussed with the head of US operation what to do. We had two factories, one in US and the other in Mexico. Since sales went down to half, it was clear for us that we should close one factory and should move the production to the other.

Also we decided to request sharing the risk of our development cost for their product since the customer was rumored to go bankrupt. After sever negotiation with the president of the customer, they agreed to share half of the development cost based on the development mile stones. Unfortunately these actions were not good enough to make breakeven or to continue the business. We came to the following scenario.

- 1) Automotive business is essential to the US society while there is no alternative transportation method.
- 2) While US population is still increasing, the demand will recover any time in the near future
- 3) Smartphone just started to increase popularity, the needs of infotainment in car will increase drastically.

Based on this basic scenario, we have discussed among selected small members what to keep and what to cut. We had strong desire to catch the trend of business growth and ahead of industry recovery. What we decided was

- 1) Minimize expenditure as possible
- 2) Keep engineering as it is and enhance software development team
- 3) In all other department resources will be reduced by 20%

After the struggle in 2009, we came back to breakeven in 2010 and then the business recovered year by year with the pent up demand.

We survived the crisis but the consequence of our actions were quite severe. There was no credibility to the executive team and moral of employee was severely damaged. The culture “People first” diminished and at that time main topic of employee was who would be chopped next. Although engineering team was kept as is, the turnover ratio was quite high and staffing of software engineering was quite difficult because of the bad reputation among the existing and former employees.

I got a letter from a former employee who was laid off when we closed the factory in US just after the Lehman shock. In the letter she mentioned that she was hired 20 years ago as a factory operator. At that time she was a single mother and then she could have brought up her children with proper education thanks to the job. She also proudly mentioned that she was promoted to a machine operator by learning a lot at the factory. Finally she finished her letter with thanks to the special bonus after the layoff. In order to assure the smooth transition of the factory production we have set a quality target and bonus during the transition. This letter reminded me that she spent a good working life at the company and got opportunity to grow her skill within the company.

It took more than five years to regain confidence of the employee and to reestablish the

company culture. I, as a leader in the crisis, focused too much on financial figures and lacked consideration of people as the essence of the business. Reflecting back this case, I came to the followings as a ground rule of overcoming crisis.

Priority: It is quite important to decide things to stop completely as quick as possible with the term to review. If it affects more than expected, restart after certain period of time.

Accountability: Showing accountability to everybody in the company. The leader owns the decision and accept the responsibility of the consequence.

Care: Spend more time to the people who will be affected by the action. Creating empathy and keep the culture of the company

Speed: Speed is the essence of the action in crisis. Take action with term and reflect the result.

PACS is the acronym for my ground rules to be considered in crisis. Usually people goes to a panic mode when they suddenly come across a crisis. As a leader in VUCA, I recommend to have your own rule to deal with a crisis. If you think through risks you may encounter, you can make your own check items in writing. Then create a trick to remember the items such as acronyms. PACS is just one of the examples.

What makes your team stronger?

Later when COVID-19 hit the world in 2019, the sales of US operation went down month by month similar to Lehman shock while the customers stopped production temporarily. We have discussed how to deal with the situation and the president asked me an advise based on my experience. My first question to him was what he would like to keep. His answer was quick, “the culture” we have built up after the difficult years. Firstly safety of the employee was considered as the priority and prepared work-from-home infrastructure for indirect employees. As for mission critical operations, we decided to invest the environment to equip necessary ventilations and to set the rule of dealing with the infection spread. Next action we took was to stop all the spending except the one to continue the operation. Then We came to an idea to furrow the people who are not directly related to the mission critical. In order to keep integrity, the president decided to make his salary cut to half and then executive team created a plan to cut salary by ranking to the managers except non-exempt employee. We announced the furrow plan for 3 month at all hands meeting and then the department meeting followed to explain how to deal with the current situation. Thanks to these actions, we ended the furrow just for the first three months and then salary cut finished for 6 months. The employees response was quite positive to these actions. And the financial recovery of US operation was the fastest among all the operations of Panasonic Automotive globally.

People don't care how much you know until they know how much you care. This is one of the mantra in Sherpa Executive Coaching which I learned after I retired my previous job.

In the above situation, through these consecutive actions the executive team have somewhat proved that the company cares their employee first.

In the previous paragraph, we discussed about “Kokorozashi” of the business. Paul O’Neil’s case was “Safety”. He built up the safety culture in Alcoa. Building up the culture is one thing and keeping the culture is another thing. In the “Power of Habit”, a story was introduced. In a share holder meeting, a nun accused O’Neil of lying talking about an Alcoa plant in Mexico. He pulled up the safety record of the plant and replied that it was untrue. He sent his the executives to Mexico to see what was going on. They poked through plant records and found an incident which was not reported to headquarters. O’Neil then fired one of the most senior executive who was in charge of the plant because the person didn’t report a small incident and one employee got sick in Mexico.

Satya Nadella, Microsoft, also redefined the corporate culture from “ battle” to “empathy”. He emphasized the importance of “Growth Mindset” from the “Fixed Mindset.” To ensure the culture to root in the company, the company created 10 Behaviors for inclusion.

- Examine your assumptions
- Making a habit of asking questions
- Ensure all voices are heard
- Listen carefully to the person speaking until she or he feels understood
- Address misunderstandings and resolve disagreements
- If you have a strong reaction to someone, ask yourself why
- Include and seek input from people with a wide variety of backgrounds
- Take action to reduce stressful situations
- Understand each person’s contribution
- Be brave

Another interesting example of unique corporate culture is “Chick-Fil-A”. S. Truett Cathy is the founder of this chicken sandwich chains. The headquarter is located in Georgia and it is the third largest fast-food chains in US. One of the uniqueness is to close the store on Sundays. The opportunity loss is around \$1billion but they continues the policy. He mentioned in his books that he is not in chicken business but in people business. He put “People First” and said “great company is caring company”.

When I provided those examples at the CEO seminar in Vietnam held by VJCC, there was a question that the quality of the people in Vietnam such as educational level may be different from US and Japan. My answer at that time was Yes and No.

In “the Power of Habit”, there is a story of the guy who lost his father by drug at 9 and dropped out of high school at 16. He found a job in car wash company, then McDonald’s, and a video rental shop but he could not continue none of them because of his behavioral issues. Then he took a job at Starbucks. 6 years after, he is the manager of two Starbucks where he oversees forty employees. According to him, the Starbucks training has changed his life. When he started at Starbucks, his manager flip open the manual and showed him a page that was largely blank. He explained LATTE method, Listen to the customer, Acknowledge their complaint, Take action by solving the problem, Thank them and then Explain why the problem occurred. Then the manager asked him to write out a plan for dealing with an angry customer, using the LATTE method. They role-played a plan together. It is explained as willpower habit loops in the book. I found this is exactly the same way in the executive coaching world when we teach client to set an expectation to their people. Important point is to get buy-in and create an ownership on the expectations. Writing a plan by oneself leads to ownership to that plan. Starbucks has grown quite rapidly hiring lots of new people globally and yet they maintain their service level. This is one of the proof that sustainable company culture supported by a well thought out training system create habits of people in the business fields too.

Culture of the company is intangible and varied by the nature and “Kokorozashi” of business. I believe that it is one of the most important requirement for the business leaders to define, build up and live in the culture.

Any Additional requirement?

When you take a position of leadership, development of successor is inevitable issue but often one of the most difficult thing. Mr. Nagamori, NIDEC. Mr. Song, SoftBank. Mr. Yanai, First Retailing. They all once named the successor and came back again to the head of the company. It is absolutely important for them to find their successor. Sometimes their expectation to the successor is too high, sometime they cannot tolerate the way successor to change the business directions and to miss the opportunity they see. Even in smaller business successor development is a keen issue.

Executive Coaching could be one of the solution for developing the successor. In some cases, leader understand the importance and take the role of coaching the successor. People who has a potential but could not breakthrough by oneself may have a good chance to evolve by the proper help. The advance in neuroscience have revealed many insights into how the human brains works. Recently new discoveries are emerging through the application of various fields such as behavioral economics, cognitive science, and psychology. Through the metacognition exercise by Sherpa Coaching, we have seen people make breakthrough their issues.

The last requirement for the business leaders to add is to develop their successor.

Conclusions:

In this paper, I tried to draw a portrait of the new business leaders in VUCA by discussing requirements of the business leaders who manage the business in volatile, complex, uncertain and ambiguous environment. When talking about a portrait in VUCA, we may need the aspects of their skill/knowledge, emotional and will. Since skill/knowledge can be acquired from the outside, I didn't touch this aspect as a requirement for the leaders.

In the VUCA part, I discussed about rapidly changing things, not rapidly changing things. As unchanged things I discussed about "Kokorozashi" of the business, adding some industry examples. As I further discussed in the paragraph of what is the essence of business, I focus on human factor here since I believe this is the most critical part of business.

I would like to summarize my discussion by listing four points

1) Define your "Kokorozashi" of business and communicate to your people. You can define your "Kokorozashi" of business in various format, such as mission, business principles, and Credo. Important thing is to ask yourself deeply what make you the leader, what public benefit you can create and so on.

2) Think through your risk of business, list necessary points to consider. If you could create acronym and keep it on hand, it will be quite useful. PACS(Priority, Accountability, Care, Speed) is the one I came up to easily recall when I get into the real difficulty.

3) Define, build-up the culture of your business and live in it. Culture is intangible and you usually don't think about it if things are going well. Discuss this subject with your key people, benchmark the successful companies.

4) Develop your successor. The essence of business is to make things happen with people. You need special attention to develop your successor. Learning coaching mindset and method will help you to grow your people.

In concluding my paper, I would like to appreciate the attendee of CEO seminars held in Hanoi and HCMC by VJCC. During the session I felt Vietnam has strong potential and opportunity to grow further. I wish this paper might be of any hint for the business leaders in Vietnam struggling in VUCA.

Source:

Page 1 Picture of VUCA: AC Photo. photo-as.com

Page 3. Economic indicators of Vietnam: datacatalog.worldbank.org

Page 4. The Power of Habit, Charles Duhigg

Panasonic basic management objectives: <https://holdings.panasonic.com>

Page 5. Our Credo Johnson & Johnson: <https://www.jnj.com>

Hit Refresh, Satya Nadella

Page 6 経営を見る眼 伊丹敬之 Hiroyuki Itami

Page 9 Chick-Fil-A: <https://en.wikipedia.org>

YOSO-MONO, WAKA-MONO, BAKA-MONO: WHO THEY ARE AND WHY THEY MATTER FOR INNOVATION

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Abstract:

The outbreak of COVID-19 in 2020 and Russia's invasion of Ukraine in 2021, proved that conventional wisdom and assumptions can be overturned in a matter of seconds. In such a VUCA world, the future is not an extension of the past. We need back-casting thinking and actions to envision and create the future ourselves. For this to happen, innovation is required. In Japan, it is often said that three types of people, "yoso-mono, waka-mono, baka-mono", matter for driving innovation. Who are they and why do they matter? This paper introduces the "yoso-mono, waka-mono, baka-mono" who are key to creating future-creating innovation by referring to cases of innovation in Japan and provides a basis for starting similar research outside of Japan by grounding on the organizational knowledge creation theory.

Keywords: *Innovation, "yoso-mono, waka-mono, baka-mono", diversity and inclusion, knowledge creation, wise leadership*

1. Introduction

(Purpose of this paper)

The purpose of this paper is to introduce the three types of people who drive innovation and build a basis to start research outside of Japan grounding on the organizational knowledge creation theory. In Japan, it is often said that "yoso-mono, waka-mono, baka-mono" are the key to creating future-creating innovation, but we think that this is not only for Japan but also for other countries. By presenting typical cases and explaining them based on knowledge creation theory, we hope to create a basis for similar research to be carried out in East Asian countries and contribute to promoting innovation creation for the betterment and the prosperity of the world.

(Design, methodology, approach)

The object of the study is the people involved in creating innovation in known cases of social innovation in Japan and other countries. These people are called "yoso-mono, waka-mono, baka-mono"; we will review who they are, how they have been involved in creating innovation and what role these people have played from a literature review. We will also explain the process of innovation creation from the perspective of knowledge creation theory as a grounding theory. Then, "yoso-mono, waka-mono, baka-mono" involved in innovation creation

in actual cases are shown and evaluated based on knowledge creation theory.

(Findings)

From the cases presented in this paper and from the evaluations based on knowledge creation theory, we are able to set a base for future research.

(Contributions and future research)

Knowing how to create innovation in a VUCA world is very important. By presenting the typical types of people, "*yoso-mono, waka-mono, baka-mono*", and explaining them based on knowledge creation theory with case studies, this paper shows how to create innovations based on knowledge creation theory in terms of practice and creates a foundation for future research in terms of research. research basis. We look forward to further developments in practice and research in the future.

2. Theoretical framework and definition of the terms

This paper grounds on the organizational knowledge creation theory first proposed by Professor Emeritus Ikujiro Nonaka at Hitotsubashi University and Professor Hirotaka Takeuchi at Harvard Business School (Nonaka & Takeuchi, 1995; 2011; 2019; 2021). Nonaka and Takeuchi identified how companies create the dynamics of innovation and proposed the theory of knowledge creation in organizations (Nonaka & Takeuchi, 1995; 2019) and the leadership abilities that drive the innovation (Nonaka & Takeuchi, 2011; 2019) from the case studies of mainly on Japanese companies in 1980s up to present. The theory has spread around the world as so-called “knowledge management” and is being practiced and researched globally.

The key concepts that constitute knowledge creation theory which are relevant to this paper are; knowledge, two types of knowledge – tacit knowledge and explicit knowledge, the SECI model, "*ba*", and wise leadership. Each term is briefly defined as below.

Knowledge:

In knowledge creation theory, knowledge is defined as “a dynamic social process of justifying personal belief towards truth, goodness, and beauty” (c.f. Nonaka and Takeuchi, 1995; Nonaka, et. al., 2008). This definition bases on classic definition of knowledge, “justified true belief”, but updated to reflect the research findings that knowledge is subjective, process-relational, aesthetic, and created through practice (Nonaka, et. al., 2008).

Two types of knowledge – tacit knowledge and explicit knowledge:

Deriving from the concept of “tacit knowing” by Michael Polanyi (Polanyi, 1958), the theory specifies two types knowledge, tacit knowledge and explicit knowledge (c.f. Nonaka and Takeuchi, 1995; Nonaka, et. al., 2008).

Tacit knowledge is a subjective experiential knowledge which is personal and context specific, making it difficult to express by language. Tacit knowledge has physical and cognitive

dimensions, such as technical know-how as find in crafts and mental models as find in one's perspectives and beliefs. Tacit knowledge is formulated and embedded to the individuals through action and reflection.

Explicit knowledge is an objective and rational knowledge which is formal and context free, making it easy to express by language. Typical example is metaphysical and universal models and theories as find in liberal arts (grammar, rhetoric, logic, arithmetic, geometry, astronomy, and music).

Although the character of tacit knowledge and explicit knowledge are quite opposite, they are in a continuum as shown by the metaphor of an iceberg (c.f. Nonaka and Takeuchi, 1995; Nonaka, et. al., 2008). The visible part of the iceberg above the sea surface represents explicit knowledge while the larger part of the iceberg under the sea surface represents tacit knowledge. And as the metaphor indicates, all knowledge is either tacit or rooted in tacit knowledge (Polanyi, 1975).

SECI model:

SECI model is the core and the fundamental model of the theory which consists of four phases of knowledge conversion (see figure 1); tacit to tacit in socialization, tacit to explicit in externalization, explicit to explicit in combination, and explicit to tacit in internalization (Nonaka & Takeuchi, 1995, Nonaka et.al., 2008). From the continuous dialectic interactions of tacit and explicit knowledge, new knowledge is created. In socialization individuals will share their direct experience and formulate tacit knowledge through empathizing with others. In externalization, individuals will engage in a group or a team and express tacit knowledge through dialogue and conceptualize explicit knowledge. In combination, groups and teams will organize concepts into a model, a theory, or a narrative. Then in internalization, individuals will practice the model/theory/narrative and accumulate tacit knowledge. SECI model does not end here because it shows a spiral-up process; after the internalization phase, utilizing the tacit knowledge accumulated in the individuals, a new socialization phase will start as a new spiral. By continuously and rapidly spinning the SECI spiral, organizations can increase their ability to synthesize knowledge, pursue both creativity and efficiency, and ultimately achieve innovation.

(insert figure 1 around here)

“Ba”:

“Ba” originally is a Japanese term which means place, space, or field, not only physical but also virtual, existing beyond time-space nexus. In knowledge creation theory, *“ba”* indicates a place or a context where SECI process occurs. *“Ba”* therefore is defined as *“a shared context in-motion”* in which knowledge is shared, created, and utilized (Nonaka, et.al., 2008). Participants of a *“ba”* share their context and subjectivity, build *“here and now”* relationships,

establish intersubjectivity, and create new meanings.

To activate SECI process in “*ba*”, several factors are needed (Nonaka, et. al., 37-38):

1. A *ba* must be self-organized and possess its own intention, objective, direction and mission
2. Participants must establish shared sense of purpose
3. A *ba* requires participants with different types of knowledge
4. While a *ba* needs boundaries, these must be open to allow connection with other *ba*
5. A *ba* requires a commitment of participants; intrinsic and endogenous motivation would be the source of commitment

A *ba* can be formal or informal, not exclusive to one another, and can be connected organically. This indicates that any one organization can be viewed as an organic configuration of multiple *ba*, and the networks of multiple organizations can be viewed as an ecosystem for creating new knowledge. In other words, such ecosystem has a fractal structure – meaning that its parts and the whole resemble each other – consisting of multiple *ba*. In knowledge creation theory, this is called a knowledge ecosystem.

Phronetic leadership:

Leadership is the driver of knowledge creation process. Because knowledge relentlessly seeks for the ultimate ideal – truth, goodness, and beauty – as defined, then the leadership requires commitment and value judgement towards common good (Nonaka, et. al., 2008). Nonaka and Takeuchi called such leadership ability *phronetic* leadership, derived from the term *phronesis* (Nonaka & Takeuchi, 2011; 2019) translated as prudence and practical wisdom. The term *phronesis* was defined by the ancient Greek philosopher Aristotle in *Nicomachean Ethics* (Aristotle, 2002) as one of the five types of knowledge.

Unlike general image of leadership, *phronetic* leadership can be acquired by anyone and be performed by anyone at any level, position, or with any role. This is called the management by all, which is close to the concept of servant leadership and shared leadership (cite).

From the case studies of leaders in multiple levels, positions, and roles in various times and areas, Nonaka and Takeuchi defined *phronesis* as a virtuous and practical wisdom for exercising the best judgment for the common good in a particular context (Nonaka & Takeuchi, 2011). *Phronetic* leaders are capable of finding the right response in a particular context; synthesizing the particular context to the universal construct; combining contemplated rationale and improvisation on the spot. They also think deep and act quick at the same time; make contextual judgment and timely balancing. They are also willing to face contradictions or conflicts and use dialectic to synthesize them in actual situations.

Here are the six abilities commonly found in the *phronetic* leaders (Nonaka & Takeuchi,

2011; 2019: 26).

(1) Judge on goodness:

Make judgement calls and decisions only after figuring out what is good for the organization and society

(2) Grasp the essence:

Grasp the essence of any situation or problem quickly, and intuitively fathom the nature and meaning of people, things, and events

(3) Create shared contexts:

Create informal as well as formal shared context – called *ba* – constantly in order to construct new meaning through human interactions

(4) Communicate the essence:

Use metaphors and narratives to allow individuals grounding in different contexts and with different experiences to intuitively grasp the essence

(5) Exercise political power:

Utilize all possible means, including Machiavellian ones, if necessary, to bring together people with conflicting goals and spur them into action

(6) Foster practical wisdom in others:

Encourage the development of practical wisdom in others, especially employees on the front line, through apprenticeship and mentoring

These six leadership abilities will allow organizations to overcome SECI-stuck syndrome, a situation where organizations not being able to transition from one phase to the next, or not being able to start new SECI spiral (Nonaka & Takeuchi, 2019).

3. Literature Review

We will now introduce the people called "*yoso-mono*, *waka-mono*, *baka-mono*". Simply put, *yoso-mono* means people from outside "*ba*"; *waka-mono* means people with young mindset; and *baka-mono* means people who thinks and does crazy things. *Yoso-mono* are not caught by bias, prejudice, or precedence, has an outsider's view point, and can think and act from scratch. *Waka-mono* are curious, active, and challenging, has a strong energy to change things, and willing to take risks. *Baka-mono* are the ones who have different values or ways of thinking from the traditional ones, and can think and act outside of the box.

It is not clear when and who started saying "*yoso-mono*, *waka-mono*, *baka-mono*" are the change drivers of innovation. One of the old articles found by the Google search is dated 2002, published by Muroran City. It introduced a comment by Assistant Professor Takeshi Aoyama at Muroran Institute of Technology at the time, "My keywords are '*yoso-mono*, *waka-mono*, *baka-mono*'. An objective point of view, youthfulness of mind, and eccentric ideas are

important for community development” (Aoyama, 2002). Another article is dated 2003, published by one of the local offices of Development Bank of Japan. It stated that "It may sounds a common theory, but the idea is to have a variety of people participate, such as *yoso-mono, waka-mono, baka-mono*" (Omotecho Chiiki Tsuuka Kenkyukai, 2003). Both articles indicate that the terms *yoso-mono, waka-mono, baka-mono* were already widely known. Accordingly, we may estimate that by early 2000s, the terms *yoso-mono, waka-mono, baka-mono* were recognized as the change drivers.

As for the research of *yoso-mono, waka-mono, baka-mono*, one of the early articles is Shikida's research (2005) on the role of “*yoso-mono*” in community development. Shikida (2005) relates *yoso-mono* to “trickster” by referring to Radin (1974), that trickster is a universal figure found universally even back in the Greek mythology, who is both a creator and disrupter that shows common sense accepted internally in the community is not always valid by demonstrating excessive “otherness”. Shikida (2005) also points out that what makes *yoso-mono* a stranger is “crossing the border”, not just the physical distance but more of perspective and standards.

There are a few books which focuses on the role of *yoso-mono, waka-mono, baka-mono*. Makabe (2012) insists that innovation starts from *yoso-mono, waka-mono, baka-mono* and so we must become like them to break the deadlock and drive innovation. Kimura (2017) states that in the age of Artificial Intelligence, creativity and social intelligence are left for human being, and for that *yoso-mono, waka-mono, baka-mono* skills are needed. Todo (2020) focuses on the role of *yoso-mono* as a connector of networks in the global economy and discusses how globalization should be post COVID-19. Kamada (2021) also focus on the role of *yoso-mono* with and post COVID-19 but here as a trigger of breaking through the prejudice and precedents in the local community and insists that collaborating with *yoso-mono* will realize diversity and inclusion and prosperity of the community in the future.

However, more recently, it seems not everyone agrees that *yoso-mono, waka-mono, baka-mono* are necessary for change or innovation. For example, editorial team of Gekkan Jigyo-koso (monthly project design) pointed out in 2016 article that through the case studies the editorial team conducted, they reached a consensus that the *yoso-mono, waka-mono, baka-mono* theory, which has traditionally been the rule of success for regional revitalization, no longer applies in a number of cases (Editorial team, Gekkan Jigyo-koso, 2016). Rather than bringing in the actual *yoso-mono, waka-mono, baka-mono*, fostering local people with the characteristics of *yoso-mono, waka-mono, baka-mono* would be possible and would work better.

For another example, Kinoshita (2021) states that “since some time ago, people often talk about the importance of ‘*yoso-mono, waka-mono, baka-mono*’ in community revitalization. This is not a wise saying; I would even say this is a lie or an excuse for those who do not do it

themselves”. He points out that it is only a part of the success cases that "*yoso-mono, waka-mono, baka-mono*" played a critical role, and the reality is that in most communities, the challenges by "*yoso-mono, waka-mono, baka-mono*" end up being beaten and crushed by the local people. Rather than bringing in "*yoso-mono, waka-mono, baka-mono*" from outside of the community, it is more important to have people who are trustworthy, who have business experiences, and who have capital to invest in local businesses (Kinoshita, 2021).

Building on above, although it seems it is widely perceived that "*yoso-mono, waka-mono, baka-mono*" are vital in making changes and innovation, there are largely three views to this. First, it is indeed the actual "*yoso-mono, waka-mono, baka-mono*" that drives the changes. Second, it is the characteristics and attitude of "*yoso-mono, waka-mono, baka-mono*" that drive the changes and thus the actual individuals can be someone from local, elderly, or smart. Third, "*yoso-mono, waka-mono, baka-mono*" are just a trigger (or not even a trigger) and changes are actually driven by the passionate and professional local people.

However, it may be the fourth view – grounding on the knowledge creation theory – which better explains the situation; it is the combination of "*yoso-mono, waka-mono, baka-mono*" and local people that actually drive and realize the changes. To create new knowledge and drive changes and innovation, participants to the "*ba*" need to have different experiences and knowledge (if everyone has same experience and knowledge, there will be no new conversion or combination). For this, Nonaka and Takeuchi (1995) pointed out that having an “unusual” background (emphasis by the author) enables to increase the variety of knowledge in an organization. Wenger et al. (2002) stated that outsider perspectives are important in the formation of communities and promoting the communities of practice. So we may hypothesize that "*yoso-mono, waka-mono, baka-mono*" can be the driver and/or the catalysts who brings in new and different knowledge to the community, and depending on the context there are three scenarios; a) they trigger the change and local people follow, or b) local people themselves demonstrate "*yoso-mono, waka-mono, baka-mono*" character and lead the change, or c) "*yoso-mono, waka-mono, baka-mono*" and the local people collaborate and lead the change together.

4. Cases

Based on the three scenarios indicated above, we will introduce three typical cases where we can see "*yoso-mono, waka-mono, baka-mono*" leading the change. These cases are bringing positive outcomes, and the information is readily and widely available on the Internet to let us regard them as one of the typical success cases.

Typical failure case is – as pointed out by Kinoshita (2021) – "*yoso-mono, waka-mono, baka-mono*" failed to establish a good and trustworthy relationship with the people of local community, due to assuming local people not having enough knowledge or technologies or thinking that they bring in a perfect solution to the community, for example. In such cases, people came to the local community often failed to establish *ba* for socialization and

externalization, in other words, failed to communicate which should have helped knowing the local people and getting trust. This type of failure often happens when developed countries give technical support to developing countries. Sirolli (2012) gives an interesting story of his own failure in a TED Talk. While working at an Italian NGO, he went to Zambia to teach Zambians to grow food. The NGO planted Italian tomatoes, paid local people to work, only to feed the hippos (hippos ate up all the tomatoes when it was ripe and ready to harvest). It turned out that because of the hippos, Zambians did not grow food on the land where the Italians planted tomatoes. But because Italians did not ask Zambians about the local situation, Zambians did not inform the Italians. So, the lesson learned was that “when you want to help someone, shut up and listen!”, and this is the title of his speech.

Now, let us introduce three cases, which are all about changing situations in the local community in Japan.

Case 1. IRODORI: Leaf-selling business in Kamikatsu town, Tokushima prefecture (c.f. IRODORI, Co. Ltd, n.d.; Kasamatsu & Sato, 2008; Suzuki, 2013; Tatsuki, 2006; Yokoishi, 2007; 2015)

Kamikatsu town in Tokushima prefecture in Shikoku Island is a typical aging rural town located in the mountains, with the population of around 1500 people and elderly ratio (people over 65 years old) is over 50 percent. IRODORI Co., Ltd, founded in 1999 is a company which produces and sells “tsumamono”, leaves and vegetables that add seasonality and flavor to the Japanese dishes. IRODORI takes up about 80% share of the tsumamono market in Japan, making leaf selling business a key industry of the town. Some of the farmer members earn more than 10 million yen a year in annual income. Currently, there are approximately 150 farmers, making annual sales of about 200 million yen until 2019, and about 150 million yen in 2020, sales dropped due to COVID-19. This business took many years to grow up to this point.

Until around 1980, the town's major products were lumber and mandarin oranges. Then in 1981, a severe cold wave hit Kamikatsu town and almost all the mandarin orange trees were destroyed, and there was a critical need to seek for new agricultural product which can replace mandarin oranges. Around then, Tomoji Yokoishi came to the town to join agricultural cooperative fresh out of college. At the time, already nearly half of the people of the town were elderly; many men started drinking from the morning and many women just complained. They were not happy about their living, and told their sons and daughters to leave the town and find better place to live. Yokoishi was sad because elderly people were not proud of the town or themselves.

So, Yokoishi walked around the town every day to find new products that can be handled by the elderly people so that they could play an active role. Then one day in 1986, when he was having a meal in a sushi restaurant in Osaka, and saw tsumamono which young ladies in the

next table were cherishing, he came up with the idea of selling leaves. He thought “there are so many leaves in the town’s mountains and we can sell them!”. However, when he told this idea to the elderly people, they just laughed at him and told him that was just a joke or a nonsense. But Yokoishi believed that the leaves would sell. So Yokoishi persuaded elderly people to believe in him, while learning about the tradition and needs of tsumamono. After many trials and errors, he was finally able to get support from a few elderly women who knew how to create decorations using leaves. The leaf selling business was launched under the brand name "IRODORI", meaning colors in Japanese.

Leaves are lightweight, beautiful, and easy for women and the elderly to handle. The products are produced in small quantities of many varieties with more than 300 types, and shipped throughout the year. Yokoishi collaborated with IT companies and introduced PCs and tablet devices which were made easy to operate even by the elderly people so that they can take orders and check sales results. By checking the sales results of the other members, elderly people were motivated to compete with each other and worked harder. Accordingly, men stopped drinking from the morning and women stopped complaining, both became healthier that elderly homes were closed. Elderly people are now proud of Kamikatsu town, proud of their work, and keep planting the trees to harvest leaves in the future.

Case 2. Wanowakai: Energizing people in Hidaka village, Kouchi prefecture (c.f. Cabinet Office, 2022; Hidaka Wanowakai, n.d.; Japan Finance Corporation, n.d.; Ono, 2021; Yamashita, 2008)

Hidaka village is located in the moderate countryside of Kochi prefecture, 16 km from the capital of Kochi prefecture, about 30 minutes by car. Population is around 4800, and elderly ratio (people over 65 years old) is around 40 percent. Because it is a small village, it still retains old-fashioned rural atmosphere of being able to see everyone in the neighborhood. The village is also known by the Niyodo river with its Niyodo Blue.

Wanowakai is an NPO established in 2005 with the purpose of solving problems of the local people by paid volunteer work. Even though Hidaka is a small village, there were varieties of people, such as mothers raising children, elderly people, and people with disabilities, each with their own problems, such as "I want to work but I can't", or "I can't do what I want to do". To solve such problems, Wanowakai have been developing businesses and services in various forms under the philosophy of "do what you can, when you can, if you can". With this philosophy, Wanowakai have been expanding business and services in cooperation with the government, local governments, universities, and other organizations.

It was Chiharu Yasuoka, the secretary general of Wanowakai, who started everything. She was born and grew up in Hidaka village, having full of energy and passion, cheerful, vibrant and active, vigorous and solid. In Tosa dialect (local dialect of Kouchi), such personality is called “hachikin”, and she is no exception. She works hard 24/365 and says that working is so fun.

Yasuoka formed an atmosphere of accepting people as they are. She says; “everyone here understands everyone else's work, and they don't measure other's work by their own criteria. We have a culture of mutual recognition, ‘that person is that person’” (Japan Finance Corporation, n.d.). This attitude was formed from her own experience. When she was small, she did not like to take a nap like other children at the kindergarten. But luckily, her childcare person was kind enough to accept as she was and let her play while other children were taking a nap. She was grateful that she herself dreamed of becoming a person who accepts the differences.

So, before she established Wanowakai, Yasuoka worked at school for the students with disabilities as dorm keeper and at the kindergarten as a childcare worker. While working, she noticed there were those who needed support and services but were not receiving them. Yasuoka organized group support activities for them involving people of the village. As the time passed, village people gained understanding on the problems and needs of the others, as well as recognition that they can be of help to each other. From the experience of free volunteer service, Yasuoka came to think that people should not offer help to others without pay, because it will spoil both who help and who are helped. This was how the paid volunteer system was established; even a small amount of money, but with a gratitude, will give much sense of satisfaction and fulfillment.

Wanowakai now offers business and services in the areas of welfare for the people with disabilities, restaurants and hotels promoting local production and local consumption, and products that solves mottainai (wastefulness), and more. Their goal is to make Hidaka village "a place where everyone can live as they are all the time", and make Wanowakai a place where people can work as they are, a place where they are wanted as they are, and a place where they feel so for themselves. Total of more than 2000 visits made to see the activities of Wanowakai, attracting young visitors too. Yasuoka is seeking for the next new stage and new roles she would engage in.

Case 3. Yoshimoto sumimasu geinin: Comedians in-residence, 47 prefectures in Japan (c.f. BS Yoshimoto, n.d.; Chiikikoso Kenkyujo, 2022; Osaki & Tsubota, 2020; Sakunami, 2021; Tsunematsu, 2017; Yoshimoto Kogyo, n.d.; Yoshimoto Sumimasu Geinin 47 web, n.d.)

Founded in 1912, Yoshimoto Kogyo is one of Japan's oldest and leading entertainment agencies. The company nurtures and manages comedians and talents of around 6000 who are independent contractors and have exclusive agency agreements with the company. Many comedians study at Yoshimoto NSC (stands for new star creation), where they learn the skills and know-how needed to succeed as comedians. The company also operates a wide range of entertainment businesses, including music, movie, stage, and event planning and management. Yoshimoto Kogyo is one of the companies under the Yoshimoto Kogyo Holdings, together with companies handling education, social business, satellite broadcasting, vitalization of local

communities, etc.

Yoshimoto Sumimasu Geinin – meaning comedians in-residence – project is one of the projects of Yoshimoto Kogyo originally launched in 2011, aiming to revitalize communities with the power of laughter. A few comedians (often one or two pairs or single comedians) are selected for each of the 47 prefectures (more for Osaka and Tokyo prefectures), to live and interact with the local community. They are expected to work together with local governments, companies, organizations, and people to solve local issues and revitalize communities by utilizing comedians' ability to create “*ba*” with laughter and by launching various community-based activities and projects. In March 2022, satellite broadcasting service, BS Yoshimoto, was launched, offering series of community-based programs which shows how comedians living throughout Japan are experiencing the local culture, participating in local events and festivals, and interacting with the local people.

The project can be largely categorized into a few areas such as introducing local specialties, tourist attractions, and local traditions and culture; developing new products and/or services and help promote local industries; supporting local needs in places such as nursing homes and cram schools, and so on. Through interactions with the local people to work on the project, comedians as well as regional staff members of Yoshimoto Kogyo may develop new talents and grow their human potential, which may result in human resource development.

For example, in Gunma prefecture, a comedian named Chokki GT5000 lives in Kawaba village as both comedian in-residence and regional development cooperation volunteer since October 2020 (Chiiki sousei bu, Gunma prefecture, n.d.). Chokki apprenticed himself to 90-year-old broom craftsperson, Keiichiro Chigira in Namashina, Kawaba Village in the Tone Numata region of Gunma Prefecture, learning various things while getting up early every day to diligently make brooms. "Namashina Broomstick" is a local specialty of Kawaba Village.

The process of broom making requires a great deal of patience. The raw material is the core of a grassy plant called "broomstraw", which only grows in the region. So the process would be like; cultivate and harvest the broomstraw; examine each piece of grass; rip out the core of the grass with a small knife called a karasaki; shape it with wire and strands; and weave it with a thinly shaved bamboo bark called a higo. Because of this process, “Namashina broom” is regarded as traditional folk craft, with a long-handled broom costing from 5,000 to 8,000 yen. Chokki GT5000 said:

It is not easy to make brooms. I am still learning how to use the tools from my master craftsperson Mr. Chigira. Tools are all about 100 years old, and I want to take good care of them. I heard that some children at local elementary schools don't even know how to use a broom. But I want to continue making traditional brooms that will be used for a long time to come (Sakunami, 2021).

Chokki GT5000 is now considered as the craftsman himself. He was entrusted by the master craftsman to demonstrate and sell his products at a department store in Tokyo. His talent as a craftsman bloomed because he became the comedian in-residence in Gunma prefecture, and met his master craftsman Chigira. If the two had not met, the tradition could have ceased. It was also fortunate for Chigira too that he was able to transfer his know-how to Chokki GT5000.

5. Findings and Conclusions

To synthesizing the knowledge creation theory, characteristics of "*yoso-mono*, *waka-mono*, *baka-mono*", and the cases, we may use a metaphor of hero stories that "*yoso-mono*, *waka-mono*, *baka-mono*" are the main characters to overcome the challenges.

Typical storyline would be like this.

Protagonists confront an unexpected situation, leave daily routine and ordinary life behind, and embark on a new journey (starting point of SECI). On their journey, they find teammates (creating "*ba*" and for socialization and externalization), meet enemies and even get betrayed, but they lead (using *phronetic* leadership) and work together with their teammates and overcome challenges utilizing their skills and knowledge (combination) and finally accomplish their goals (internalization).

In the IRODORI case, Yokoishi was the protagonist who had the character of all three types; he was a *yoso-mono* (came from outside of the town), *waka-mono* (fresh out of college), and *baka-mono* (elderly people laughed at his idea of selling leaves). Then as in the case, the success came when a few elderly people joined him. Together with the elderly people who believed in his idea and had the skills and knowledge to produce the products, the leaf selling business could take off. Because the case was Due to the limited length of the case, there were many untold episodes which can be interpreted as part of the knowledge creation narrative.

In the Wanowakai case, although Yasuoka is not *yoso-mono*, she is apparently a *waka-mono* and *baka-mono*, as she was regarded "*hachikin*". She had good goals and was able to create "*ba*" with local people and utilize their skills and knowledge and mobilize them. She was also able to use political power if needed, working with authority, etc. One example of her efforts is that Hidaka village is now famous for the products and foods made from tomato which were out of the standards. The village holds annual Omelet Rice festival featuring tomato products. Recently, there is a sequel to the case (and there are many side stories too). Kaori Ono, who used to work in Tokyo came to Hidata village as regional development cooperation volunteer, her own mission was to contribute to the revival of rural areas (*yoso-mono* and *waka-mono*). There she met Yasuoka and joined Wanowakai and was heavily attracted to both, and the Hidaka village itself. After working as the volunteer for nearly four years, she incubated her own local trading company in Hidata village (*baka-mono*). She says; I never thought I would start a business in Kochi, you never know what life has for you! (Ono, 2021).

In the case of Yoshimoto Sumimasu Geinin project case, Chokki GT5000 was originally totally out of place, new to the village and had no knowledge of broom crafting (*yoso-mono*), but he had the passion to challenge and the skills to make anything into laugh (*waka-mono* and *baka-mono*). On the other hand, master Chigira needed someone to succeed his crafts know-how. The encounter of the two brought Chokki GT5000's hidden talents to blossom. In other words, there was a new combination of skills and knowledge. There are so many other projects all over Japan and even in Asian countries, which all have similar storyline but in a very different context. What is common all across is that, in any place, comedians and regional staff members are welcomed by the local people because of their diligence and entertaining spirit (Osaki, 2021). Younger generation of the comedians seems more willing to live and work for the local community because they feel there are more opportunities there (ibid). The power of laughter is limitless.

The academic contribution of this paper is that by framing the transformation by "*yoso-mono, waka-mono, baka-mono*" grounding on the framework of knowledge creation theory, this paper offers a hypothesis about how they contributed to change and innovation. "*Yoso-mono, waka-mono, baka-mono*" can be seen as individuals who drive the SECI spiral, create "*ba*", and demonstrate the abilities of phronetic leadership. The practical contribution of this study is to show what kind of characteristics "*yoso-mono, waka-mono, baka-mono*" have and in what process they bring about change and innovation, and to suggest on how to create relationships with them and how to work with them.

In pursuing this research, this paper has several limitations. First, there is still a lack of review of previous studies on the role of "*yoso-mono, waka-mono, baka-mono*". In particular, the literature review of previous research that did not include all three types is insufficient. Second, the cases presented in this paper are only a few of the examples. For inductive validation, it is necessary to examine a number of cases. Third, the theorization and verification of the connection with knowledge creation theory are still insufficient. As shown in this paper, they are still in the realm of hypothesis. Fourth, there is no consideration of how "*yoso-mono, waka-mono, baka-mono*" can be located and nurtured. This point is crucial for sustainable change and innovation, but we could not address it in this paper.

The fact that such limitations exist is the flip side of the fact that greater possibilities exist. Based on this paper, we hope that research based on the knowledge creation theory about "*yoso-mono, waka-mono, baka-mono*" will flourish, extend the diversity and inclusion will expand, and change and innovation will be occur even more.

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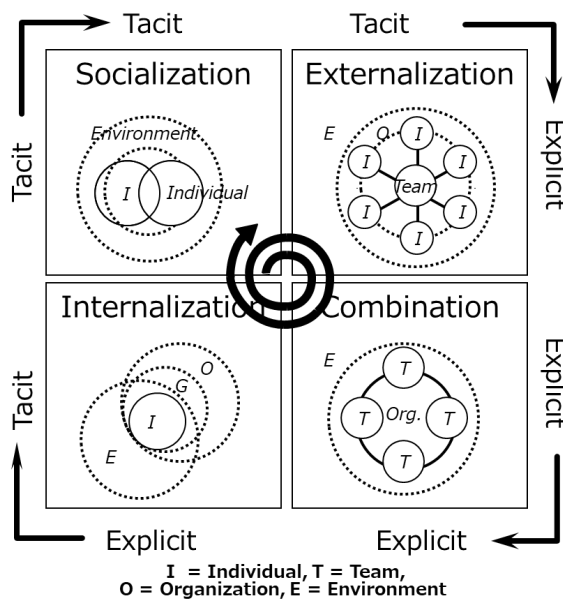
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Figure 1 The knowledge-creating process: SECI model



Source: Revised by authors based on Figure 2.1 The knowledge-creating process: SECI model, Nonaka et.al., 2008, p.8.

UNDERSTANDING THE CONTINUANCE INTENTION TO USE E-COMMERCE PLATFORMS DURING THE COVID-19 PANDEMIC

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Abstract

The aim of this study is to examine the factors affecting young Vietnamese consumers' continuance usage intention (CI) towards e-commerce platforms in the context of the COVID-19 pandemic. The authors proposed a theoretical framework to test the effects of perceived usefulness (PU), perceived ease of use (PE), hedonic motivation (HM), and trust (TR) on this continuance usage intention with satisfaction (SA) as a mediator. This research applied partial least squares structural equation modeling (PLS-SEM) to test the proposed model. The study is conducted on 388 consumers. The research findings reveal that PEOU is the most influential factor on SA while PU, HM, and Trust have positive impacts on SA; especially the mediating role of SA. The study findings provide sellers and related stakeholders with significant implications for efficient selling strategies and improving the understanding of the customers' purchase decision-making.

Keywords: *satisfaction, continuance usage intention, e-commerce platforms, COVID-19*

1. Introduction

Since the announcement of the abnormal infectious virus outbreak from Wuhan, China in late 2019 (Kai, 2020), COVID-19 officially became a global crisis (WHO, 2020). It could be considered a catalyst for the rocket increase in online shopping through e-commerce platforms over the world, estimated at 5.5 billion dollars in sales (Stephanie, 2022), showing the potentiality of the online shopping sector. Despite the growth, during the crises, it is noticeable that customers' purchase intention has changed dramatically (Fedushko & Ustyianovych, 2022; Roggeveen & Sethuraman, 2020). Thus, to capture the opportunities and mitigate the risks, e-commerce platform providers, wholesalers, and retailers have to be aware of the changes in customers' consumption behaviors and adopt suitable strategies for their business.

In the period pre-Covid-19, many empirical studies were conducted to determine the factors motivating users to shop online, such as trust (Thamizhvanan & Xavier, 2013), the reputation of the website (Kim & Lennon, 2013), ... Besides intention to use, continuance usage intention to shop online is also a topic for researchers to elaborate on (Ahmad et al., 2010; Almaghrabi et al., 2011; Chopdar & Sivakumar, 2019a; Mohamed et al., 2014). The relevant research was empirically conducted in India by employing the combined models of expectation

confirmation model and task-technology fit (Al-Hattami, 2021), in the US with the application of the technology acceptance model, theory of planned behavior and unified theory of acceptance and use of technology (Tyrväinen & Karjaluoto, 2022). There is a range of both theoretical and practical studies on this topic to understand the factors affecting the continuance of online shopping or using e-commerce platforms.

However, only a limited number of researchers have investigated the e-commerce continuous usage intention in the context of Covid-19, which is a contribution of this paper to the related literature gap. This research is expected to bring another viewpoint on CI towards online shopping by retesting the effects of perceived usefulness and perceived ease of use with hedonic motivation, trust as independent factors and satisfaction as a mediator. Moreover, this study is conducted on young Vietnamese consumers, who are most responsive to the continuous changes in technology. From this examination, this study is expected to empirically and theoretically contribute to the existing literature.

In order to arrive at the expected results, this research is organized into four main parts, including the literature review, research methodology, results, and implications.

2. Literature review and hypotheses development

2.1 Perceived usefulness

Perceived usefulness (PU) refers to how a system provides an enhancement in results for its users (Davis, 1989). Davis (1989) identified that PU results in behavioral intention. PU has an important role in explaining the intention to use a particular technology, such as mobile banking apps (Muñoz-Leiva et al., 2017), service of ride-sharing (Wang et al., 2020), and energy-saving applications (Hua & Wang, 2019). It also shows validity for studying the intention of continuous usage of technology, for example, MOOCs platforms (B. Wu & Chen, 2017), digital wearable devices for health (A. Ahmad et al., 2020), and gamification in education (Vanduhe et al., 2020).

From empirical research, PU has a positive impact on satisfaction in some empirical studies, namely Information and Communication Technology (Anshar et al., 2018), education (Joo et al., 2018), and smartphone apps (Li & Fang, 2019). For the online shopping sector, PU and satisfaction also are being proven the two factors positively correlate (Chiu et al., 2009; Mohamed et al., 2014). Therefore, in the context of COVID-19, we postulate the hypothesis:

H1: During the Covid-19 pandemic, perceived usefulness positively impacts satisfaction.

2.2 Perceived ease of use

Perceived ease of use (PE) was first introduced as one of the key factors in TAM and defined as the perception of users of particular technology with ease, and no effort required (Davis, 1989). PE is proven to have a positive supportive relationship with PU (Abdullah et al.,

2016; Davis, 1989). This relationship shows that the more user-friendly a technology is, the higher its expected benefits in terms of performance enhancement are. PE also shows relationship continuance usage intention (Rawashdeh et al., 2021; Shang & Wu, 2017).

The relationship between PEOU and user satisfaction has been studied in many previous studies for example in human resources management (Rawashdeh et al., 2021), and education (Joo et al., 2018). PE and satisfaction also correlate positively in the view of online shopping (Mohamed et al., 2014; Shang & Wu, 2017). In this study, we propose the hypothesis to observe PE and satisfaction:

H2: During the covid-19 pandemic, perceived ease of use positively impacts satisfaction.

2.3 Hedonic motivation

Hedonic motivation (HM) refers to the fun and pleasure obtained from using a product or service, focusing on intrinsic motivation (van der Heijden, 2004; Venkatesh et al., 2012). In the context of e-commerce, it focuses on experiential benefits such as experiencing enjoyment and excitement when using e-commerce platforms (Koch et al., 2020).

Empirical research suggested that hedonic motivation (conceptualized as perceived enjoyment) has an influence on customers' satisfaction (Alalwan, 2020; Lee & Jeong, 2021; Vieira et al., 2018), particularly in the context of online shopping (Atulkar & Kesari, 2017; Doghan & Albarq, 2022). Nowadays, online retailers are moving their focus to hedonic aspects with exciting initiatives such as offering gamification features, and flash sales, ... to retain customers (Atulkar & Kesari, 2017). Furthermore, during the Covid-19, due to the closure of entertainment sites such as restaurants, bars, and cinemas, consumers have limited opportunities to involve in their usual time-out activities; thus, they might engage more in online shopping for alternative enjoyment (Koch et al., 2020; Sumarliah et al., 2022). It is thus proposed to hypothesize the following:

H3: During the Covid-19 pandemic, hedonic motivation positively impacts satisfaction.

2.4 Trust

Trust (TR) is the sense of perceived vulnerability or danger that results from people's skepticism about the motivations, intentions, and potential behavior of those they interact with and depend on (Kramer, 1999). Trust is made in situations where one of the following conditions exists: (1) the future decision-making process's outcome is unclear, (2) the likelihood of the outcome rests on the behavior of others, (3) the magnitude of the damaging event is stronger than that of the advantageous event (Deutsch, 1960). Cheung & Lee (2006) suggested that those elements, in the context of an online transaction, are inevitable. The trust's role is critical for accurately capturing consumer behavior in e-commerce (Pavlou, 2003). Trust comes before satisfaction (Hasim et al., 2018; Kundu & Datta, 2015) and the first customers trust the

service providers based on some factors that have an effect on satisfaction. Besides, current research (Akroush & Mahadin, 2019) defines satisfaction as a measure of trust and beliefs. As the Covid-19 pandemic heavily impacts consumer confidence, Trust becomes a more important factor in determining customer satisfaction. Thus, the study supports below hypothesis:

H4: During the covid-19 pandemic, trust positively impacts satisfaction.

2.5 Satisfaction (SA)

Satisfaction (SA) is a psychological state when consumers compare expectations with consumption experience (Oliver, 1980). Following Daragmeh et al. (2021), this article defines satisfaction as an emotional state caused by cognitive assessment of the gap between E-commerce platforms usage's performance and expectations. Several research regarding continuance usage intention (CI) applied satisfaction as a mediator, specifically, it determines information system (IS) CI and is influenced by confirmation in the cognitive model (Oliver, 1980) but by post-adoption expectation and actual performance of the IS in Expectation Confirmation model (Bhattacharjee, 2001). Prior research applied mediator satisfaction determining CI in many aspects such as mobile banking (Yuan et al., 2016), mobile shopping (Shang & Wu, 2017), mobile internet (Jumaan et al., 2020), digital payment (Santosa et al., 2021), social mobile apps (Akdim et al., 2022). Consequently, this research utilizes the mediating role of satisfaction to examine the CI of E-commerce platforms.

Several studies indicated a positive effect of satisfaction on CI (Akdim et al., 2022; Jumaan et al., 2020; Shang & Wu, 2017; Yang, 2021; Yuan et al., 2016). The more satisfied customers are, the more they intend to continue using Ecommerce platforms. Hence, this study suggests the following hypothesis:

H5: During the covid-19 pandemic, satisfaction positively impacts continuance usage intention.

2.6 Continuance usage intention (CI)

Previous research defined CI as a person's specific intention to utilize or employ a certain system repeatedly (Bhattacharjee, 2001). Nabavi et al. (2016) defined continuous usage as a decision by the consumer to continue to use certain information technology already utilized by him/her. Recently, several studies have been conducted to identify determinants of e-commerce CI (Ali Harasis et al., 2018). The results of this research shared some similar determinants as satisfaction (Bölen & Özen, 2020; Hsu et al., 2015; Luqman et al., 2014); confirmation (Luqman et al., 2014; Shang & Wu, 2017; J. Wu & Song, 2021). Meanwhile, other factors were also found to have determining role in Ecommerce CI namely trust, habit, website quality (Hsu et al., 2015); attitude, social norms perceived behavioral control under the TPB model (J. Wu & Song, 2021); hedonic, perceived risk (Chopdar & Sivakumar, 2019b). Many authors used some models repeatedly, mostly ECM (Expectation confirmation theory)

(Hsu et al., 2015; Luqman et al., 2014; Shang & Wu, 2017); and TAM (Shang & Wu, 2017; J. Wu & Song, 2021).

This study will assess the CI of Vietnamese consumers' e-commerce platform's continuance under the Covid-19 via satisfaction with independent factors including perceived usefulness, perceived ease of use, hedonic motivation, trust.

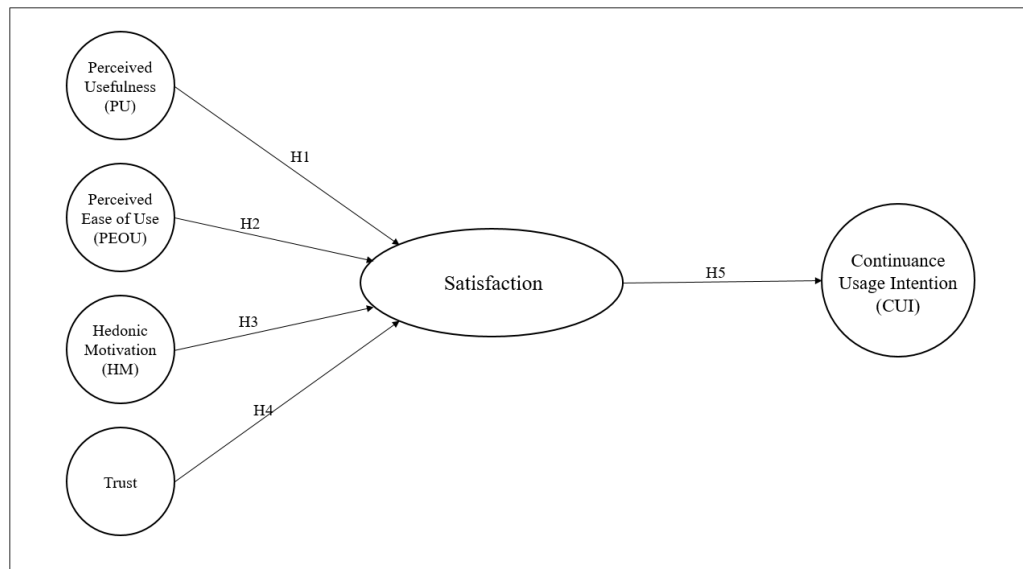


Figure 1. Proposed research model (Source: The authors)

3. Research methodology

3.1 Measurement instrument

Measurement and analysis of partial least squares (PLS) were employed utilizing Smart-PLS4 developed by Ringle et al. (2014). PLS is a “variance-based” structural equation model which aims to maximize the explained variance in the dependent variables (Hair et al., 2017). PLS was adopted in this research for the following reasons. First, it is advantageous for understanding causal relations and handling constructed models, and measuring items simultaneously (Petter et al., 2007). In addition, PLS is more suitable for the analysis of small-size samples (Hair et al., 2013). The sample size is recommended to be at least 5 to 10 times the total model paths (Majchrzak et al., 2005). In this study, the number of paths was 5 and the sample size was 388, meeting the requirements and making it qualified for PLS analysis. In the research, PLS was performed with Reliability and validity analyses and Path coefficients, Structural model.

The questionnaire is divided into two parts: demographic information and hypothesis measurement questions. Demographic questions include gender, age, income, frequencies of Ecommerce platforms usage, and whether respondents use e-commerce platforms before and during the COVID-19 pandemic or not. All items of hypothesis measurements are adopted from the established scales in literature: 5 items measuring Perceived usefulness by Karim et al.

(2021); Sukendro et al. (2020); 5 items measuring Perceived ease of use by Muñoz-Leiva et al. (2017), Sukendro et al. (2020) 6 items measuring Hedonic motivation by Nguyen & Khoa (2019); Park et al. (2012); Venkatesh et al. (2012); 5 items measuring Trust by Casaló et al. (2010); Jarvenpaa et al. (2000), Ling et al. (2010); Sullivan & Kim (2018); 5 items measuring satisfaction by Akdim et al. (2022); Daragmeh et al. (2021); Ling et al. (2010); 5 items measuring Continuance usage intention by Akdim et al. (2022); Liébana-Cabanillas et al. (2021); Shang and Wu (2017). Five-Likert scales are used, while the authors translate all items into Vietnamese given all respondents are Vietnamese.

3.2 Data collection and sampling

To collect sample data, the method utilized was convenient sampling because of the limitation of financial and human resources. However, the authors tried to confirm the representativeness and reliability of the collected data. In order to build an efficient survey, the authors discussed with an expert who has a good command of this field. After that, some amendments were made to make the questionnaire more scientific and logical. Besides, a pilot study was also conducted with 50 participants who are target respondents of this study with a view to assessing the understandability of these questions and measuring the reliability. The questions were built by using 5-point scale Likert The survey took place from 1st to 20th August 2022. The participants of this study are the active users of e-commerce platforms in Hanoi, Vietnam which, according to the Vietnam e-commerce and digital economy agency's e-commerce White Book 2021, has the most consumers purchasing on e-commerce platforms in Southeast Asia, with 49.3 million individuals; Hanoi - the capital also takes up a high proportion. The participants are mainly from 16 to 25, the generation that spends a large amount of time using the Internet and stands a higher chance of approaching e-commerce platforms. Data filtering was applied to remove inexperienced social commerce users. Only 388 of the 507 respondents who wanted to complete our questionnaire had prior experience with e-commerce during the Covid-19 situation, which met the criteria to make sure the representativeness and reliability of data. Table 1 illustrates the demographic breakdown of the respondents.

Table 1. Demographic (*Source: Authors' calculation*)

Characteristic	Item	Frequency	Percentage
Gender	Male	188	47.4
	Female	204	52.6
Age	16 - 18	116	29.9
	18 - 25	224	57.7
	25 - 35	29	7.5
	35 - 45	10	2.6
	Over 45	9	2.3
Job	Pupil	115	29.7

	Student	199	43.8
	Office staff	65	24.2
	Business	9	2.3
Monthly earnings (million VND)	< 3	211	54.4
	3 - < 5	89	22.9
	5 - < 10	58	14.9
	10 - < 20	22	5.7
	20 - < 30	8	2.1

4. Results

4.1 Outer Model and Validation

The outer model evaluated the reliability analysis, convergent validity and discriminant validity. First, the authors obtained item loadings for the reliability analysis of each item, then assessed composite reliability (CR) and Cronbach's alpha for each construct. During the outer loading relevance test, two items measuring "perceived usefulness", two items measuring "perceived ease of use", one item measuring "hedonic motivation" and one item measuring "trust" were dropped due to a lower value than the suggested threshold (0.7) by Hair et al. (2017).

Table 2. Reliability for items

Construct	Item	Factor loadings	Construct	Item	Factor loadings
Perceived usefulness	PU1	0.750	Satisfaction	TR3	0.727
	PU2	0.797		TR4	0.792
	PU3	0.829		SA1	0.743
Perceived ease of use	PE1	0.803		SA2	0.794
	PE2	0.865		SA3	0.811
	PE3	0.816	SA4	0.791	
Hedonic motivation	HM1	0.743	SA5	0.839	
	HM2	0.794	Continuance usage intention	CI1	0.833
	HM3	0.811		CI2	0.820
	HM4	0.791		CI3	0.824
	HM5	0.839		CI4	0.802
Trust	TR1	0.721		CI5	0.734
	TR2	0.706			

Source: Authors' calculation

Composite reliability and Cronbach's alpha for each construct were then above the minimum value of 0.7 (Cortina, 1993; Hair et al., 2011), demonstrating the internal consistency reliability. The convergent validity was also proved as the averaged variance extracted (AVE)

of all constructs exceeds 0.5 (Hair et al., 2019). The results for internal consistency reliability and convergent validity were illustrated in Table 3.

Table 3. Reliability and AVE of the outer model

Construct	Cronbach's alpha	Composite reliability	AVE
PU	0.704	0.835	0.629
PE	0.771	0.868	0.687
HM	0.869	0.902	0.649
TR	0.723	0.826	0.543
SA	0.855	0.896	0.634
CI	0.862	0.901	0.645

Source: Authors' calculation

We then conducted discriminant validity. It was recommended by Fornell & Larcker (1981) that discriminability is guaranteed when the AVE for each factor is higher than the squared-correlations with all other constructs. This was verified (Table 4).

Table 4. Discriminant validity: Fornell-Larcker criterion

Construct	PU	PE	HM	TR	SA	CI
PU	0.793					
PE	0.666	0.829				
HM	0.392	0.448	0.806			
TR	0.349	0.422	0.398	0.737		
SA	0.540	0.608	0.525	0.526	0.796	
CI	0.552	0.536	0.541	0.395	0.713	0.803

Table 5. Discriminant validity: HTMT

Construct	PU	PE	HM	TR	SA	CI
PU						
PE	0.900					
HM	0.464	0.512				
TR	0.469	0.543	0.453			
SA	0.695	0.747	0.568	0.648		
CI	0.706	0.656	0.592	0.483	0.828	

Source: Authors' calculation

In addition, as displayed in Table 5, discriminant validity was also achieved as the values of the Heterotrait - Monotrait ratio (HTMT) were lower than 0.9 as suggested by (Gold et al., 2001).

To avoid common method bias, we also assessed variance inflation factors (VIFs). With

the VIF values varying below 3 (Table 6), there is no evidence of collinearity (Kock, 2015)

Table 6. VIF Values

Construct	SA	CI
PU	1.842	
PE	2.027	
HM	1.359	
TR	1.309	
SA		1.000

Source: Authors' calculation

Table 7. Model fit evaluation

	Saturated model	Estimated model
SRMR	0.077	0.085
d _{ULS}	1.906	2.373
d _G	0.604	0.631
Chi-square	1395.520	1439.772
NFI	0.739	0.731

4.2 Inner Model and Hypotheses Testing

In order to test the model, we adopted a bootstrapping procedure with 1000 iterations to analyze the statistical significance of the path coefficients. As suggested by Mehmet & Matthias (2021), the standardized root mean square (SRMS) is less than 0.1 is a fit criterion. From Table 7, an SRMR value of 0.085 for our model proves an acceptable model fit.

This study used the inner model PLS analysis to test the hypotheses. All five hypotheses were supported (Table 8 and Figure 2). All four factors including Perceived usefulness, Perceived ease of use, Hedonic motivation, and Trust had a significantly positive impact on Satisfaction, supporting hypotheses 1, 2, 3, and 4 (PU → SA: $\beta = 0.173$, t-value = 3.478; PE → SA: $\beta = 0.283$, t-value = 5.209; HM → SA: $\beta = 0.229$, t-value = 4.696; TR → SA: $\beta = 0.256$, t-value = 5.473). Furthermore, the analysis supported that Satisfaction positively and significantly influenced Continuance usage intention (SA → CI: $\beta = 0.713$, t-value = 27.964).

Table 8. Summary of the inner model results

Hypothesis	Path coefficient	t-Value	Result
H1 PU → SA	0.173 **	3.478	Supported
H2 PE → SA	0.283 ***	5.209	Supported
H3 HM → SA	0.229 ***	4.696	Supported
H4 TR → SA	0.256 ***	5.473	Supported
H5 SA → CI	0.713 ***	27.964	Supported

Note: ** p < 0.01, *** p < 0.001

Source: Authors' calculation

Furthermore, this research can explain 52.0% of the variance in Satisfaction and 50.8% of the variance in continuance usage intention. These R2 values indicated that our proposed model has moderate explanatory power (Chin, 1998).



Figure 2. The inner model results (Source: Authors' calculation)

4.3 Testing of Mediation Effects

To test the mediation effect of Satisfaction on the relationship between Perceived usefulness, perceived ease of use, Hedonic motivation, Trust, and Continuance usage intention, we used bootstrapping method suggested by Zhao et al. (2010) with results illustrated in Table 9. Carrión et al. (2017) suggested that a significant indirect represented partial mediation. In our study, all four indirect effects were significant, with 99% and 99.9% confidence. Hence, it can be concluded that the impacts of perceived usefulness, perceived ease of use, hedonic motivation, and trust toward continuance usage intention was mediated by satisfaction.

Table 9. Mediation test result

Relationship	Path coefficient	t-Value
PU → SA → CI	0.202 **	5.193
PE → SA → CI	0.123 ***	3.400
HM → SA → CI	0.163 ***	4.521
TR → SA → CI	0.182 ***	5.331

Note: ** p < 0.01, *** p < 0.001

Source: Authors' calculation

5. Discussions and implications:

This study investigates the customers' CI to use Ecommerce platforms in the context of Covid-19 in Vietnam. The results show that perceived usefulness and perceived ease of use are significantly positively related to satisfaction and indirectly to CI, aligned with almost every research (Al-Hattami, 2021; Joo et al., 2018). In comparison with all four factors, perceived ease of use is the strongest factor affecting satisfaction. This indicates that in the context of Covid-19, because of the inconvenience caused by social distancing, users are seeking convenience in addition to functional benefits. They will be more satisfied and continue to utilize the platforms more frequently the more effortlessly and easily they can use them.

Furthermore, the positive influences of hedonic motivation on satisfaction and CI are proven, consistent with previous findings in the same context (Koch et al., 2020; H. V. Nguyen et al., 2020; Sumarliah et al., 2022). This conclusion can be attributed to the pandemic's restrictive policies and few options for leisure activities; as a result, shoppers now emphasize the happiness they derive from online purchasing.

The research also finds a significantly positive impact of trust on Satisfaction and CI, supporting the importance of trust in the online environment (Hasim et al., 2018; Kundu & Datta, 2015). The change to an online buying environment may lead to uncertainty that can hinder actual purchase behavior (Adjei et al., 2010). This is particularly true during the covid-19 as customers are more cautious with reliability and security.

The positive impact of Satisfaction on CI confirmed in this study is also aligned with previous research (Akdin et al., 2022; Al-Hattami, 2021). Vietnamese customers heavily rely on previous experience for future decisions, particularly during Covid-19, when the unpredictable situation has made customers more cautious in making decisions. The higher level of satisfaction from earlier usage, the more positive confirmation of the platforms they have, and the more likely they are to continue using the platforms.

Theoretical implication:

This study is among the first studies investigating customers' CI to use Ecommerce platforms in the context of COVID-19. Although e-commerce platforms have been adopted previously, customers' behaviors are shifting due to the unpredictability of Covid-19 (Fedushko & Ustyianovych, 2022; Roggeveen & Sethuraman, 2020). Hence, the study will enrich the literature relating to Ecommerce and customers' behavior in emerging market economies by focusing on Vietnam, where Ecommerce platforms are emerging dramatically (M. H. Nguyen et al., 2021).

Based on perceived usefulness and perceived ease of use from the technology acceptance model, the author added hedonic motivation, trust as new independent factors, and satisfaction as a mediator in the proposed model. The results confirm the model proposed,

which suggests the potential utilization of the model in the future.

Furthermore, while previous research revealed PU is often the most important antecedent of Satisfaction (Akdim et al., 2022; Bhattacharjee, 2001), these findings indicate that PEOU is the strongest predictor of Satisfaction, hence CUI when customers use eCommerce platforms during COVID-19. It means that under a particular context, PEOU can satisfy customers better than PU, which can establish an introductory foundation for further research of customers' satisfaction in E-commerce platforms.

Managerial implications

Based on the study's findings, e-commerce service providers, retailers, and wholesalers can design pertinent and effective business operations. To increase usability and convenience of use, service providers should pay close attention to simple yet attractive displays, convenient features, and automatic services. Additionally, service providers and merchants should collaborate to offer informative product facts. Reviews from past customers can be useful because COVID-19 and internet buying prevent customers from testing things in person. Additionally, it is necessary to employ trustworthy payment platforms, thoroughly qualify delivery partners, and provide a qualification process. Finally, increasing hedonic motivation through pastimes like games or presents might be attractive elements.

6. Conclusion, limitations, and future research

As the COVID-19 crisis can trigger significant changes in consumers' behavior, companies need to understand customers' behavioral intentions. The trends created in this crisis may stay stable and become new behaviors in the future (Koch et al., 2020). In terms of Ecommerce, understanding the motivation to continue using Ecommerce platforms during the COVID-19 pandemic is critical for stakeholders to retain customers and develop more. This study, as one of the first to investigate continuance usage intention towards E-commerce platforms during the COVID-19 pandemic, complements the literature review of online shopping in emerging markets by focusing on Vietnam. The results show that via Satisfaction, factors including Perceived usefulness, perceived ease of use, Hedonic motivation and Trust have significantly positive impacts on Continuance usage intention, where Perceived ease of use shows the greatest influence. Based on the results, theoretical implications and managerial implications are given to help E-commerce platform developers, retailers, and wholesalers improve their business.

There are still various imperfections in the current study that could be deeply researched in future investigations. First, due to the limitation of time and resources, the questionnaire design could not be reached by various samples. In particular, this paper mainly focuses on people from 16 to 25 who live and work in Hanoi, Vietnam, which might not be varied in background. Second, the study does not cover all the differences among existing E-commerce platforms. Future analysis can study the dissimilarities among platforms to discover which

factor is the most important for each. Third, there are multitudinous variations that have a great impact on customers' continuous purchasing intention during and after the COVID-19 situation that this paper did not investigate.

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DEVELOPMENT OF STATE BANK'S DIGITAL CURRENCY FOLLOW THE WORLD EXPLORE THE WORLD

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Abstract:

In the context that many countries around the world have, are conducting research and development of digital currency issued by the Central Bank (CBDC), grasping this trend, Vietnam also need to study the construction of buildings subject to the law, establish standards to put into management CBDC when the central bank issues. CBDC when saving information brings a lot of benefits and long-term impacts, contributes to promoting non-cash payments, ending a new business model on a technology platform with better development conditions such as crowdfunding, Fintech services. Therefore, it is necessary to have studies to systematically and fully analyze the issues related to this currency; thereby, providing more empirical evidence for management and administration work and in accordance with the set practice.

Keywords: *Central Bank Digital Currency - CBDC, benefits, Central Bank.*

1. Introduction

It is an obvious fact that you cannot use cash to pay online. This is one of the most fundamental reasons why cash is losing its appeal as an effective means of payment in the digital age. Over the past decade or so, the rapid growth of online shopping and digital payments has been accompanied by a steady decline in the use of cash. Taken as a whole, the digitization of economic activity profoundly affects the way people pay for things. Eurostat statistics for the euro area show that from 2008 to 2021, individuals' online commerce transactions have increased by about 70%, while the online sales of businesses have also increased by approximately 70%. approx 23%.

Most people don't notice the difference between cash and digital payments, other than the obvious fact that cash payments involve the exchange of physical money, and digital transactions do not. . However, there is a more subtle difference between cash and digital currency. While cash is public money - issued by the central bank and guaranteed economic value. In contrast, digital currency originated in the private sector, most commonly in the form of deposits at banks. While a liability of a private institution, digital currency issued by banks can always be converted to cash at face value thanks to financial regulations and deposit insurance. This is why people consider it safe and useful as a means of payment.

The emergence of digital platforms as the dominant business model of the information technology age is challenging the central role of banks in the payment system. Big tech companies and financial startups are combining payments with digital services, like online

exchanges, messaging apps, and financial services (e.g., lending). and insurance). While banks continue to provide the underlying payment infrastructure for these solutions, they are losing direct access to customers. Further disruption is likely in the future due to technological advances and the rapid growth of complex forms of payment. This includes distributed ledger technology – which provides the basis for stablecoins (a type of electronic crypto-asset designed to maintain a stable value) that can be used as a payment convenience.

With the use of cash dwindling while new forms of money outside the banking sector are showing greater potential, there has been a need for a digital version of cash, usually called central bank digital currency (CBDC). There are at least three main points of view that support this claim.

First, the national currency issued by the central bank plays a special role as the anchor of the monetary system. People are willing to accept electronic payments with their own money (via credit cards and bank transfers) because they know it can be easily converted to cash in absolute safety. However, if cash is no longer widely used, the validity of this fully convertible commitment will be diminished. In this case, a digital version of cash would ensure the continuation of the current monetary system.

Second, the issuance of CBDCs helps to ensure central bank control over the currency. Digital platforms with their global reach can easily become major private digital currency issuers. So if, in an extreme scenario, private money can crowd out central bank money as the currency in contracts and transactions, then the central bank can no longer carry out its own monetary policy. effective monetary policy or protect financial stability by acting as a lender of last resort. The CBDC can prevent such a situation by providing a public version of the digital currency to fulfill this need.

Third, CBDCs can help protect privacy. Currently, private businesses often seek to profit from the personal data they may collect from users when making digital payments, and this may discourage people from using it immediately. from the beginning. CBDCs can be designed to give users more control over their personal data, such as whether they choose to share personal data with third parties in order to receive more services. more personalized or not. This can promote efficiency and well-being in the digital economy.

2. Theoretical basis

- Concept

To date, there is no single universally agreed definition of digital currency. According to the Bank for International Settlements (BIS, 2015), digital currency is an asset that is represented in digital form, without a physical form like traditional banknotes and coins. Based on the issuer, according to VEPR (2021), digital money can be divided into 2 types: private digital currency (private digital currency) and CBDC.

According to another classification, digital money includes electronic currency (electronic currency) and virtual currency (Tran Hung Son, Hoang Trung Nghia, 2019). The basic difference between these two currencies is defined as follows: Electronic money is a digital payment mechanism for fiat money and is denominated in fiat money; while virtual currency is not denominated in fiat currency and has its own unit of account (IMF, 2016). In addition, electronic money is under the management of State agencies, issued by established electronic money organizations, operating in accordance with the law, and accepted for payment by individuals. , the business is not the issuer. In contrast, virtual currencies are not regulated by a State agency, are issued by software developers and are generally accepted for payment in a certain virtual community (Truong Thi Hoai Linh, 2020).

CBDC - sometimes referred to as central bank cryptocurrency - is a digital banknote. CBDC is a new form of central bank money (Chau Van Thanh, 2021). CBDCs have a national unit of account, which is a central bank debt obligation and is backed by assets held by the central bank (VEPR, 2021). As a result, the central bank recognized the credibility and legitimacy of issuing CBDCs.

- *Characteristic*

CBDC is an electronic store of value asset. This currency, if well-designed, can function as a zero-cost medium of exchange, a secure store of value and a stable unit of computation (Le Van Hinh, Nguyen Tuong Van, 2021). The sole issuer of the CBDC is the Central Bank. CBDC is a sovereign currency, recognized by the country as a new form of currency representing the national currency (Ha The Viet, Nguyen Xuan Hoang, 2021). CBDCs, a special form of transferable deposits, have the following fundamental differences from physical cash (including banknotes and coins) as follows:

First, cash has a cost to issue and can become discolored, crumpled, or torn and needs to be reprinted to be replaced. This also has a negative impact on the environment. In addition, cash transactions can lead to health risks such as transmission of diseases to users. CBDC does not have these risks because CBDC is a form of electronic money and transactions through modern digital technology applications, avoiding direct person-to-person contact.

Secondly, cash holders are also at risk of loss and loss of property due to robbery, fire and explosion. In addition, the transportation and preservation of money also incurs many costs. With large transactions, tallying a large amount of money is time consuming, laborious, and there may be confusion in the counting. CBDCs don't have these hiccups.

Third, cash can be counterfeited, especially when outdated printing technology fails to install effective hidden images to prevent counterfeiting. CBDC is money in electronic form so it is harder to counterfeit. Even so, the infrastructure of the CBDC system also needs to be secure to protect the system against cyber attacks and other threats, as well as ensure against fraud and tampering.

Fourth, cash transactions make it difficult to trace money laundering, tax evasion, terrorist financing or other illegal activities. In contrast, each CBDC coin, depending on the technology chosen, can be traced to every transaction associated with it since it was issued. This information may, by law, be used by State agencies for law enforcement purposes. Therefore, based on a high-tech platform, CBDC can contribute to reducing crime and improving the Government's tax revenue.

However, CBDCs differ from negotiable deposits in that while a CBDC is a debt obligation of the central bank, it represents a recourse to the central bank (which can be direct or indirect depending on the issuance model). Transferable deposits are debt obligations of financial intermediaries (commercial banks) representing direct recourse to commercial banks, not to the central bank (Nguyen Trung England, 2021). In addition, for CBDCs, partners can transfer money directly to each other without going through the banking system. Transactions using CBDC, depending on the model and technology used, can also be performed offline, without the need for an Internet connection to the transaction processing device.

3. Opportunities and challenges when issuing fiat digital currency

Firstly, CBDC is based on blockchain technology, which contributes to the modernization of the payment system by enabling financial institutions and fintech companies to apply and test modern technologies, thereby promoting the payment platform. digital economy in Vietnam. Blockchain technology offers a number of benefits, such as reducing transaction costs because there are no intermediaries, improving the efficiency of cross-border payments. As a result, small companies can also access global markets, improve speed, efficiency and transparency in debt markets, improve transparency and security of all transactions, improve market supervision and regulation.

Second, CBDC improves the reliability, safety, and risk reduction of the payment system through transparency, verification, and security. CBDC is also a platform that can support the Vietnamese banking system to successfully implement the digital transformation roadmap.

Third, CBDC will promote financial inclusion in Vietnam by enabling more people to access financial services, especially those in remote areas without bank accounts. In addition, CBDCs can be used in areas without an Internet connection, allowing people to conduct financial transactions at low cost using simple, widely available electronic devices.

Fourth, the CBDC also provides an effective and efficient tool to implement monetary policy in Vietnam. The issuance of a CBDC allows the state-owned bank to precisely control the money supply. As a result, policy lag will be further reduced, thereby enhancing the productivity and efficiency of monetary regulation.

However, besides the benefits brought by CBDC, bringing digital currency into fiat currency also contains many risks and challenges. The biggest challenge, especially regarding privacy in the digital economy, is beyond the capabilities of central banks. Stricter regulations can and must address the most pressing concerns related to financial stability issues surrounding new technologies such as stable money.

There is also the potential risk of overuse of CBDCs and the potential impacts on credit supply and financial stability. The availability of CBDCs changes banks' exposure to the risk of massive withdrawals. On the one hand, by its nature as a safe and profitable investment, the availability of CBDCs increases the incentive for depositors to withdraw money from the bank, compared to an economy where cash is the only alternative. for bank deposits (this is referred to as a “direct effect”). On the other hand, in order to retain deposits, banks will respond to the emergence of CBDCs by raising interest rates; this makes deposits more attractive and thus reduces vulnerability (“indirect effects”). As a result, the overall effect of CBDCs on the vulnerability of the banking system varies with the relative strength of these two forces. In this context, policymakers have proposed protective measures, such as making holding large amounts of CBDCs less attractive by imposing very low (possibly even negative) interest rates. or impose direct limits on the amount individuals can hold.

4. Vietnam's orientation on CBDC

In June 2021, the Prime Minister assigned the State Bank of Vietnam to research, build and pilot a virtual currency based on Blockchain technology for the period of 2021 - 2023. At the same time, the Financial Research Team Virtual assets and virtual currencies at the Ministry of Finance have been established, research on virtual assets and virtual money as well as international experience in related management and supervision activities. On October 28, 2021, the Prime Minister officially issued Decision No. 1813/QĐ-TTg approving the project of developing non-cash payments in Vietnam for the period of 2021 - 2025. In which, there are contents Content "Research and propose mechanisms and policies on national digital currency". The objective is to create a positive change in non-cash payment in the economy with high growth, making the use of non-cash payment methods in society a habit of people in the area. urban areas and gradually develop in rural, remote and isolated areas, reducing the social costs associated with cash.

It can be seen that Vietnam has had policies and determinations in promoting the application of Blockchain and virtual currency and digital currency in Vietnam. This is also the premise for the construction of CBDC in Vietnam.

From the fact, it can be seen that the development of cryptocurrencies and digital currencies like Bitcoin has shown that this is the inevitable payment trend of the digital era. Therefore, it is necessary to study and issue a legal framework soon, allowing transactions and ownership of digital and virtual assets. On that basis, building a framework for management

and supervision of digital assets, moving towards digital asset trading, allowing CBDC trading on legal exchanges. Along with this CBDC research and implementation, Vietnam will have to take many aspects into account when designing a CBDC. In addition to factors related to infrastructure and technology, allowing CBDCs to be transferred and used as a payment instrument, it is necessary to take into account the impact on the Central Bank's decision-making related to monetary policy.

Vietnam needs to speed up the process of researching and perfecting the CBDC legal framework, taking advantage of the strengths of technology as a platform to activate the use of this currency. At the same time, there should be policies to improve information technology infrastructure; organize training and capacity building of financial experts, encryption and security experts; raise people's awareness about CBDC knowledge, experts give advice.

From a financial perspective, CBDC is still a Vietnamese currency, issued and circulated in the digital space. It is different from the virtual currencies that are appearing on the market today. The value of this cryptocurrency will be regulated and decided by the Government and not subject to market fluctuations like virtual currencies. Therefore, Vietnam needs to study carefully, long-term, measure and carefully evaluate the impact before implementing it in practice.

+ The State Bank of Vietnam needs to continue to improve the legal framework for banking technology, including Blockchain technology; develop regulations on licensing standards for intermediary organizations and individuals engaged in providing services related to CBDC; develop an appropriate legal mechanism to be able to capture, manage, inspect and supervise the circulation of foreign CBDCs in and out of Vietnam in the future.

+ Promote the development of the national payment system to ensure efficiency and limit risks for cross-border payment transactions related to CBDC: Upgrading the instant settlement system (RGTS), upgrading national payment layer - the "basement" for the development of non-cash payments; accelerate the construction of population database and information and data sharing mechanism.

+ Vietnam should learn, research, and refer to the experiences of countries that have issued CBDCs: About the release experience, about the roadmap, how to deploy, specific content, details about the focal point main policy, operating mechanism, testing time, official... from which to develop a roadmap suitable to Vietnam's reality, while ensuring to take advantage of the benefits and limit the shortcomings and risks of the project. CBDC.

+ Facilitate and promote non-cash payment habits and raise awareness of people and businesses about CBDC. Organizations and individuals engaged in providing services related to this field need to be licensed according to certain standards and the activities of these organizations and individuals need to be regularly monitored closely, ensuring ensure transparency. In order for people to feel more secure when using CBDC, the State also needs

to set standards of CBDC related to personal privacy protection, protection against misuse of user data and ensuring standards. Global anti-money laundering and counter-terrorism financing.

During the pilot implementation period, Vietnam needs to develop a long-term roadmap and should start with piloting small transactions in some cities, through a number of banks, then have reviews and evaluations. expanded to other areas and localities.

5. Recommendations for Vietnam in the formation and development of deterministic digital currency

First, there is a need for important regulatory reform that allows governments to issue digital currencies. In addition, the government needs to verify that it is doing it correctly, before applying for approval from international authorities such as the International Monetary Fund and the World Bank. Our state needs to invest in research on digital currency to be able to create a digital currency suitable for our country's social and economic life, creating good conditions for goods circulation and exchange. exchange property, store property. This investment is an investment in technical research, on building and creating a digital currency with its certain effects and features. However, along with that, the State also needs to create a certain connection between the digital currency issued by the State and the current currency to ensure stability for the economy when deploying the two types of money. different currencies.

Second, it is necessary to upgrade the national digital infrastructure to be compatible with the issuance of CBDCs in Vietnam. Learning from experiences from countries that have piloted and launched CBDCs is especially useful for Vietnam in order to reduce difficulties and obstacles in the research and development phase of CBDCs. In addition, improve the scientific and technical level, improve the management level and use information technology in management, in banking service activities, payment services in social life.

Third, it is necessary to develop a digital currency development policy and a legal policy on digital currency management. It is necessary to have a legal policy following a step-by-step roadmap, specifically identifying, defining, and recording in the law on digital currency; recognize digital currency as a new asset class with distinct characteristics; develop financial policies related to digital currency such as tax policy, digital currency circulation policy; develop a policy to control transactions in digital currency.

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DEVELOPMENT RATE OF VIETNAM'S INSTALLATION ECONOMY

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Abstract:

In fact, there are now millions of large asset-sharing companies in the world such as: Airbnb, RelayRides, DogVacay, LiquidSpace... These companies use the technology of phones, GPS, 3G, bars, etc. Online payment creates a sharing economy model that works with high efficiency, saving costs, increasing benefits for suppliers, demanders and middlemen. At the same time, saving the company's capital (not buying or building a hotel) but using community capital (participant's car, participant's house) helps companies to spread quickly. Around the world.

Keywords: *Sharing economy, international...*

1. Introduction to Sharing Economy in Vietnam

Definition of the sharing economy (other names are sharing economy, collaborative economy, the mesh...) is an economic system that emphasizes sharing and cooperation over private ownership. People, instead of possessing to satisfy their needs, will find resources in the community. The economy of tethering so that consumers can take advantage of each other's surplus resources. For example, a product that has been purchased but not used, machinery that is not fully exploited in its useful life will be redistributed to a place where it is used more efficiently. In a society where cars are only used for an average of 1 hour a day (less than 5% of the time), 99% of household items are not reused for 6 months... this redistribution is necessary to save money. users and resources of society.

This is a model that brings high economic value and has a significant impact on consumers, as well as traditional businesses. It includes sharing in the creation, production, distribution, trade and consumption of goods and services by different individuals and organizations. These forms take many forms, but collectively, they use the power of information technology to benefit individuals, companies, nonprofits, governments, with information that allows them to distribute, share and reuse surplus resources of goods and services. The general premise for the sharing economy is that when information about goods is shared, the value of goods and services increases, for both businesses, individuals and communities.

In Vietnam, recently, the term "sharing economy" has been discussed on many forums, with a number of business models based on technology applications, such as ride-hailing applications. Grab, Be, Go Viet; travel and hotel services, room-sharing services such as Airbnb, etc. In Vietnam's terms, it can be understood that the "sharing economy" is a new business method of peer-to-peer business, a economic system in which assets and services are shared among many users in the market through the application of digital platforms.

Thus, the sharing economy is a market model combining ownership and sharing, which refers to a peer-to-peer role based on the sharing of the right to use goods and services, in order to increase benefits. to the parties involved. Currently, there are three factors that make it easier to share the right to use new goods and services, such as:

First, the behavior of customers towards a variety of goods and services is changed from possessing to sharing.

Second, connecting consumer networks through online social networks and electronic markets is easier.

Third, the application of information technology through mobile devices and electronic services makes the use and sharing of goods and services more convenient.

To summarize: The sharing economy is an expression of the application of technology to reduce waste in consumption, towards community, smart city, and efficient use of resources.

2. The sharing economy model appeared in Vietnam

In Vietnam, although newly developed, the sharing economy has also emerged with 3 types of services such as online transportation Grab, Fastgo; room-sharing services Airbnb, Travelmob, Laxstay, and peer-to-peer lending P2P lending. A number of other services also began to appear such as job sharing, car parking, and human resource sharing. The sharing economy model is developing rapidly along with the popularity of smartphones in some cities in recent years. Below are typical examples of the sharing economy in Vietnam.

- Connected transport services like Grab and Uber: An automated locator app for booking and coordinating taxis on smartphones for the taxi industry in Southeast Asia. These two companies started entering the Southeast Asian market in 2014. However, after 4 years of operation, in April 2018, Uber withdrew from the Southeast Asian market and exchanged for a 27.5% stake in Grab. Immediately after Uber withdrew from the market, Vietnam witnessed a strong development, showing the sharing economy model as a potential market segment, by May 2018, the VATO application appeared on the market. market or many other technology taxi firms such as Gonow of Viettel or the newly invented application T.Net of FPT and in addition, it also creates a strong motivation for traditional businesses to change their business operation methods. business from craft to application of technology.

- A typical accommodation service is Airbnb: This is a model that connects people who need to rent a house with families with available rooms to rent through a mobile application similar to Uber, Grab and imported into Vietnam from year 2014. Hanoi, City. Ho Chi Minh City along with a number of other provinces have now joined this network with the number of bedrooms and houses for rent reaching over 1,000 rooms. According to another estimate in Vietnam, there are about 6,500 properties participating in Airbnb as of June 2017. To give tenants peace of mind, the Airbnb app confirms the landlord's identity through Facebook, phone

number, passport, identity card, and especially through feedback from previous tenants. there. From here the intermediary will charge a fee to both the person making the reservation and the host. The fee for the host is at 3% of the total booking value, the booking fee is at 6 - 12%, and this fee will be displayed during the guest's use of the service. This fee still ensures lower payers who book hotel rooms through traditional channels.

Triip.me was formed and built from a group of young people and passionate about travel, they come from many countries with different cultures. The biggest common point of Triip.me is the place to connect people, share travel experiences, thereby contributing to preserving culture in localities...

- Travelmob model: A website that posts information about renting a house or a room in a short time. Travelmob is an intermediary to settle financial transactions between landlords and tenants. Founded in 2012 in Singapore, Travelmob is now used in most of the famous destinations in Southeast Asia and Asia. Vietnam now also has a Vietnamese version of Travelmob at vn.travelmob.com.

3. Achievements and limitations of the sharing economy model

- Achievement

First, the sharing economy provides domestic resources to those in need quickly through technology. In other words, to make effective use of idle resources in society; Effective use of both time and cost savings. For example, with Grap and a phone with an internet connection, customers can immediately use the following services:

- Travel services like Triip.me: This model has turned ordinary locals into amateur tour guides. Triip.me allows anyone to create a travel package, put it up, and sell it to travelers on its website or iPhone app.

GrabTaxi: Technology car booking through cooperation with Taxi companies in Southeast Asia, helping to solve the problems of price and safety.

GrabBike: The fastest growing mobility service.

GrabCar: Connect drivers with e-contracts with customers effectively.

GrabExpress: Service to order delivery of goods. Solve end-to-end logistics, especially in densely populated cities.

GrabFood: Food delivery service. Solve end-to-end delivery, especially in densely populated cities.

Grab Financial: A financial loan service for customers who do not have a bank account or have no access to banking services, and small and micro businesses across Southeast Asia.

GrabPay: Mobile payments right in the app to help with travel

khoảng 51% (Grab, 2017) Ngoài tiết kiệm thời gian tiết kiệm, Grab còn giúp khách hàng giảm 20 – 30% chi phí đi lại, giảm 40% những tờ báo có lỗi quyết toán chi phí đi lại, minh bạch thông tin cho người dùng.

Third, the market size grows rapidly. Confront the online download service. According to statistics of the Department of Transport of Ho Chi Minh City, as of 2017, up to 25,000 electronic contract vehicles under 9 seats have been granted badges and up to 24,000 are participating in Uber's network. and Grab; Meanwhile, the number of traditional taxis is only 46% of the number of cars joining the network of Uber and Grab.(Cafebiz, 2017). In Hanoi, according to a report, as of December 20, / In 2017, GrabTaxi had 11,474 piloted vehicles in the area, accounting for 90.67% of the number of licensed vehicles operating in the whole city. By 2019, the number of car users of Grap has increased rapidly.

- Unmode

Along with many benefits brought from new business methods, the sharing economy has arisen difficulties and challenges related to the market, fair competition, innovation capacity and especially challenges. Knowledge of state management of taxes, business conditions, borderless payment, labor safety, insurance, etc.

One is unequal competition. Because of the superiority of this economic model, it will create great competitive pressure for enterprises doing business in the traditional model. The recent business story of Uber and Grab with traditional taxi companies is one of the typical examples. Specifically:

According to the tax payment regulations for transportation business is 4.5% (like taxi companies), the tax amount that Grab and Uber must pay to the state budget is 67.5 billion VND/month and in a year. is 810 billion VND. However, in fact, in 2016 alone, Grab Taxi Co., Ltd only paid nearly 5.8 billion VND to the budget. And Uber Co., Ltd., from its establishment to when it was merged into Grab, only paid nearly 10 billion dong. From the point of view of traditional taxi companies, the same transportation business, but the big difference in tax rates has made the competition in this field not really fair. It is the low tax rate that is an advantage for Uber and Grab to offer great promotions to attract customers in the past time.

Secondly, tax administration for the sharing economy model in our country is still very difficult. The sharing economy model is a new business model. Therefore, in order to effectively manage taxes for this type of business, the agency must have flexible policies and timely adjustments.

However, there are still services that tax authorities are still confused about in collecting taxes because of the complexity and sophistication of the way they do business. Typically Grab, Uber and Airbnb... For Uber, Uber has established a subsidiary in the Netherlands and transferred ownership of branches in other countries to this company for the purpose of transferring all revenue outside the country. America is mainly about the Netherlands and avoids the US tax system. With the flexibility of a private company, tax policy experts say that Uber's tax avoidance strategy is almost perfect. In Vietnam, although the tax authorities have stepped in, there are still many obstacles in controlling this tax evasion. For Airbnb, for every successful rental transaction, Airbnb keeps a 13% profit. Renters usually pay taxes in full to

Airbnb because the company can report the transaction to the Government. However, one of the safe tax haven options for Airbnb is Ireland. The country's tax law allows US multinational corporations to avoid both the highest tax rates of 35% under US tax and 12.5% under Irish income tax. Airbnb's transaction money in 190 countries is sent directly to a payment hub in Ireland, allowing for most of the profits to be hidden across countries. Airbnb Ireland only leaves a small fee for the Australian branch to do domestic marketing, tax is paid on that profit. Those are the challenges that companies in the sharing economy like Airbnb or Uber are causing to the world's treasury, not just Vietnam.

The third is to increase the level of risks such as: Creating new relationships in the market, 3-party relationships instead of 2 parties in economic contracts, potential risks in ensuring the interests of both buyers and sellers. sale, conflicts of interest between enterprises doing business in the sharing economy model and traditional business enterprises.

Along with that, there are also problems related to tax collection and financial obligations arising from service activities, measurement and integration in national economic accounts...

Fourthly, the legal system on business activities of our country such as the Law on Enterprises, the Law on Investment, the Law on Electronic Transactions, etc. and the current tax regulations are almost still open to the sharing economy model. shall. While, the types of sharing economy have been posing many challenges to policy managers such as creating a favorable business environment, ensuring the harmonization of benefits for service business models. traditional; control the transparency of information; manage electronic transactions, international payment of commerce by card; service and product quality management; anti-loss.

The second is to create inequality with traditional business enterprises. This comes from the fact that for foreign-based enterprises doing business in Vietnam and having revenue in Vietnam, they can only pay corporate income tax by the direct method because they cannot manage their investment costs. enter a foreign country and do not have a permanent office in Vietnam. Thereby causing inequality between domestic and foreign enterprises. It creates a tax liability gap of these types of companies in the sharing economy taking place in Vietnam that needs to be filled.

Third, enterprises operating under the sharing economy model in Vietnam still face difficulties in tax declaration. The reason is that the legal system has not yet recognized this type of business and the tax authorities are confused when determining the nature of the transaction to impose tax. For example, operating under the sharing economy model in the field of freight transport, start-up Log Lag is having problems with tax declaration because the legal system has not recognized the type of technology enterprises in the field of technology. This. Therefore, Log Lag must fulfill tax obligations according to the transport enterprise, the revenue must be accounted according to the total transaction value of the shipment, with a much larger

number than the fee that the enterprise actually collects in the role. connect. If implemented under the policy test mechanism, this company expects to reduce the risk of cash flow.

Fourth is the risk of tax loss for the sharing economy. Because these types of businesses apply online business technology, it is very difficult for tax authorities to determine the revenue of the establishment to pay tax because their transactions are mainly electronic documents. Therefore, it depends a lot on the honesty of businesses and business establishments. For intermediary service providers who are foreign contractors, it is also difficult for regulators to inspect, monitor and collect their taxes. Because they do not set up offices and branches in Vietnam. It is also difficult to determine the responsibility of domestic service providers who are obliged to declare and pay tax on behalf of foreign contractors because Vietnam has joined and signed 76 Agreements on the avoidance of double taxation. so the regulations on tax payment will comply with the provisions of these agreements. Even in the field of peer-to-peer lending (P2P Lending), there are tax and foreign exchange management risks because the transaction participants are non-residents, which will lead to difficulties in foreign exchange management. exchange and tax collection. Or if the participant is intentionally fraudulent, anonymous, or impersonated, it may not be possible to collect income tax.

In general, the proliferation of services under the sharing economy model in general and the sharing economy in particular in Vietnam is also showing concerns about unfair competition and loss of tax revenue. Without timely and proper interventions, the trail of protests against Uber or a hidden wave of money against the sharing economy like many countries around the world will continue to take place in Vietnam. Male

4. Solution

From the above difficulties, in order to develop a sustainable sharing economy in Vietnam, the article proposes the following suggestions:

Firstly, from the perspective of macro management of state agencies, we need to acknowledge that this is a technology-based and innovative business model of the 4.0 era. Therefore, it is necessary to approach these models as a business entity of the economy and research, test and provide a legal corridor suitable to the situation of Vietnam and the laws of Vietnam as well as other laws. International conventions. In the spirit of creating favorable conditions for all of these models, both domestically and internationally, have the same development opportunities and are most beneficial to the country and the whole society.

Secondly, the Government needs to study and promulgate the Law on regulation and management of the sharing economy in Vietnam. The legal system will help regulate all business activities in the sharing economy, while ensuring a favorable environment for its development and creating an equal competitive environment between this economy and the business model. traditional service business. Not only that, the legal corridor also helps the Government of Vietnam control taxes from service providers and "asset sharers" - this is considered a large tax source that many countries cannot afford. controllable.

Secondly, for those who want to start a business with the sharing economy model, it is necessary to take steps to prepare for supply, train human resources and build trust to build a brand. In particular, the training of human resources plays an important role, which can determine the success - failure of an enterprise. From the very first stage, the personal profile check must be done closely. Companies in the sharing economy can build online training courses and test by exam. Approved individuals will be provided with a hand-held document that guides the service delivery process. A human resource providing professional services is a way for businesses to build trust with customers and build their own brand.

Third, it is necessary to focus on investing in developing the internet network, upgrading to ensure the security of online payment accounts, both in terms of quantity and quality, because the basic characteristics of the sharing business are the transactions through the online network. Without the strong development of the internet in Vietnam, there will not be a good foundation for the growth and success of the sharing business.

Fourthly, the Ministry of Finance needs to organize the propagation of tax legislation on e-commerce platforms such as linking links to tax management websites on e-commerce sites, etc. At the same time, the management Taxes on overseas e-commerce platforms are “a very difficult matter”. According to international experience, it is necessary to have cooperation between countries or participate in tax management forums or set up tax administration forums in the region.... to agree on agreements on supply, share information...

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FACTORS AFFECTING WOMEN'S CAREER ADVANCEMENT: AN EMPIRICAL STUDY IN HANOI-VIETNAM PRIVATE-OWNED ENTERPRISES

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Abstract

Despite several structural and organizational efforts in supporting women, the top-level management positions in Vietnam still see a glaring gap between male and female leaders across multiple industries. Therefore, in synchronization with the nation's sustainable development goal of achieving gender equality, this research strives for insights into the factors enabling and hindering women's career advancement in the private sector. Using preceding literature as a guidance, the study evaluates the perceptions of workers from around 200 young working women in Hanoi capital city in 2021 about the key influencers of female leadership progress. The study aims to test the relationships, either negative or positive of five internal and external determinants with women's perceived career advancement prospect. There are three intrinsic factors including human capital, commitment to family responsibility, job performance, and two extrinsic factors consisting of organization's commitment to gender equity and cultural expectations of gender roles. In the findings, except for human capital, all other hypothesized relationships are supported. Notably, commitment to family responsibility is found to positively influence the career advancement prospect of respondents, contradicting the original hypothesis. The implications provide a deeper understanding of the pivotal elements for business owners to implement effective human resources management practices in retaining and empowering female employees.

Keywords: *women, career advancement, private-owned enterprises*

1. Introduction

In recent years in Vietnam, the COVID-19 pandemic has not only increased existing inequalities in the labor market, but also created new inequalities. Before the pandemic, there was almost no difference in the unemployment rate between men and women, but this situation has been present since the third quarter of 2020 (ILO, 2021). Female workers account for a very large proportion of temporary or service jobs and are therefore more at risk of losing their jobs than men.

According to a recent report by the International Labor Organization (ILO) in November 2020, businesses in Vietnam are facing a shortage of talent, and this situation can be solved by recruiting and supporting more women in management positions. Although women in Vietnam make about only 7.6 percent less participants in the domestic private sector than men, yet male leaders outnumber females four to one (ILO, 2021). According to the Hanoi authority for Planning and Investment Web portal (2020), from the beginning of the year to October 31,

2020, Hanoi City has carried out dissolution procedures for 2,039 enterprises (up 19% compared to the same period last year), 9,452 enterprises registered to suspend operations (up 42% compared to the same period last year).

Gender diversity is a smart business strategy that boosts profits and productivity, increases talent retention, and drives innovation (ILO, 2020). In addition, businesses also need to play their part in promoting gender equality, as shown by improving proportions of women in managerial positions, towards the goal of “Ensuring women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic and public life”. However, there has not been a research conducted on the same subjects in Hanoi regardless of this city’s significance in the economic dynamic of the country. Consequently, it is urgent an investigation was conducted to help businesses retain employees, especially female workers who are more severely affected.

Understanding the urgency of creating gender equality and equity in the workforce, the scientific world has played their role in searching for the root causes of gender-based imbalance. Numerous studies all over the world were conducted to fathom the factors influencing women’s career advancement, as early as in the 1980s. The term “glass ceiling” was adopted by American scholars Morrison, White and Van Velsor (1987) to address invisible barriers preventing women from achieving top management levels. There also are studies looking into this predicament in typically gender-biased industries like hospitality, construction or banking (e.g., Calinaud et al, 2020; Amaratunga, 2006; Giragama et al, 2016). Not only in developed countries, research on factors affecting women’s progression in their job are also present in third-world nations like Kenya, Sri Lanka (e.g., Njiru, 2013, Afande, 2015). In Asia and South-East Asia, papers of the same purpose are found in countries with significant cultural similarities to Vietnam culture-wise like China and Malaysia (e.g., Ren and Wang, 2011; Subramaniam, 2016).

While there is no shortage of information on the proportion of women participating in Vietnam labor markets, attempts to investigate the fundamental causes of such rates are scarce. For example, a study in Hue by Tran Thi Tam and Nguyen Hoang Thuy Vy (2019) explored the determinants of career advancement of women in the hospitality industry in 16 3 to 5-star hotels and learned that workers prioritized career advancement over work-life balance and always strived for higher hierarchical positions. They also tended to leave the company to find better career advancement opportunities. However, no recommendation for managers to improve the retention rate was given by the author groups. The same problem was found in a larger scale research on 4020 person who are intellectuals in the fields of education, science and technology, health, culture, and economy in 5 provinces (Tran Thi Minh Duc and Nguyen Thi Viet Thanh, 2015). The article presents some survey results on women's attitudes and status quo in management leadership. The parameters about occupation, education level, seniority, attitude towards work, marital, various agencies, etc. In this research, only the situation was analyzed, and the authors did not investigate any root cause of such predicament.

In order to further research on the topic in Hanoi, this paper aims to answer the following research questions:

1. What are the factors affecting the career advancement of women in Hanoi enterprises?
2. What is the impact level of each factor on women's career advancement?
3. What are some recommendations to support women's career advancement?

Therefore, a study to understand the endogenous and exogenous factors affecting the career advancement of women in Hanoi businesses is essential to provide appropriate policy implications for domestic businesses so they can retain female workers and take advantage of a gender-balanced workforce. Hanoi is the capital of the country - the cultural, economic, and political center of Vietnam, as well as a representative of the labor market of the country. Unfortunately, the coronavirus has led to a serious decrease in labor, which is also the main reason why many Hanoi businesses went into bankruptcy (Diep, 2021). However, there has not been a research conducted on women's career advancement in Hanoi regardless of this city's economic significance to Vietnam.

Private-owned enterprises in the setting of this research refer to all businesses and companies that are not within the economic sector of Vietnam's or any other state's ownership. According to Vietnam Enterprise Law 2020, section 10 Article 4, 10. "*Enterprise* means an organization which has its own name, assets and a transaction office, and is lawfully established or registered for establishment for the business purpose". This is to differentiate it from *State enterprise* and the third sector meaning NGOs (non-governmental Organizations) or NPOs (non-profit organizations) whose main profit is not financial rewards but for social impact.

The collection, analysis and assessment in this research are conducted on survey responses acquired in 2021. Secondary data compiled from previous research are recorded from 2018 to 2021. This study explores the current perceived factors employees are facing in relation to their career advancement as well as their intentions to make progress career-wise. From such knowledge, barriers, and facilitators to Hanoi women's career advancement in private companies are identified and weighed in scale of importance. As a result, implicated recommendations are made for companies to better empower their female employees as well as retaining their talents.

2. Literature Review, Theoretical framework, and Methods

2.1 Literature review

2.1.1 Career and Career Advancement

In the Handbook of Career Theory - one of the most cited work in career studies, the authors Arthur, Hall and Lawrence (1989) adopted the definition of career as "the evolving sequence of a person's work experience over time". Brown and Brooks (1990) define a career

as the sum of a person's lifetime work experience, derived from one or more jobs in one or more organizations.

Carmeli et al (2007) broke down career advancement to “an objective assessment of an employee’s career movement, either via hierarchical advancement or horizontal mobility”. The author group constituted precedent models and suggested the measurements of organizational career advancement to be constructed of career mobility and promotion prospects. Organizational career mobility is reviewed by Vardi (1980) and then proposed that it be viewed as “all actual intraorganizational job mobility experienced by members, and the perceptions, attitudes, and behaviors associated with these experiences”. From the approach of businesses’ administrators, promotion is mostly associated with the positive feedback and remuneration for staff members’ job performance that are beneficial to the company as a whole (Carmeli, 2007).

2.1.2 Factors affecting employee’s career advancement

In a new work structure, studies offers insight on the various elements behind advancement decisions and career success such as demographic characteristics (i.e. gender, race, age, marital status, tenure) (e.g. Greenhaus et al., 1990; Kirchmeyer, 1998), personality traits (e.g. Judge et al., 1999; Seibert et al., 1999), employment gaps - career interruptions due to family responsibilities, organizational restructure or other reasons (Judiesch and Lyness, 1999; Schneer and Reitman, 1990), social capital - networking (Seibert et al., 2001), and human capital (Wayne et al., 1999).

The study concluded by Giragama et al. (2017) pointed out a number of significant factors are Training, Organizational goals, Career Education, Empowerment, and Self-appraisal. Specifically, results exhibited variables that show notable differences between groups in terms of “Gender” are Training, Career Mapping and Individual Attitudes. Similarly, Rande S et al (2015) identified in a case study in Samarinda city (Indonesia) that factors with substantial relationship with career development are Career Counselling, Performance Appraisal and Career Mapping. In another preceding research, Marinka et al (2006) found Motivation, Position, Career support and Ambition to have compelling impacts on career development.

2.1.3 Women’s career advancement

The relationship between sex role stereotypes and characteristics perceived as necessary for management success was examined among 497 male and 328 female management students in the U.S., Great Britain and Germany by Schein and Muller (1992). The results revealed that males in all three countries perceive those successful middle managers possess characteristics, attitudes and temperaments more commonly ascribed to men in general than to women in general.

Historically, there has been a plethora of research undertaken to examine the difference of men and women in the workplace environment, especially in managing positions (e.g., Deaux & Emswiler, 1974; Marini, 1989; Tharenou and Conroy, 1994). According to Kirchmeyer (1998), career success is indicated by objective components (personal income and hierarchical level) and subjective components (perceived success), and their determinants are divided into 4 categories (Human capital, Individual, Interpersonal and Family). The results were hypothesized and proved that among human capital influencers, work experience and company tenure had a stronger effect on men's career success on women's, which means that with the same number of years in a professional field or company, females are less likely to be promoted.

2.1.4 Factors affecting women's career advancement

Human capital refers to personal investments one makes to enrich his or her value in the workplace, with education and work experience being common examples (Kirchmeyer, 1998). It is a profoundly strong and consistent predictor of managerial progression (e.g., Dreher & Ash, 1990; Gattiker & Larwood, 1988; Landau & Arthur, 1992). Tharenou and colleagues (Tharenou & Conroy, 1994; Tharenou et al, 1994) discovered in their Australian study that education and experience had larger impacts on men's progression than on women's, mirroring a tendency in the wider workforce where women receive lower returns (Marini, 1989).

H1: There is a positive relationship between human capital and women's career advancement.

Work-life balance repeatedly emerges in research on women's barriers against career advancement research. A drop in women's promotion priority, which is a predictor of actual promotions, signaled an imminent drop in their promotion rate compared to men's (Kirchmeyer, 2002). 'Commitment to family responsibility' is seen as one of the most significant hurdles to women's rise to top positions in the workplace. Senior and middle-level women professionals are more convinced than junior-level women professionals that family responsibilities obstruct women's professional advancement (Buddhapriya, 2009).

H2: There is a negative relationship between commitment to family responsibility and women's career advancement.

The importance of performance ratings in the promotion decision-making process cannot be overstated (Greenhaus et al., 1990, 1993). While job satisfaction and equal treatment of men and women may not always lead to improved performance and productivity, the opposite has a detrimental impact on the workplace (Tesfaye, 2011). The study by Carmeli (2007) on employees, managers in association with organizational data corroborated that job performance is the most significant predictor of career advancement.

H3: There is a positive relationship between job performance and women’s career advancement.

In the literature review work by Knorr (2005), the author collated enabling factors that facilitate women’s career advancement and learned that the majority of them are committed by enterprises’ efforts in supporting female employees. The theoretical model emphasized factors like Top management commitment, Organizational culture, Inclusivity of Networks, Access to Training and education and Organizational policies. Morrison, While and van Velsor (1987) conducted a survey on women executives and revealed top management support to be a major contributor to women’s career success.

H4: There is a positive relationship between organization’s commitment to gender equity and women’s career advancement

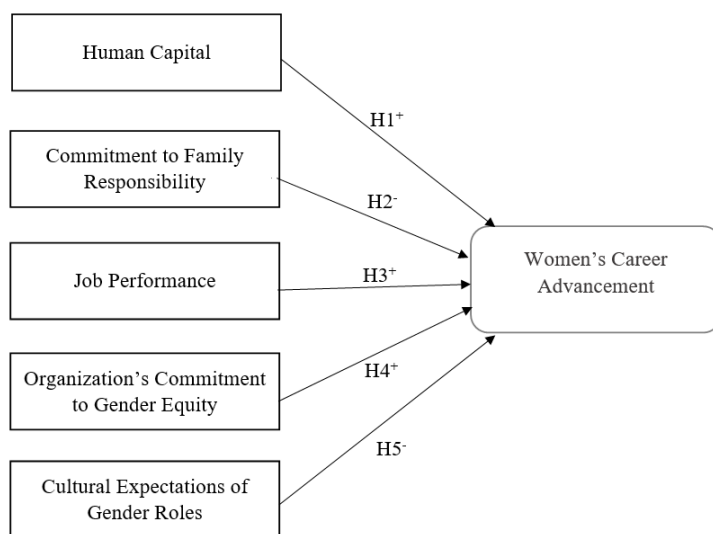
Masculinity is still the socially favored role for managers (Powell & Butterfield, 1989), and it has been linked to professional advancement and satisfaction in both sexes of managers (Motowidlo, 1982; Wong, Kettlewell, & Sproule, 1985). Women's family situations, however, continued to present obstacles to progression as they are mostly expected to be the major caretaker of home and children. The home environment presents several obstacles for them being forcibly engaged in the “second shift syndrome”.

H5: There is a negative relationship between cultural expectations of gender roles and women’s career advancement.

2.2 Theoretical framework

Based on the reviewing previous literature, the author compiled the hypothetical model:

Figure 1 Theoretical Framework of Factors Affecting Women’s Career Advancement



Source: Compiled by author, 2021

2.3 Research methods

2.3.1 Research methodology

The author has identified positivism as the research philosophy, and this study employs a deductive technique, an experimental strategy, and a cross-sectional temporal horizon. The research technique employed is quantitative, and because it is the sole approach used, it is also known as a mono-method.

The target population of this research is specifically looking for female labor in working age and employed by Hanoi private-owned enterprises, that was found to be over two hundred thousand (202,279) (Hanoi General Statistics Office, 2019). In our study the simple random sampling method have been applied. Thus, there also least chance to cause sample bias. According to the population research sample (Anderson, 1996) the required sample size for the population of roughly 200,000 should be between 381 to 384 with the confidence level at 5%.

The detailed measurements are described in Appendix 1. The sections are designed based on the Likert scale which ranges from 1 (Strongly Disagree) to 5 (Strongly Agree).

2.3.2 Data collection and analysis

In this research, questionnaire is distributed to the respondent who are in between the age of 15 to 55, biologically identified as females and are working for a Hanoi-located enterprise that is privately owned. From June 1st to June 20th, the online survey was run and shared on several public and private chatting channels and public platforms. There was a total of 396 people participated in the survey during this duration. However, 14 responses were eliminated due to results from the screening question, where participants claimed that they are either male or have never worked at an enterprise before. Thus, the usable sample size is 382. This sample size fits with the expected minimum number of observes collected. Data collected will be encoded and processed by IBM SPSS 20 software, then carried out step-by-step analysis: demographic profile analysis, descriptive statistics, testing reliability of Cronbach's alpha scale, correlation and multiple regression analysis to test research hypotheses.

3. Results and discussion

Table 1. Results of regression analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.804	.393		2.046	.042
HUCA	.020	.101	.013	.200	.841
COFR	.276	.081	.305	3.418	.001
JOPE	.262	.088	.221	2.977	.003
ORCO	.190	.065	.212	2.927	.004
CEGR	-.121	.079	-.131	-1.522	.004

Adjusted R-square	.530
Sig.	.000 ^b
F	10.632

Source: Compiled by author, 2021

Overall, the investigation results yield outcomes that are mainly consistent with previous literature. From the standardized coefficient results, the level of positive impact on women's career advancement was found positively strongest in commitments to family responsibilities ($\beta=0.305$), and respectively lower at job performance ($\beta=0.221$) and organization's commitment to gender equity ($\beta=0.212$). The negatively influential independent variable is cultural expectations of gender role also has significant impact on women's career advancement in Hanoi private-owned company ($\beta= -0.131$). Human capital was the factor that showed no considerable relationship with the dependent variable ($\beta=0.84$).

In terms of human capital, the study's findings revealed that age, education, and years of experience had no significant impact on young women's promotion chances. There are a variety of causes behind this ($p\text{-value} > 0.05$). This finding conflicts with the study in 2009 by Buddhapriya, whose measurement this variant is based on. The difference might stem from the vast discrepancy in time and space. In the study by Lin and Huang (2002), the authors also eliminate human capital variables with p -values too high.

In contrast, the result showed a positive relationship family commitment and career advancement for Hanoi women. Nevertheless, this outcome does not completely contradict with previous research. Buddhapriya (2009) who generated the measuring scale for this factor pointed out in her research that junior-level women professionals are less convinced than senior and middle-level women professionals that family responsibilities obstruct women's progress. Notably, the SPSS outcome of multiple linear regression also showed that its coefficient ranks the highest at 0.305, which means that this factor has the most significantly positive impact.

Regarding job performance, this study justified the hypothesis of a positive relationship between individual's excellency at work with their prospects for organizational advancement. The result is in congruence with prior researchers (Carmeli, 2007; Spence, 1973, 1974; Greenhaus et al, 1990, 1993). The findings of this study also shows that job performance is an essential indicator for promotion, not only for managers when considering subordinates' job mobility but also for employees to anticipate their own advancement prospects.

Another remarkable point is the organization's commitment to gender equity showed highly positive signs. Specifically, the means of each item presented range from 3.64 to 3.97, indicating that moderately high proportion of participants perceive their organization's commitments to support gender equity positively. Its coefficient ranked the lowest at merely exceeding 0.2, which is similar to results found in previous research (Njiru, 2013).

On the other hand, cultural expectations of gender roles showed an evident negative correlation with women’s career advancement. Similar result was found in the previous literature of a research conducted in Hue on women of the hospitality industry (Bui Thi Tam and Nguyen Hoang Thuy Vy, 2019). In the end, perceptions and consciousnesses originating from the culture and society in which people were born and raised have a significant influence on decision-making and human behavior.

Table 2 presents a summary of these tests’ results, from which we detect no correlation too strong (>0.8) between the variables. As for the internal consistency reliability test, the results also indicate high internal consistency reliability among all five factors tested. In addition, it can be seen from the above table 3 that for the Breusch-Pagan and Koenker test on this model, the p-value was all higher than the significant value ($\alpha = 0.05$). In conclusion, at 95% confidence, there does not exist heteroscedasticity error in the model.

Table 2. Correlations

	HUCA	COFR	JOPE	ORCO	CEGR
HUCA Pearson Correlation Sig. (2-tailed)	1				
COFR Pearson Correlation Sig. (2-tailed)	-.157* .027	1			
JOPE Pearson Correlation Sig. (2-tailed)	.115 .104	.207** .003	1		
ORCO Pearson Correlation Sig. (2-tailed)	.097 .171	-.084 .236	.436** .000	1	
CEGR Pearson Correlation Sig. (2-tailed)	-.041 .561	.661** .000	.055 .439	-.159* .024	1

Source: Compiled by author, 2021

Table 3. Heteroscedasticity error test

	LM	Sig
Breusch-Pagan	5.302	.380
Koenker	3.270	.281

Source: Compiled by author, 2021

4. Conclusions and Implications

3.3 Implications and Recommendations

To begin with, the findings of this study once again confirmed the determinants of the career advancement prospects for women in Hanoi private-owned enterprises. They provided deeper understanding of the factors including human capital, commitment to family

responsibility, job performance, organization's commitment to gender equity, and cultural expectations of gender role. Besides that, this study resulted in some theoretical contribution by enhancing the area of study in for future researchers who want to evaluate women's career advancement.

Secondly, commitment to family responsibility was found to have positive impact on the overall career advancement prospects of young woman from 18 to 30 years old. This conclusion may as well stem from the fact that their parents at this stage play a supporting role rather than being financially and emotionally dependent on children. As a result, family becomes more of a motivator for them rather than barrier. This idea is corroborated by Bergen's (2006) research that found out a positive relationship between family influences on the career development and aspirations of young adults.

Job performance is found to be an internal factor that also positively enhance women's promotion prospects. This is good news in term of opportunities for women because they can improve their career mobility and hierarchical ranking by performing better at work despite invisible barriers. This study also has practical implications at both the individual and organizational levels. It may be advantageous for an organization to explicitly explain the criteria (e.g., procedural justice) on which it would make promotion choices and evaluate an employee's career prospects.

Organization's commitment to gender equity have been made and recognized by female employees. Despite the positive correlation with women's career advancement prospect, its evidently low impact shows that many businesses have made clear efforts in gender equity activities but have not made many meaningful influences. This proves that those efforts are not entirely effective yet. There are many reasons leading to ineffectiveness, for example, targeting the wrong audience, not implementing according to the specifically required context, or only making initiatives without keeping track on the long run.

Last but not least, the study also generated the ramification that the patriarchy culture in Vietnam still remains persistent in the minds of young modern women. It puts more pressure on women to be the caretaker of family and home, forcing them into gender roles. Many women are denied from managerial roles because of prejudices against their dedication to work or just merely their health capacity (Tam and Vy, 2018). The overtone of this is to find better practices and projects to empower women, especially the younger generation. Women need to be assured and encouraged to take initiatives career-wise and that they have the suitable traits to apply for and perform well in top-level management positions.

3.5 Limitations and suggestions for further research

Within the scope of this research, limitations are inevitable due to the shortage of time, financial support and the author's lack of experience. Firstly, the author acknowledges the limitation within the sampling process of this study. By utilizing primary data gathered through

an online survey, a sample size of mainly 18 to 30 years old women may not be representative of the population – Hanoi women in private sector. The lack of geographic and demographic analysis within the sampling process may also limit the generalizability of the findings and lead to potential bias errors that were overseen. Thus, additional research using better approach and method in data collection and sampling can help to improve the accuracy of the survey and the representativeness of the study results. Another prominent limitation within the analysis that we acknowledge is the translation of questionnaire might lead to discrepancy between the statements that the author wants to convey and the statements that respondents actually perceived. Furthermore, the difference between professional fields also strikes as a promising area to extend the scope of the research to. Several participants have pointed out that due to this discrepancy, their companies are facing immense imbalance in the genders of personnel. To exemplify, enterprises who specialize in technology sees a vast gap between male and female staff, let alone the gap in management level. This can also be considered a factor in the career advancement of women.

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SOME POLICY SOLUTIONS FOR DEVELOPING THE MARKET FOR KEY PRODUCTS IN THE CENTRAL HIGHLANDS REGION

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Abstract

Exporting is an extremely important activity of each country, especially in the current period, when economies are trying to maximize their comparative advantages and participating in the international economy. In order to export effectively, on the one hand, each country must build its own key products based on its advantages, and on the other hand, it must have a policy to develop export markets in a flexible and focused way. The study focuses on systematically researched theoretical issues on key exports, export market development policies for key products of the Central Highlands in the new international context full of unpredictable fluctuations. At the same time, it evaluates the current situation of export market development policies for key products in the Central Highlands region in recent years, and proposes some solutions and recommendations to improve export market development policies for key products in the Central Highlands region and for the country as a whole.

Keyword: *Market, policies, key products, Central Highlands*

1/KEY EXPORT GOODS

With the policy of deep and wide integration into the world economy, Vietnam is gradually increasing its ranking in the international market. Exporting is an extremely important way to achieve that goal. In the past decade, Vietnam's exports have increased rapidly with double digits. In 2010, Vietnam's export turnover was 72.24 billion VND by 2020 to 280.50 billion USD. Of the total export turnover, key products account for over 80%. A key export is a key export commodity that is advantageous in the production and development of international trade and contributes significantly to the export turnover of a country or region.

Although countries have policies to diversify export products to reduce risks in foreign markets. every country is looking for, developing and exporting a few key products - which can be called the trump card of each country's international trade policy.

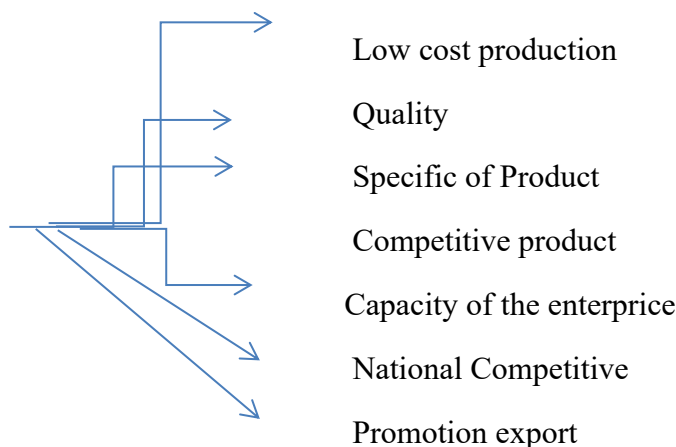
Normally, the so-called staples are those that are subject to large quantities of production, exploitation, processing, and exportability, and the staples are those that occupy a decisive position in the domestic market, export turnover due to the presence of foreign markets and favorable domestic production conditions.

The Conditions of key export products:

1.1. Having favorable conditions for the production and development of goods production, referring to the comparative advantage of the host country or the mentioned economic area. Having much more favorable conditions than other countries, or many other countries in the production and exploitation of products, such as favorable conditions for production, lower production costs compared to other countries or due to production practices (production, cost, technology or labor advantages).

1.2. Having a large proportion of the total export turnover of the country. Exported goods are usually goods of large quantity and make an important contribution to total export turnover. According to current statistics of the Ministry of Industry and Trade, it is worth 1 billion USD or more. Currently, we have about 20 key products that contribute significantly to the annual export turnover with an annual export value of 1 billion USD or more (Sufficient size to exploit the law of advantages of scale).

1.3. Having competitiveness in the market, a relatively stable and long-term consumption market. First of all, this item has great demand in the world market, has competitive production costs, and has a reasonable national support system to create competitiveness in the world market (Meeting market demand).



The main export commodity of a country or territory is not permanent, it can change and fluctuate depending on the parameters in the market. An item at one time can be considered a major export, but at another time it is not a major export. In other words, staples have timing. In fact, this is the clearest manifestation of the comparative advantage when participating in the

international economy, the key factor here is the comparative advantage compared to other countries producing and exporting in the same industry. According to preliminary data, a number of Vietnamese products have different high and low competitiveness coefficients. According to the latest data such as Furniture has an RCA coefficient of 6.0; rice RCA coefficient is 12.7; frozen fish fillets 9.0; Electronic equipment 3.6. In general, Vietnam's key products have relatively high RCA coefficients. Thanks to the policy of focusing on developing key export products in recent years, Vietnam's export turnover of goods has increased at a double-digit rate for many years.

2/ POLICY FOR DEVELOPMENT OF EXPORT MARKET FOR KEY PRODUCTS OF THE ECONOMIC AREA

Market development according to the popular approach includes market development in breadth and depth. Finding and developing export markets is an extremely important step that affects the next business activities of the enterprise, determines the success or failure of the enterprise.

The policy of developing export markets for key products by economic region is a set of policies implemented by governments at all levels in order to increase the number of export markets or expand their export market share in other markets. available for flagship products, involving a system of government activities at all levels.

The policy of developing export markets for key products by economic region includes many different policies.

In order to effectively develop and determine the impact of a policy, each policy can be considered on the following four issues: (i) the subject of the policy; (ii) the transmission mechanism of the policy; (iii) the target audience of the policy; and (iv) policy instruments.

2.1. Policy on developing export markets for key products of the economic region

Export market development is an increase in the number of export markets and/or development in depth that is an increase in market share, an increase in export turnover in existing markets.

The export market development policy for key products is divided into two groups, including export promotion policies, institutional policies and export promotion policies.

Export incentives can include direct subsidies to reduce the price of exported goods (export subsidies), tax incentives (tax exemptions on profits earned from exports), provision of credit

(preferential export credits, low interest rates), export credit guarantees, bill discounting, indirect export subsidies, exchange rate policies, etc.

Firstly, about the subject of the policy to encourage the export of key products, just like other policies constituting the policy of developing export markets for key products by economic region, the subject of the policy to encourage the export of key products by economic region, depending on the extent of its inclusion. The government can be central or provincial one.

Second, the transmission channel of the policy to encourage the export of key products by economic region

The transmission channel of the policy to encourage the export of key products takes place largely according to the direct relationship between the state and enterprises engaged in export activities of key products.

Third, tools to encourage the export of key products by economic region. The instrument mainly encourages the export of key products including financial and non-financial instruments. Financial instruments used in export credits, export credit guarantees, direct subsidies or exchange rate policies. Non-financial instruments mainly include indirect subsidies or measures to support export, customs, and administrative procedures to facilitate exports.

Fourth, the object of the policy to encourage the export of key products by economic region

The beneficiaries of the policy to encourage the export of key products by economic region are enterprises producing, processing and exporting key products. The relevant subjects here are the state agencies that manage export activities in general and export of key products in particular; non-governmental organizations involved in international trade activities such as the International Trade Organization; industry and trade associations related to key export products.

2.2. The Content of market development policy for key products.

2.2.1. Policy on creating sources and developing key products by economic region

The policy of sourcing and developing key products by economic region, first of all, affects the ability of key product producing units to access resources in terms of labor, capital, and science and technology.

The content of policy analysis for sourcing and developing key products by economic region is carried out according to: (i) the subject of the policy; (ii) the transmission mechanism of the policy; (iii) policy instruments; and (iv) the object of the policy

Firstly, about the subject of the policy of creating sources and developing key products by economic region. The subject of this policy includes two levels: (i) central level; and (ii) economic zone level. However, in the case of Vietnam, the second level will be replaced by the provincial level since there is no regional government in Vietnam. In this study at the central

level, the policy actors will be the Government and at the sectoral level, the Ministry of Industry and Trade and the Ministry of Agriculture and Rural Development; at the provincial level it is the Provincial People's Committee and at the sectoral level it is the Department of Industry and Trade and the Department of Agriculture and Rural Development.

Secondly, about the transmission mechanism of the policy of creating sources and developing key products by economic region

The transmission mechanism of the policy of sourcing and developing key products by economic region consists of two main mechanisms: (i) the transmission mechanism for input resources; and (ii) transmission mechanism for the output product.

For investment capital, the transmission mechanism of the policy of creating sources and developing key products by economic region to enterprises and production facilities will be implemented through the capital market.

For science and technology, the policy of sourcing and developing key products by economic region will transmit its influence through the process of research and development (R&D) and commercialization of research results, applying science and technology to the process of developing key products. Applying science and technology in the production process also includes the application of new technologies in management, including chain management.

Third, about the tools of the policy to create sources and develop key products by economic region

The tools of the policy on sourcing and developing key products include: (i) master plan and plan to source and develop key products; (ii) financial instruments to support source generation and key product development; and (iii) non-financial instruments.

2.2.2. Policy on developing export markets for key products of the economic region

Export market development is an increase in the number of export markets and/or development in depth that is an increase in market share, an increase in export turnover in existing markets.

The export market development policy for key products is divided into two groups, including export promotion policies, institutional policies and export promotion policies.

Export incentives may include direct subsidies to reduce the price of exported goods (export subsidies), tax incentives (tax exemptions on profits earned from exports), provision of credit (preferential export credit, low interest rate), guarantee of export credit, discount of bills of exchange, indirect export subsidies, exchange rate policy...

Firstly, about the subject of the policy to encourage the export of key products

Just like other policies constituting the policy of developing export markets for key products by economic region, the subject of the policy to encourage the export of key products

is by economic region, depending on the extent of inclusion. government of policy, which can be central or provincial one.

Second, the transmission channel of the policy to encourage the export of key products by economic region

The transmission channel of the policy to encourage the export of key products takes place largely according to the direct relationship between the state and enterprises engaged in export activities of key products.

Third, tools to encourage the export of key products by economic region. The instrument mainly encourages the export of key products including financial and non-financial instruments. Financial instruments used in export credits, export credit guarantees, direct subsidies or exchange rate policies. Non-financial instruments mainly include indirect subsidies or measures to support export, customs, and administrative procedures to facilitate exports.

Fourth, the object of the policy to encourage the export of key products by economic region

The beneficiaries of the policy to encourage the export of key products by economic region are enterprises producing, processing and exporting key products. The relevant subjects here are state agencies that manage export activities in general and export of key products in particular; non-governmental organizations involved in international trade activities such as the International Trade Organization; industry associations and trades related to key export products.

2.2.3. Institutional policies and export promotion to develop export markets

This is a part policy of the policy system to develop export markets for key products by economic region. This policy is a total of measures taken by governments at all levels to develop export markets, including:

- Negotiating and signing bilateral and multilateral trade agreements... on that basis, protecting the interests of exporters and facilitating exports.
- Joining and signing international treaties that facilitate the promotion of free trade.

Export promotion is activities designed to increase the exports of a country or a company. These activities include:

- (1) Participation in trade fairs, sending trade delegations abroad, advertising...
- (2) Establish a development strategy emphasizing export expansion through export-supportive policies to exploit the country's comparative advantage. Especially when other domestic policies create distortions detrimental to exports.

The contents of the analysis include: (i) the subject of the market expansion policy; (ii) the transmission mechanism of the policy; (iii) policy instruments; and (iv) the object of the policy.

The subject of the policy group is the central government, in particular the Ministry of Industry and Trade, in collaboration with relevant units, the Ministries in charge of the key product manufacturing industry and the General Department of Customs. At the provincial level, the subject of the policy, considering the scope of the province's management, is the People's Committee of the province, specifically the Department of Industry and Trade, in coordination with the governing departments of the manufacturing industry, the key products and the provincial Customs Department.

The central government conducts negotiations and signs bilateral and multilateral free trade agreements (FTAs) to expand market access for key product exporters by economic region. . For provinces with borders with neighboring countries, the provincial government based on decentralization of powers can carry out negotiation activities with localities of the same level in your country to expand opportunities for contact, market access for businesses operating in the province.

For trade promotion measures, the subjects of these policies include agencies at the central level and provincial governments with the function of managing the export sector, usually through trade promotion agencies and centers, Industry Associations, overseas representative agencies.

For policies that have a direct relationship with product industry associations, businesses and overseas representative agencies, the policy subject will, through industry associations, create favorable conditions for businesses to have more opportunities to access the market by providing information and supporting Industry Associations to participate in the policy implementation process. The subject of the policy to support enterprises to find out information about potential markets for the export of key products through foreign representative agencies with representative offices.

3/ SITUATION OF EXPORTING MAJOR PRODUCTS OF THE HIGH HIGHLIGHTS.

In 2017, despite facing many difficulties and challenges, with the efforts of localities in management and administration, and effective support from the Central Government, the socio-economic situation in the region The Central Highlands continued to maintain stability and development. Specifically, the total value of GRDP products in the whole region is estimated at 165,472 billion VND, up 8.09%; in which, the field of agriculture, forestry and fishery increased by 5%, the construction industry increased by nearly 11%, services increased by nearly 10%, the structure of GRDP changed in a positive direction (reducing the proportion of agriculture, forestry, fisheries, increasing industry, construction, and service sectors). GDP per

capita reached nearly VND 41.6 million, up 5.02% compared to 2016. Budget revenue of the whole region increased and reached 109.13% of the plan; Total social investment capital increased by 15.8% compared to 2016. Also in 2017, the whole Central Highlands region established 3,265 new enterprises, bringing the total number of active enterprises to 23,328 enterprises, an increase of 14.9 enterprises. % compared to 2016; attracted 325 investment projects with a total registered capital of more than 103 trillion VND.

Export turnover of the Central Highlands region

năm	2015	2016	2017	2018
Tỉnh				
Đắk Nông	59.784	84.936	90.314	136.751
Đắk Lắk	943.764	1.013.273	1.259.426	1.247.657
Gia lai	285.895	310.293	412.950	433.943
Kon tum	83.134	148.636	260.294	320.574
Lâm Đồng	273.200	301.782	400.511	478.202
Tổng số	1.645.777	1.858.920	2.433.495	2.617.127

Source: Statistics of the General Department of Customs

The industry of the Central Highlands provinces continued to develop, many key products increased quite well, in 2018 export turnover reached over USD 2,617,127 million, an increase of 7.5% compared to 2017, budget revenue exceeded the plan. As set out, the total investment in social development increased by 15.8% over the same period last year. Reform administrative procedures, remove difficulties and obstacles, support the market, and create conditions for enterprises to initially promote efficiency. Currently, the Central Highlands provinces have nearly 23,330 enterprises in operation, an increase of 14.9% compared to 2016. The Central Highlands provinces also attracted 235 domestic investment projects with a total registered capital of 103,357 billion dong. , 9 foreign direct investment projects, with a total capital of 109.9 million USD.

In the main products of the Central Highlands, we see that coffee, cashew, rubber and pepper account for a high proportion of the country's export turnover. Vegetables, fruits and timber products account for a small proportion of the country's exports, but these two items will have great potential in the future and can play an important role in the country's exports in the coming years. Particularly, coffee exports of the Central Highlands accounted for an average of 39.6% in 4 years, of Vietnam's coffee industry, and in some years accounted for 57.4%. Particularly, the wood and wood products industry has not fully exploited the strengths of the Central Highlands. In general, the main export products of the Central Highlands are also the main export products of Vietnam. Developing production and exporting products of the Central Highlands will play an extremely important role not only for the Central Highlands but also for the development of Vietnam's exports in general.

Figure 3.1. The variation according to the average optimal point of the export of key products in the Central Highlands in the period 2008 - 2018

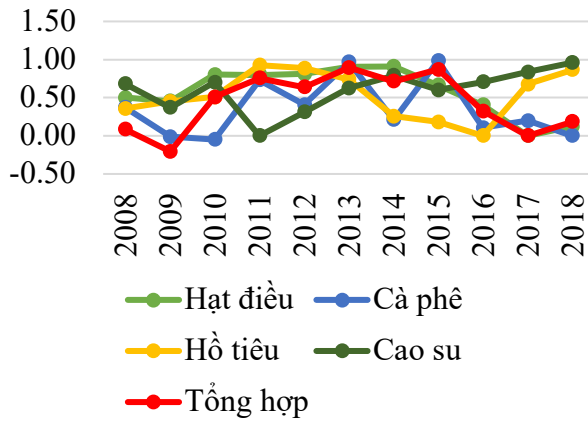
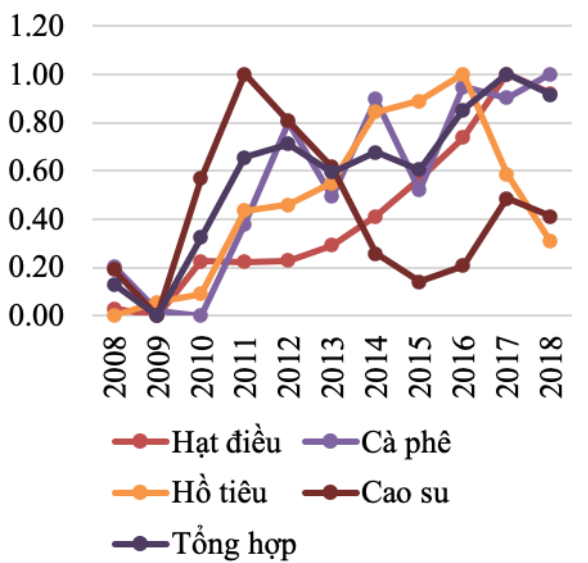


Figure 3.2. Changes in the sustainability index of the export market of key products of the Central Highlands



Source: Calculations of the research team based on data of the General Statistics Office for the period 2008 – 2018

4/ SOME SOLUTIONS

4.1. New scene

4.1.1. New international context

Firstly, the world situation continues to have complicated and unpredictable developments, with many difficulties and challenges at both national as well as regional and global levels: global trade economy declines, competition trade and public debt of countries. In particular, at the end of 2019 and the beginning of 2020, the outbreak of the Covid-19 pandemic disrupted the supply chain, halted production, and disrupted the flow of international trade.

Even so, the outlook will be brighter once the world has a vaccine and operations can be re-established in late 2021, early 2022. The world has gradually adapted to the new normal. With the development of science and technology, long-term commercial costs still tend to decrease. The reduction of trade costs will have a positive impact on the activities of private enterprises, especially small and medium enterprises in developing countries.

Second, the complicated situation of geopolitics, economic geostrategy along with trade protectionism continues to increase. The rise of trade protectionism in the context that the world economic growth is starting to slow down can lead to trade wars that cause damage to many economies. Tax evasion, money laundering, and trade fraud are becoming more sophisticated, complicated and difficult to control, affecting the international business environment. Trade retaliation is used to solve problems, politics...

Third, the world economic situation in the coming period has many rapid and unpredictable changes, globalization and trade liberalization will continue to be the dominant trend but there will be adjustments according to the axis centers and different fields. Emerging economies will increasingly play a higher role in the world economy, while Asia-Pacific is still forecasted to be the most dynamic development region with ASEAN as the center of the world, of the regional and international integration. Although the Asia-Pacific region is an important driver of the global economy, the region still has many potential risks with destabilizing factors due to geostrategic competition among major countries, resource disputes, etc., affecting the global economy and trade

Fourth, market liberalization and opening together with increasingly sophisticated trade protectionism through technical barriers will directly affect import and export, especially trade in agricultural products. There are no small challenges for developing countries in exporting agricultural products

Fifth, non-traditional security such as climate change, natural disasters, epidemics, tends to continue to increase, affecting all aspects of social life, especially the production, processing and export of agricultural products.

Sixth, the achievements of the 4.0 revolution have promoted the strong formation and application of e-commerce transaction methods, speeding up the digital transformation of countries, leading to the development of many forms of commerce, new trade, changing the supply chain of goods and services in the world.

4.1.2. Domestic context

Firstly, after more than 30 years of renovation, our country's position and power has grown much stronger. These are favorable premise for socio-economic development in general, including integration and export of Vietnamese goods in the coming time. However, Vietnam's economy is still modest in size, low in competitiveness, and high in openness, so it is vulnerable to economic shocks, and its ability to respond is still limited.

Second, international organizations have positive comments about Vietnam's economic prospects to 2030. According to a research report by Standard Chartered Bank, Vietnam is in the group of 7 economies (along with other countries) in Asia (India, Bangladesh, Myanmar, Philippines) will achieve an economic growth rate of 7% by 2030. At this rate, the economic size will double in the next 10 years. This is an important basis for promoting integration and boosting Vietnam's exports.

Third, Vietnam's extensive international integration creates opportunities to expand markets for exports, including the key products of the Central Highlands, but also creates many challenges, requiring businesses to not stop improving competitiveness by applying science - technology in all stages of the production and business process in order to reduce costs, lower product prices, etc. The FTAs take effect as well as the The FTA is being negotiated and is about to be signed in the near future, especially the implementation of the EVFTA and CPTPP, creating many opportunities for export growth to markets with large market capacity for key agricultural products of Vietnam. South Vietnam, including the key products of the Central Highlands, as well as opening up market opportunities for new key products of the Central Highlands, but at the same time, it also poses many challenges for Vietnam's key export products in general and the main products of the Central Highlands in particular because Vietnam's export products are still limited in terms of quality, designs, brands, functions, low processing quality, acceptable world price, ...

Fourth, the development of the 4.0 revolution along with the efforts of the Government and businesses in implementing digital transformation along with policies to encourage the application of technology in production and business to improve productivity. , quality, lower product costs, speed up the process of deep participation in the global value chain as well as shorten the time and reduce the cost of commercial transactions thanks to the application of e-commerce tools that create many opportunities to expand the market for key products of the Central Highlands.

Fifth, policies to develop an overseas representative system, build a trade promotion ecosystem to promote trade connections, develop export markets, create positive changes and continue to create many opportunities in bringing key products of the Central Highlands to the world market.

Sixth, the covid 19 pandemic continued to raging and complicated developments in many countries, including Vietnam's major import markets such as the US and EU, causing the value chain to break. It is difficult to export to these markets. However, the control of the pandemic by Vietnam also creates good signals and creates confidence for importers in the world. This creates difficulties, challenges, but also many opportunities for the main product of the Central Highlands

4.2. Point of view

From the first point of view, the policy of developing export markets for key products in the Central Highlands must be designed and implemented based on the principle of synchronous, systematic and taking into account regional linkages.

The second point of view, the policy of developing export markets for key products in the Central Highlands must take full advantage of the bilateral and multilateral trade agreements that Vietnam has signed.

The third point of view, the policy of developing export markets for key products in the Central Highlands must be developed and implemented based on the value chain principle to ensure the sustainability of the market.

The fourth point of view, the development of export markets for key products in the Central Highlands must ensure the connection between source generation and the development of high-quality products, that is, the policy must be towards in-depth development.

The fifth point of view, the market development policy for the main products of the Central Highlands must focus on measures to support producers and exporters on the basis of conformity with international commitments and create favorable conditions for approach to policy beneficiaries.

4.3. Solution

4.3.1. Proposal to the Party

In order to be able to develop a policy system for developing export markets for Vietnam's key products, the Party Central Committee should have a thematic resolution on the policy of developing export markets for key products of Vietnam as a basis for building a system of market development policies. Thematic resolutions need to be comprehensive and form the basic institutional framework as a basis for formulating programs and plans to develop

export markets for key products in a synchronous, systematic and consistent manner, from perception to action.

The necessity of promulgating such a thematic resolution is of practical significance and plays a particularly important role in building a system of policies to develop export markets for key products in the Central Highlands. The actual requirement of developing the export market of Vietnam's key products is time to have a specialized resolution on this issue. Currently, not only the Central Highlands provinces have programs and plans to develop the production of key products, but most provinces and cities across the country have programs and plans to develop key products. In order for that development process not to be spontaneous or affect the general resource allocation process for provinces in particular but also for the whole country in general, it is necessary to have a thematic resolution to be able to unify the method of identifying key products and formulating policies, organizing the implementation of policies on developing export markets for key products in a fundamental and systematic manner.

4.3.2. Proposal to the Government

Firstly, the Government must provide a set of criteria to identify key products at the following levels: (i) country; (ii) economic zones; and (iii) the local government as a framework for policy formulation and planning and implementation. Currently, Vietnam does not have a definition of what is a key product or criteria for determining key products at different levels, so it becomes difficult to identify these products in practice, and lack of synchronization, system. When building a list of key products of economic sectors, there is no consensus among ministries on the general framework of criteria and the specific set of criteria. That is what makes the identification of local key products lacking in synchronicity and sometimes experience.

The list of national key products has great significance for investment orientation and market development. Therefore, the building of a list of national key products must have clear and uniform criteria across the country at various levels. Moreover, based on that criteria framework, the Government can manage the development planning of key products at the national level and minimize the local spontaneity that leads to the waste of resources. Currently, the Ministry of Agriculture and Rural Development has released a list of key products in the agricultural industry, but that list of key products is only at the national level and many other key products of local is not in that list. That also raises the problem of planning local key products because there are local key products in the list of the Ministry of Agriculture and Rural Development but there are also local products that are not included in the list and the staples are not in that category. When the locality plans to develop its key products, how will this problem be solved ? Such conflict may affect the overall national master plan on the development of key products.

Secondly, the Government must review the entire system of policies related to the development of export markets for key products of Vietnam in general and of economic regions in particular to ensure the uniformity, system and consistency across policies. This review is even more important when Vietnam has to fulfill most of its commitments to expand the domestic production market for many types of key products of Vietnam to the world. During the review process, barriers causing difficulties in the production and export of key products of the country and economic region must be resolutely removed or reduced to facilitate the production process, and expand export markets for these products. The list of key products of Vietnam will be the basis for ministries to conduct a review of barriers that cause difficulties to remove. This not only creates favorable conditions for domestic production development and export market development, but also creates opportunities to attract investment resources from abroad into key products of Vietnam.

It expands the opportunity to attract more resources for domestic and international production; moreover, it expands the opportunity to participate in value chains at the regional and global level for Vietnam's flagship products.

Third, the Government needs to build a decentralized and decentralized institutional framework for coordination and cooperation between provincial governments so that for key product export market development is only related to provinces in the Central Highlands but not related to the whole economy. Currently, Vietnam does not have a regional government system, although our country is divided into different economic regions, which leads to the fact that between provinces have similar conditions in developing products. The same key products cannot work together to build a more reasonable production development plan and make better use of society's resources. Therefore, there are problems that are only related to the internal provinces of certain economic regions, beyond the competence of the provincial government to solve but not to the extent, wish is necessary for the intervention of the Government. That leads to the phenomenon of work involving provinces in the same economic zone being clogged somewhere between the provincial and central levels and can hinder the overall development of the provinces in the economic zone of this economy. In the absence of a regional institution, the formation of a coordination mechanism among provinces within an economic region will ensure that problems related to economic zones can be resolved.

Fourth, the Government needs to carry out activities to build a national monitoring and evaluation system on export market development for key products of the Vietnamese economy to create an assessment database policy in terms of: (i) production; (ii) export; (iii) target market; and (iv) market expansion ability of key products.

Monitoring the country's production capacity of key products to provide early indications of problems related to the allocation of input resources between economic sectors in general and between key product sectors in particular. Monitoring the resource allocation

process will provide a lot of information for policy making and guide the allocation of resources to become more efficient. Moreover, this will be a useful tool to effectively implement Resolution No. 30/NQ-CP of March 12, 2020 on Promulgating the Government's Action Plan to implement Resolution No. 39- NQ/TW dated January 15, 2019 of the Politburo on improving the efficiency of management, exploitation, use and effective promotion of the economy's resources.

Tracking the export activities of a national key product allows the Government to assess the situation of exports over time in order to identify what is normal and what is unusual. When the export trade flows of staple commodities are normal, the tracking system will give normal indicator; and when an abnormality occurs, the monitoring system will immediately notify the center about that phenomenon. Such signals will lead to policy adjustments or finding the cause of anomalies.

Regarding target market identification, we do not currently have any documents or documents talking about the target markets of national key products. That makes the process of policy making to develop export markets for national key products more short-term than medium and long-term. When the target markets of key products are identified, the implementation of new market development policies has specific orientations and effective resources for implementation.

On the basis of the monitoring and evaluation system from production capacity, export value, and target market of national key products, the new Government has more information to determine the market expansion ability in key product target markets. In addition, additional information is available to determine expansion into other markets. Market expansion should be based on actual production capacity of key products rather than market expansion based on signed agreements between two or more countries.

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THE IMPACT OF CORPORATE SOCIAL RESPONSIBILITY ON PROFITABILITY OF F&B INDUSTRY - EVIDENCE FROM VIETNAM

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Abstract

The purpose of this study is to examine impacts of overall Corporate social responsibility (CSR) and each of its dimensions on the profitability of listed F&B enterprises in Vietnam over the period 2016-2021. The study uses a data set of 75 firm-year observations, covering 15 listed F&B firms on the stock exchanges for 5-year period. Return on Assets (ROA) is employed as a measurement of profitability, whereas Corporate social responsibility is calculated by applying the content analysis of the information related to the GRI Standards on annual reports to construct CSR score. Control variables are also added when examining the effect, including financial leverage, firm size, and firm age. Applying the Hausman test, Breusch and Pagan test, Wooldridge test, and Panel-corrected standard errors (PCSE), the regression results indicate that overall CSR and social dimension have a significant positive effect on ROA, while the impacts of economic and environmental CSR dimension are insignificant. Solutions have been proposed to F&B firms in Vietnam and the Government to efficiently implement CSR as a strategy to improve the company's financial performance.

Keywords: *Corporate social responsibility, CSR dimensions, profitability, firm performance, content analysis.*

1. Introduction

Sustainability is gaining popularity and has become a term among businesses in the recent century. When enhancing performance and maintaining a sustainable business, organizations adopt many strategies and techniques to achieve business success to stay competitive in the global market. One of these is participating in Corporate social responsibility - corporate commitment to improve the well-being of their employees, communities, and society at large, while expanding its bottom line.

As a result of the economic disparity between company owners and society, as well as the harmful effects they have caused, such as pollution, society now requires companies to take

on more responsibilities. As Stakeholder Theory emphasizes the interconnected relationships between a firm and its stakeholders including suppliers, consumers, employees, investors, and communities. The theory argues that a company should create value for all stakeholders, not just its shareholders. CSR is presently widely practiced method of management in the world and has now been introduced to Vietnam. Due to increased pressure from multinational firms operating in Vietnam, domestic businesses, particularly in the food and beverage sector, are starting to obey CSR laws, regulations, and behavioral and ethical standards.

However, the majority of businesses are simply concerned about profitability. Their contribution to society is confined to supplying products and services. Until now, it is observed that enterprises in Vietnam have not engaged in CSR to a sufficient degree. Social Responsibility Initiatives Vietnam conducted a survey on CSR and revealed that 90% among respondents misinterpreted the CSR concept and its associated aspects.

As the F&B supply chain is an important part of the nation's economy and unethical activities could negatively affect customers, the significance of CSR in this industry is very far-reaching (Costanigro, et al., 2016). Globally, several failures in the food and beverage business have emerged during the last decade. As many factors influence modern consumers' food purchase decisions, such as product freshness, food production, environmental issues, and animal welfare, food scandals not only change consumer consumption habits but also diminish brand confidence.

Although the food business and food retailers are increasingly publishing CSR reports, which is supported by customers' high expectations about CSR, the food and beverage sector has not gained substantial attention and has not yet been thoroughly investigated.

There have been several empirical studies on the impact of CSR disclosure and performance on corporate performance, but the findings have been ambiguous (Al-Malkawi & Javaid, 2018). About half of the researches show a positive effect of CSR, 25% suggested no significant association, 5% indicate a negative relationship, and the other studies document inconsistent results, according to analyses conducted by Margolis and Walsh (2001). In recent year, there are not much significant improvement of this circumstances. Some studies present evidence of a positive relationship between CSR and financial success. Alternatively, several studies have established a negative correlation between the two.

The majority of earlier research on CSR disclosures has focused on firms in developed nations. There are a limited number of CSR studies conducted in developing countries context. Particularly, the number of research on CSR and its association with corporate performance and profitability in Vietnam is relatively small. Furthermore, these studies empirical findings may vary from findings of other emerging nations. The reason is that there can be variations between Vietnam's CSR activities and those of other emerging countries. Because of differences in CSR concepts, culture-related problems, legal regulations, such disparities may develop. CSR tends

to have higher positive effect in developed nations (Wang, et al., 2016), which means that the CSR-Corporate financial performance relationship is at least tempered by certain institutional characteristics.

2. Corporate social responsibility and its dimensions

Corporate Social Responsibility has been a popular study topic in the theory of business administration, as shown by the growing number of publications and specialized journals. There are several efforts to define CSR in the literature. The study first examines a selection of approaches to provide a basic understanding of CSR. Subsequently, the study develop three dimensions of CSR which represent business practices adopted by enterprises to actively support sustainable economic, social and environmental development, and thereby contribute broadly and positively to society.

The term Corporate social responsibility was first conceptualized as a social obligation in 1953 by Howard Bowen, an American economist, in his book entitled *Social Responsibility of the businessman*. As Carroll (1999) argues that “Bowen should be called the Father of Corporate Social Responsibility”. Until now, there have been several efforts to establish a deeper knowledge of CSR and a more robust definition.

During the 1970s and 1980s, researchers emphasized outlining the most desirable and optimal methods for the implementation of CSR practices. This time period was marked by an increase in philanthropy and community engagement efforts, although few scholars discuss other aspects relating to stakeholder rights. From the 1990s to the present, there is also a rise in the separation of several sets of stakeholders which can be noticed from the definition by Hopkins (1998) that “CSR entails treating a company's stakeholders in an ethical or socially responsible manner. There are internal and external stakeholders. Therefore, socially responsible behavior will enhance the development of stakeholders both within and beyond the organization”. Corporate social responsibility is the corporation's total connection with its stakeholders. Customers, employees, communities, owners, investors, the government, suppliers, and competitors are examples of these stakeholders. Elements of social responsibility include investments in community engagement, employee relations, employment creation and maintenance, environmental stewardship, and financial performance (Khoury, et al., 1999). Elkington (1997) presents a reputable concept of the Triple bottom line (People, Planet, Profit) which focuses on environmental protection, profit generation, and social development activities. According to his expectations, corporate entities should have good financial resources to manage all finance, serve the local population, and protect the environment from industrial production processes. Once again, the extension of CSR concepts beyond philanthropy was represented by Marsden (2001), which states “CSR is neither an optional add-on nor an act of charity” and stresses that “A socially responsible corporation is one that operates a profitable business while considering all the positive and negative environmental,

social, and economic impacts it has on society". A more recent study, (Kot, 2014) defines CSR as an enterprise's continuing commitment to contribute to its economic growth while improving the quality of life of its workforce, community, society, and environment. CSR is a growing organizational concept with significant meanings for operators, academics, and society at large.

Besides attempts to define CSR by individual scholars, governmental institutions also provide broad and thorough concepts of CSR in this period. World Business Council for Sustainable Development (1999) defines CSR as the commitment of businesses to contribute to sustainable economic development, working with employees, their families, the local community, and society at large to improve their quality of life. Followed by Commission of the European Communities (2001), which adds concerns about the environment to the dimensions, states that CSR is a concept in which businesses voluntarily incorporate social and environmental issues into their business operations and communications with its stakeholders. This view is further agreed when CSR consists of ethical and transparent corporate practices focused on respect for workers, society, and the ecology (IBLF, 2003).

The most frequent set of CSR dimensions, as determined by a content analysis of CSR definitions acquired from prior research, consists of Economic, Social, and Environmental, which is in line with (Elkington, 1997) that three main pillars of CSR are Profit (Economic responsibility), People (Social responsibility) and Planet (Environmental responsibility). In order to address the broad CSR concept and analyze each of its aspects this study contains the presented dimensions in the research model, which will be described in the subsequent sections.

Economic Dimension

In an effort to support economic growth and prosperity, the economic dimension of CSR is the means by which businesses attempt to foresee possible issues (such as customer satisfaction, product quality and safety, and supply chain management) that may arise in their interactions with customers, suppliers, and stakeholders. The manner in which a company operates its business on the market is seen as a sign of the extent to which it has incorporated economic responsibility considerations into its core business operations and decision-making processes. The purpose of such integration is regarded as going beyond the maximization of short-term profits to emphasize long-term economic performance and the successful exploitation of market possibilities, as well as to contribute to the overall development of living standards (Russell, et al., 2007). Firms must have a long-term view in their management and decision-making in order to guarantee "cashflow adequate to assure liquidity while generating an above-average return to their shareholders" (Dyllick & Hockerts, 2002).

Environmental Dimension

Since the 1970s, the environmental dimension of CSR has been seen as one of the most critical issues that businesses must address as part of their corporate social responsibility. As the majority of industrial operations cause environmental issues and the depletion of natural

resources, corporations are expected to compensate their environmental harm (Azzone, et al., 1997). Due to the fact that all biological systems have finite resources and capacities, the operations of corporations must not threaten the sustainability of the ecological system (Matten, 2006). Thus, the environmental dimension refers to the natural environment.

From the perspective of the sustainability principle, the environmental factor relates to the resource-effective care system, which are thus protected for the future. According to many authors, a corporation's report about environment is a method for enhancing and managing companies' practices and communicating with various stakeholders, especially who with interest on the environment.

The majority of present research focuses on the social component of CSR (Bonsón & Bednárová, 2015; Kim & Lee, 2015; Arsic et al.; 2017). The current perception of corporations is that they are an intrinsic part of a broader community, thus firms not only focus on their business practices but also on strategic CSR, such as focusing on the sustainability of their business.

The social CSR dimension is accountable for workers, clients and the community, and it is the responsibility of company for contributing to benefits of society and advance the business's and public's interests (Uddin, et al., 2008). The social aspect of CSR initiatives encompasses the issues of public health, human rights, and equal opportunity, employee training, community concerns and discussion, societal justice, working conditions and safety (Jamali, et al., 2006).

Profitability

To be successful in a competitive market should be one of the primary objectives of every organization. In order to accomplish this goal, it is essential for the organization to establish, fully implement and maintain to performance-improving strategies. In general, profitability can be defined as the earnings of firm that are generated by deducting all expenses incurred from the revenue during a given time period. It is one of the most main factors that indicates the effectiveness of management, the satisfaction of shareholders, the attraction for investors, and the continued sustainability of the organization (Bekmezci, 2015).

Financial performance of corporation and firm's profitability can be assessed by several indicators, however, the most often employed instruments in studies on CSR may be grouped into two broad categories: (i) accounting-based indicator; and (ii) market-based indicator.

(i) Accounting-based indicators, or financial indicators, are constructed utilizing numeric data taken from a firm's financial statement for the purpose of gathering important information of the firm. Data about profitability is among the top prevalent used. Return on Asset (ROA) and Return on Equity (ROE) are the most commonly used profitability ratios.

ROA is a comprehensive financial indicator used to evaluate profitability by overall performance. ROA is calculated by dividing net income by total assets and tells us how much income the management is able to generate from the assets. Therefore, ROA could be used to measure the efficiency with which management converts assets into income (Goddard, et al., 2004). A higher ROA indicates that the business's management is efficient in generating profits via asset utilization. Many authorities consider ROA to be the most excellent indicator of profitability. According to (Rivard & Thomas, 1997), ROA is the greatest indicator of profitability. ROA is also a proxy used to assess a company's capacity to generate revenue from its assets. Moreover, Golin (2001) demonstrates that ROA is the most essential indicator of profitability.

ROE is calculated by dividing net income by average total equity. It evaluates bank accounting profits per dollar of book equity. It demonstrates the efficiency with which bank management uses shareholder capital to create profits. A high ROE is preferred because it implies that the management efficiently manages shareholder funds and generates revenues.

In short, ROA measures profitability from the aspect of the overall efficiency with which a bank utilizes its total assets, while ROE measures profitability from the perspective of the shareholders.

(ii) For market-based indicators, Tobin's Q ratios are widely recognized and effective tools to calculate financial performance. James Tobin of Yale University, who won the Nobel Prize in economics, invented this ratio. Tobin's Q ratio is calculated by dividing “the market value of a company by the replacement value of its assets”; it indicates financial forecasts of a company's potential growth and possible profitability. If $0 < TBQ < 1$, it implies that the reproduction cost of the firm's assets exceeds the price of equity. When TBQ is more than 1, this indicates that stock's value exceeds the cost to replace assets of the firm. Hoskisson, et al., (1993) gives the rationale for using TBQ ratio, which is that the between accounting and market-based performance is complex and indirect. However, Dybvig & Warachka (2011) contend that TBQ may be varied based on financial performance of corporation, which is attributable to level of decision and cost management. Thus, a smaller TBQ is associated with greater success in finance, while high Tobin's Q does not reflect superior financial performance.

Empirical studies employed indicators to discover the link between CSR and Profitability:

Table 1. Studies using accounting-based and market-based indicators

Measurements	Studies
Accounting-based indicators (ROA, ROE)	Aupperle et al, 1985; McGuire et al, 1988; Pava and Krausz, 1996; Griffin and Mahon, 1997; Preston and O'Bannon, 1997; Waddock and Graves, 1997; Stanwick and Stanwick, 1998; McWilliams and

	Siegel, 2000; Simpson and Kohers, 2002; Van de Velde et al., 2005; Mahoney et al., 2008; Abdul Rahman et al., 2009; Peters and Mullen, 2009; Salam, 2009; Moneva and Ortas, 2010; Crisóstomo et al., 2011; Soana, 2011b; Ehsan and Kaleem, 2012.
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Market-based indicators (TBQ)	Fombrun and Shanley, 1990; Brown and Perry, 1994; Dowell et al., 2000; King and Lenox, 2001; Cheung et al., 2010; Garcia-Castro et al., 2010; Saleh et al., 2011; Inoue and Lee, 2011; Schreck, 2011.
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Source: Authors' summary

3. Impact of Corporate Social Responsibility on Profitability

3.1. Impact of overall CSR on Profitability

For over several decades, the study of the impact of CSR performance and corporate financial performance as well as profitability has yielded contradictory results. Some authors argue that CSR and profitability are positively associated; CSR does boost a company's profits. Numerous research study on the relationship between CSR and business's financial performance or profitability. It is stated that there are a number of reasons why CSR activities are appreciated by the market, including cost savings, and reputation enhancement.

A study conducted by Ekatah et al. (2011) employ content analysis methods to explore whether CSR is linked to profitability. CSR and several key performances of Royal Dutch Shell Plc over a five-year period 2001-2005 were collected from its annual account and sustainability report. The findings shows that CSR is positively related to better financial performance or profitability and this relationship is statistically significant.

Ajide & Aderemi (2014) use multiple regression analysis of OLS to examine the effects of CSR disclosure on profitability of banks in Nigeria for year 2012. Twelve sampled commercial banks' annual reports and accounts are collected to extract data about profitability (ROE), CSR disclosure scores, size, and owner's equity. The empirical results indicate a positive effect of CSR on Profitability with a parameter of 0.0059, which means that a unit increase in CSR will result in the increase of profitability by 0.59%. Therefore, it is suggested that banks should increase their level of CSR disclosure as it demonstrates a greater commitment to impact and improve people's lives, which can in turn increase banks' patronage and profitability.

Lee & Jung (2016) examine the effects of CSR on the financial performance of Korean firms in the manufacturing industry. CSR is measured as a composite variable that includes four kinds of responsibility for the environment, employees, customers and suppliers. The results of this study show that CSR is positively associated with ROA and this positive relationship depends on the levels of product differentiation and outside investment. Same this year, Dewi & Monalisa (2016) investigate a sample of 26 Indonesian listed mining enterprises over the

period 2010-2012 by using simple regression analysis, T-test, F-test. The study aims to examine the influence of CSR disclosure to the financial performance proxies such as Return on Assets (ROA), Return on Equity (ROE), and company value proxy on Price to Book value (PBV). The results reveal that CSR disclosure has a significant positive effect on ROA, but has no effect on ROE and PBV.

Maqbool (2017) attempts to examine the relationship between CSR and financial performance in the context of 10 commercial banks in India over the period 2011-2015. ROA is employed as a financial indicator while CSR data is collected by applying content analysis of annual reports. OLS is used in panel data to generate results that shows a positive relationship between CSR and financial performance and this relationship is statistically significant. The regression coefficient of 0.08 reveals that 1% change in CSR can make a profit increase by 8%. This outcome will encourage corporations to increase their commitment to communities for boosting firm's economic development.

Further empirical evidence is presented by Banjo & Olufemi (2019), which investigates the impact of CSR on profitability with reference to the Nigerian financial services industry. A sample size of 140 data is collected from a validated questionnaire sent to managers of Nigeria's financial services industry. The level of association between CSR and profitability is estimated using Pearson correlation analysis, which reveals that CSR has a significant positive impact on Profitability.

Wu et al. (2020) conducts a quantitative analysis of CSR, financial performance, and financial distress of Chinese-listed companies in the manufacturing industry from 2013 to 2018. The study aims at exploring the impact of CSR and financial distress on corporate financial performance with ROA as dependent variable, CSR as independent variable, and control variables such as Asset-liability ratio, Operating revenue growth rate, current ratio, cash ratio... The results indicates that CSR has a significant positive impact on CFP, and this relationship is more pronounced for enterprises that are more stable.

A study in the Vietnamese context, conducted by Thuy et al. (2021) investigates the relationship between CSR disclosure and financial performance for a sample of Vietnamese listed firms over the period 2014-2018. Content analysis is employed to construct CSR disclosure score through the information on annual reports which are related to GRI standard. The study applies OLS and GMM estimation methods, Sobel test, and used many mediator variables to improve the robustness and explores that CSR disclosure do effect the financial performance of sampled companies positively, implying that the higher level of CSR disclosure, the more financially efficient the company is.

Based on the analysis of previous studies about impacts of CSR on profitability, which reveal a positive significant effect, the author proposes hypothesis as follows:

⇒ *Hypothesis 1: Corporate social responsibility has positive and significant impact on Profitability*

Alternatively, several studies have shown the negative impact of CSR on corporate financial performance. Using data from The Ethical Investment Research Service (EIRIS), an organization specializing in the evaluation of CSR practices, Brammer et al. (2006) demonstrates that, among the sample of UK-listed firms, the greater the socially responsible practices, the lower the return. Surroca and Tribó (2008) validate the conclusion presented by Brammer et al. (2006) by examining the association between CSR adoption and financial performance using 358 sampled businesses from twenty-two countries from the year 2002 to 2005. Furthermore, cross-country researches reveal that the negative association is more significant in nations with less efficient financial markets and more sophisticated internal company controlling systems. This can be attributed to the reason that managers might take advantage of this inefficiency and spend more resources than is required in CSR practices.

Ikharehon (2014) studies the impact of CSR on firm's profitability among selected quoted Nigerian companies for the period 2003-2012. Two models were analyzed with ROA and ROE as indicators of profitability while CSR is employed as an independent variable which is measured by total index of CSR disclosure about employee relations, community involvement, environmental issues and product characteristics. The findings shows that there is a significant and negative relationship between CSR and profitability of selected quoted firms in Nigeria, which is consistent with previous studies. Those arguing for a negative impact of CSR on profitability believe that competitive disadvantage is incurred when performing responsibility.

Amidu et al. (2017) evaluates the impact of CSR disclosure on both short-term and long-term financial performance of firms in 6 African countries over the period 2005-2015. CSR is measured by content analysis while financial performance is measured by employing accounting-based indicators (ROA for short-term and ROE for long term). By using multiple linear regression analysis, the empirical results show that CSR affected ROA negatively while its impact on ROE is insignificant. The authors propose that the negative impact is an extra cost burden to the firms, thus, CSR does not generate benefits in terms of economics in the short run.

Evidence from China, Chen et al. (2018) examine how disclosure of CSR impacts firm performance and social externalities by regressing ROA and ROE. The study finds that CSR disclosure results in a decrease in firm profitability, which supports the view that CSR generates positive externalities at the expense of shareholders. Qiu et al. (2020) investigate if corporations should expand their engagement in CSR activities under the period of COVID-19 pandemic. While the authors agree that CSR may boost the financial performance in the long term, they contend that CSR may include expenditures to promote social benefits even if they do not improve business well-being. Moreover, the slack resources theory states that CSR usually

entails enormous expenses which have a negative impact on financial well-being, particularly during tough times, such as the pandemic.

In Vietnam, Nguyen (2018) investigates the relationship between CSR disclosure and financial performance of banks in Vietnam for the period 2011-2016. Content analysis approach is employed to measure CSR-related data as well as using OLS estimator to analyse data. The results of this study indicate that CSR disclosure affects commercial banks' financial performance (ROA) negatively. This result is consistent with Canh et al. (2022) who also examine how CSR affects the financial performance of listed companies in Vietnam for period 2012-2017. This study analyzes CSR on three dimensions, including economic responsibility, environmental responsibility and social responsibility in the context of developing countries. Research findings suggests that overall CSR affects ROA adversely.

Based on the analysis of previous study about impacts of CSR on profitability, which revealed a negative significant effect, the authors propose hypothesis as follows:

⇒ *Hypothesis 2: Corporate social responsibility has negative and significant impact on Profitability*

It has been argued numerable variables can affect the impact of CSR on profitability, thus the overall effect is insignificant. Several number of findings which support the insignificant relation between CSR and profitability. Employing 125 listed businesses on the New Zealand stock market, Lyon (2007) investigates what impact CSR disclosure has on financial performance in the year 2005. The sample consists of information from forty-four manufacturing enterprises and seventy-six services companies. Using content analysis, CSR data from 2004 annual reports is collected by using content analysis. The financial performance is evaluated by ROA and ROE in annual reports. The findings for the service sector indicate that there is no correlation between CSR and ROA or ROE, however CSR disclosure had an effect on ROE for businesses in the manufacturing industry.

Mulyadi (2012) examines 30 selected listed Indonesia corporation in 2007-2009 by using double linear regression model. Data used in this study are information of CSR activities extracted from annual report by using GRI standard and dummy variable. Regarding profitability testing, the study employes three indicators ROA, ROE, NPM. From four model used in this study, the results show that there is no significant relationship between CSR and profitability.

Same result is presented in Kiran et al. (2015) research, which investigates the effect of CSR activities on profitability of firms in Pakistan. The sample data covers ten listed Oil & Gas companies from 2006 to 2013. The data is taken from these firms' annual reports. The correlation and regression analyses are carried out in Microsoft Excel. The findings indicate that the influence of CSR initiatives on the firm's profitability is insignificant. CSR is the

obligation of businesses to contribute to society by sharing their profits, since without them they could not survive.

Dlamini (2016) conducts a study to explore the relationship between CSR and company profitability in Zimbabwe context by using Vector Auto Regression model and Stata as the statistical tool. The results indicate that there is no causal relationship between CSR and profitability and CSR has no significant impact on profitability since it has a p-value greater than 0.05. Furthermore, the study conclude that future research should continue to investigate the motivation for CSR involvement and the financial effect of such initiatives in the telecommunications industry and other industries.

Saragih et al. (2019) aime at analyzing the influence of corporate social responsibility on the profitability and effective tax rates of listed banking companies using statistical tests of panel data regression. This research combines secondary data together with documentation and content analysis approaches. The sample comprises of ten banks listed on the Indonesia Stock Exchange between 2013 and 2017. Independent variable is the CSR Index, which will be calculated according to the GRI-G4 standard. The dependent variables include profitability (ROA) and effective tax rate (ETR). The findings of the research indicate that CSR disclosure had no significant effect on either profitability or tax rate.

Based on the analysis of previous study about impacts of CSR on profitability, which revealed an insignificant effect, the authors propose hypothesis as follows:

⇒ *Hypothesis 3: Corporate social responsibility has insignificant impact on Profitability*

3.2. Impact of Economic dimension on Profitability

In previous section, the study provide an overview of the empirical literature about the impact of overall CSR on profitability. The results are varied which can be attributed to the variation in the sample size, context, indicators or analysis methods. The importance is, the mixed effect also occurs by the difference in each dimension of CSR. In this section, the study aims to provide empirical evidence about impact of Economic dimension of CSR on profitability.

Ajide & Aderemi (2014) employ the scoring system of Branco & Rodrigues (2006) which divide CSR into themes to study on CSR among a sample of Nigerian banks. The economic responsibility indices include product quality and consumer relation. The research reveals that CSR positively affected the profitability of sampled companies.

Economic dimension is also used in the study of Thuy et al. (2021) which measures CSR by an index reflecting the level of CSR information disclosure. This study uses the content analysis method and the GRI Standards (2016) which include economic responsibility such as the direct and indirect economic impact on the locality and the government. The results support

the conclusion that CSR has a positive impact on the financial performance of enterprises (ROA).

⇒ *Hypothesis 4: Economic dimension has positive and significant impact on Profitability*

This result, however, contradicts the result of Dkhili & Ansi (2012) which evaluates the impact of CSR disclosure on financial performance for 30 enterprises listed on the Tunisian stock market. This research includes two financial performance indicators, namely ROE and ROA and control variables are risk, size, and industry. Five aspects are used to evaluate CSR disclosure: economic, legal, ethical, discretionary, and environmental. Research's findings show that only the economic aspect of CSR is shown to have a negative influence on ROA.

⇒ *Hypothesis 5: Economic dimension has negative and significant impact on Profitability*

On the other hand, Mulyadi (2012) uses GRI standard to measure CSR when examining the correlation between CSR and profitability of Indonesian listed companies for the period 2007-2009. The economic performance is employed as a CSR indicator according to GRI standard. The results show no significant relationship between CSR and profitability.

Muraleetharan et al. (2020) study the effect of CSR on Profitability by using correlation and regression analysis. The data is collected from 20 bank finance and insurance companies' annual reports in Sri Lanka for the period of 2012-2016. Profitability is dependent variable, which is measured by two ratios ROA and ROE while CSR is divided into 3 independent variables representing 3 dimensions of CSR namely economic, environmental and social. The correlation results show that Economic dimension positively affects both ROA and ROE, but this relationship was not significant. This result is consistent with Canh et al. (2022) which indicates that the economic aspect has no significant influence on company performance.

⇒ *Hypothesis 6: Economic dimension has insignificant impact on Profitability*

3.3. Impact of Environmental dimension on Profitability

The Environmental dimension of CSR has been shown to have mixed effects on profitability of firms. While some study prove a significant positive effect, others agree on a negative association, the rest supports the view that there is no significant impact of environmental responsibility of firm on profitability.

Ekatah et al. (2011) employ environmental variables when examining the influence of CSR on the profitability of Royal Dutch Shell Plc over the period 2001-2005. Environmental issues, including total Green House Gas emissions, spills, and total waste disposal, are quantified to answer the research question. The results show that when the company engages more in environmental responsibility by reducing GHG emissions, spills, and waste disposal, it results in an increase in revenue, net income, and earnings per share.

Also, Ajide & Aderemi (2014) indicate a positive relationship between CSR and profitability of Nigerian banks for the year 2012 by using the environmental theme. This theme includes 7 indices, namely: environmental policies; environmental management system and audit; environmental awards; lending and investment policies; conversion of natural resources and recycling; disclosure concerning energy and efficiency; and sustainability. Same this year, Khojastehpour, & Johns (2014) investigate the effect of environmental CSR (climate responsibility and natural resource utilization) on brand reputation and corporate profitability. The study highlight that environmental CSR has a positive impact on corporate profitability.

A study conducted by Maqbool (2017) measures CSR through four dimensions including the human resource management, environment, community, and others. Among these, the environmental dimension includes 8 items, namely, whether the company is certificated under ISO 14000 series or not; going for land reclamation and deforestation; Purchasing dust absorbing machine and installing effluent treatment plant; Going for rain harvesting programmers; Recycling of pollutants and wastes; Engaging in manufacturing eco-friendly products and process; Efficiency in paper using. This research also indicates that CSR positively influences profitability and implies the need for taking environmental responsibility for the purpose of enhancing company's financial performance.

Bello, Yusuf et al. (2019) examine the impact of CSR on profitability of Nigeria Bottling Company Plc Kaduna. Primary data is collected via questionnaires and analyzed by employing multiple regression techniques. The results indicate that environmental-related CSR has a significant positive influence on the profitability of companies. Furthermore, when examining the impact of CSR on Profitability of bank finance and insurance companies in Sri Lanka over the period 2012-2016, Muraleetharan et al. (2020) show that Environmental dimension has a significant positive impact on ROE.

Thuy et al. (2021) use content analysis method to examine the relationship between CSR disclosure and profitability (ROA) of Vietnamese listed firms for period 2014-2018. The environmental dimension is one of three CSR dimensions according to GRI standards. By collecting information relating to the environmental responsibility of the firm together with economic and social responsibility, the study shows that CSR disclosure has a positive effect on ROA.

⇒ *Hypothesis 7: Environmental dimension has positive and significant impact on Profitability*

On the other hand, several studies prove a negative relationship between CSR and profitability by using environmental responsibility as one of CSR dimensions. Brammer et al. (2006) use environment variables comprising three measures which are the quality of environmental policies, environmental management systems and environmental reporting. The study observes that environmental indicator is negatively correlated with returns. The study

explains that the expenditure on some aspects of CSR negatively affects the bottom line. Thus, the share prices of firms that engage excessively in CSR activities are punished by the financial market over the longer term.

Pan et al. (2014) present that in a highly polluting sector like Chinese mineral, environmental responsibility had a negative effect on a company's profit. The authors explain that this is because a substantial amount of resources was spent to reducing harmful effects on the environment, resulting in a decrease in profit.

Similarly, Nguyen (2018) classifies the information revealed in annual reports into four categories which are community involvement, environment, goods and purchasers, and employees. Environmental responsibility is based on the issue of Decisions for promoting green credit growth, effective energy use, natural resources and environment protection. The environmental dimension is divided into subcategories such as environmental standard consideration for extending loans, promoting environmental awareness, tree plantation, sustainability, energy, environmental policies... With the involvement in environmental responsibility of banks, it is indicated that CSR negatively affect bank's financial performance. This is consistent with Canh et al. (2022) concluded that overall CSR disclosure affects financial performance negatively, but each dimensions give a thorough view: environmental-related CSR has a significant negative impact on ROA.

⇒ *Hypothesis 8: Environmental dimension has negative and significant impact on Profitability*

The insignificant impact of Environmental dimension is revealed in the study of Dkhili & Ansi (2012) which study on listed companies on the Tunisian stock market. Five aspects are used to evaluate CSR disclosure: economic, legal, ethical, discretionary, and environmental. Only economic aspect has a negative impact on ROA, while environmental aspect is shown to have no significant impact on profitability. In this regard, several authors have claimed that the relationship between social responsibility and financial performance is so complicated and indirect that a stable relationship between the two variables cannot be assumed.

⇒ *Hypothesis 9: Environmental dimension has insignificant impact on Profitability*

3.4. Impact of Social dimension on profitability

The social dimension of CSR has been employed in various studies to examine the effect that CSR has on profitability. Most authors argue that social responsibility does boost the financial performance of companies, while others find an inverse effect as social-related responsibility initiatives may result in enormous expenses, which reduce profitability.

Ekatah et al. (2011) employs social variables, including the total number of fatalities, the percentage of women in professional positions, and total amount of social investment, to

explore whether these social key performance indicators have an impact on a firm's profitability. The result shows that these indicators positively affected profitability variables. This finding is consistent with the study of Ajide & Aderemi (2014) who examine the effect that CSR has on profitability of banks in Nigeria for the year 2012. Information relating to human resources is divided into several indices such as employee numbers, training and education, health and safety, and employee assistance benefit, while community involvement information is classified into charitable activities and donation, supports for education, art and culture, public health...

Sabri & Sweis (2016) aim to identify the relationship between the CSR of banks in Palestine and profitability measured by ROA, for the period 2013-2014. The simple regression model is utilized to fulfill this purpose. The study shows that donation which represents social dimension of CSR has a significant positive effect on ROA and equity. The implication is that banks should not only focus on economic and legal aspects but also on social ones.

Maqbool (2017) supports the positive results by showing a significant positive relationship between CSR and profitability of 10 commercial banks in India over the period 2011-2015. The social dimension is classified into community involvement and human resource. The former includes contributions toward educational institutions, and healthcare organizations, aid to natural disasters, and construction of social places and facilities..., while the latter includes responsibility for employees such as providing better working conditions, retirement and benefit plans, safety measures, training and development programs... This finding is consistent with Bello et al. (2019) which study the effect of CSR on profitability of Nigeria Bottling Company Plc and find out that both social and environmental CSR affect the profitability in a positive way, and this result is statistically significant.

Researching on 191 sample corporations listed on the Korean Exchange, Cho et al. (2019) examine whether a statistical link existed between CSR performance and CFP. The 2015 KEJI index is collected to assess CSR performance, whilst profitability and firm value are utilized for analyzing CFP. Profitability is measured by ROA proxy, while Tobin's Q is utilized as a measurement for company worth. The regression analysis indicated social contribution's effect is positively significant, whereas Environmental dimension's effect is positive but insignificant.

In Vietnam, social dimension is also employed by Thuy et al. (2021) as one of three CSR dimensions in GRI standards (2016). This research's result added up to the literature by showing a positive relationship between CSR dimensions and financial performance of listed companies in Vietnam. Canh et al. (2022) conclude that overall CSR disclosure affects financial performance negatively, but each dimension gives a thorough view: environmental-related CSR has a significant negative effect, while social-related CSR has a positive but weak influence on ROA.

⇒ *Hypothesis 10: Social dimension has positive and significant impact on Profitability*

Alternatively, Brammer et al. (2006) use employee responsibility and community responsiveness as the social dimension of CSR to examine the effect of CSR for a sample of UK-listed firms. Employee responsibility is based on size measures relating to health and safety systems, training and development, equal opportunities policies, and creation and security. Meanwhile, community responsiveness is measured as a single variable. The regression result shows that the higher score of community measures leads to poor investment returns.

⇒ *Hypothesis 11: Social dimension has negative and significant impact on Profitability*

Kiran et al. (2015) examine the impact of CSR activities on the profitability of firms in Pakistan. The study uses social dimension as main measurement of CSR, which includes sum of donations and salaries, wages and benefits contributed by the firm. The result indicates an insignificant impact of CSR on profitability.

Interestingly, Muraleetharan et al. (2020) study effect of CSR on Profitability by using correlation and regression analysis. The data is collected from 20 bank finance and insurance companies' annual reports in Sri Lanka for the period of 2012-2016. Profitability is dependent variable, which is measured by two ratios ROA and ROE while CSR is divided into 3 independent variables representing 3 dimensions of CSR namely economic, environmental and social. The correlation results show that social dimension has a significant positive impact on ROE but insignificant impact on ROA.

⇒ *Hypothesis 12: Social dimension has insignificant impact on Profitability*

Table 2. Summary of previous studies

Source	Independent Variables	Effect on profitability
Ekatah et al. (2011)	Overall CSR	+
	Social dimension	+
	Environmental dimension	+
Ajide & Aderemi (2014)	Overall CSR	+
	Economic dimension	+
	Environmental dimension	+
	Social dimension	+
Lee & Jung (2016)	Overall CSR	+
Dewi & Monalisa (2016)		
	Overall CSR	+
Maqbool (2017)	Overall CSR	+
	Environmental dimension	+

	Social dimension	+
Hassan & Ogunkoya (2019)	Overall CSR	+
Liu Wu et al., (2020)	Overall CSR	+
Thuy et al. (2021)	Overall CSR	+
	Economic dimension	+
	Environmental dimension	+
	Social dimension	+

Source: Authors' summary

4. Research methodology and model

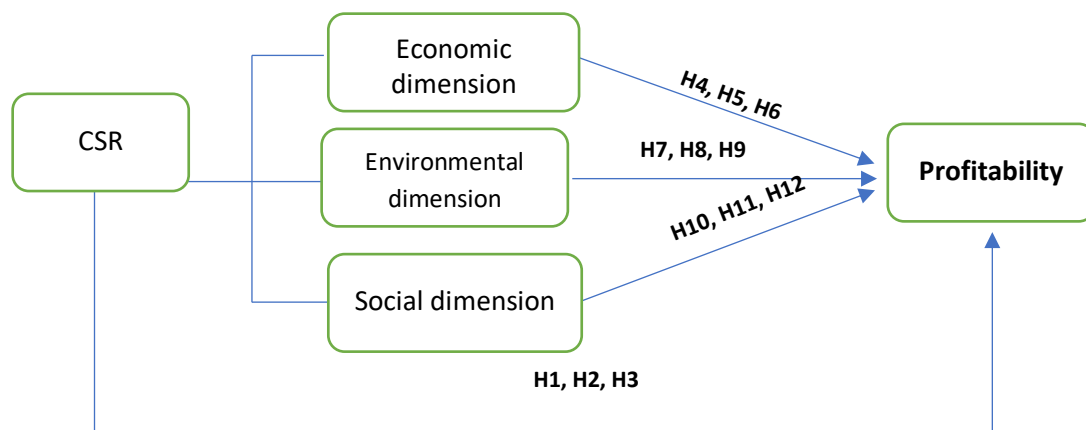
The study employs content analysis to collect the data about CSR and then, the quantitative method is used for measuring the variables and estimating the relationship between predictor variables and dependent variable.

To test the hypothesis, several quantitative techniques have been used. The study uses an analysis of panel data together with the Ordinary Least Squares (OLS) method. To choose the most appropriate method to examine the impacts, the study compares Pooled OLS, Fixed Effects Method, and Random Effects Method by utilizing the Hausman test and Breusch & Pagan Lagrangian multiplier test. VIF test, Breusch and Pagan, and Wooldridge test are employed to detect deficiencies of the model which will be corrected by the panel-corrected standard error (PCSE) method.

4.1. Research Model

Twelve hypotheses including 3 main ones and 9 sub ones for the dimensions have been proposed in previous sections as a result of studying previous literature. As hypothesis is important for efficient designation of the model and research approach, all hypotheses in this study are summarized as bellows:

Figure 1. Research framework



Source: Authors' summary

4.2. Data collection

The population of this research is all listed F&B companies in Vietnam on three stock exchanges, namely HOSE, HNX and UPCOM. F&B companies are selected due to their significant impacts on both economic, social, and environmental aspects of one country. In order to select the data sample, a number of filtering techniques were also used. The most important task is ensuring the availability of annual reports for the whole designated time period. This is because the assessment of CSR is mostly dependent on the qualitative and quantitative information firms give about their CSR initiatives in their annual reports. Therefore, only companies with accessible annual reports are chosen. Second, the companies that stay operational for the whole period and remain listed from 2017 to 2021. Third, companies that do not merge within the selected time frame. After using these filtering techniques, the sample is comprised of 15 F&B companies from 2017 to 2021, yielding total observations from 75 firm years.

Secondary data for CSR, profitability and control variables, then, are collected through annual reports and sustainability reports of 15 sample firms for five-year period 2017-2021 to create a panel data of 75 firm-years. Details about the selection and calculation of each variable in research model will be provided in next sections.

4.3. Variable selection

Dependent variable

The dependent variable in this study is an accounting-based indicator - Return on Assets. ROA is a fundamental profitability indicator used to analyze a company's ability to earn a profit relative to its assets. According to Aupperle et al. (1985), this profitability measure (ROA) has been extensively utilized and seems to provide more effective outcomes than other indicators. Multiple research employ ROA as a profitability instrument in order to determine the association between ROA and CSR (Lyon (2007); Ikharehon (2014); Lee & Jung (2016); Dewi & Monalisa (2016); Maqbool (2017); Ngoc, (2018); Amidu et al. (2017); Liu Wu et al. (2020)).

Therefore, this study employs ROA as a profitability measurement. This ratio compares the firm's profit (net income) to the total assets it has invested in and is a significant measurement for managers and shareholders to evaluate performance across times or among enterprises in the same sector. The greater the ROA is, the more effectively a company manages and utilizes its invested capital and economic resources.

$$ROA = \frac{\text{Net income}}{\text{Total assets}}$$

Independent variables

The aim of this study is to examine the influence of CSR on firm's profitability. As discussed in the theoretical framework, the study employs three dimensions of CSR which are

the Economic, Environmental and Social dimensions, which is in line with several studies and Elkington (1997) that there are three main pillars of CSR are Profit, Planet and People. Therefore, in addition to an overall index showing the overall CSR practices as an independent variable, other predictor variables also include economics-related CSR (ECO), environment-related CSR (ENV) and society-related CSR (SOC).

There are several approaches to measure CSR:

- Social ratings/Reputational Indices: The first and most extensively used method to measure CSR is using the social ratings based on a variety of reputational indices generated by different social agencies. The social agencies analyze the CSR performance of businesses and assign them ratings based on their numerous social, environmental, and CSR-related activities.
- Content analysis: The disclosure approach is the second most used methodology to measuring CSR. In this method, content analysis is used to quantify CSR by transforming the textual information about a company's social activities reported in multiple sources, such as financial annual reports and CSR reports, into a quantitative scale to make conclusions about the social performance of companies.
- Questionnaire Survey: The third method utilizes a forced-choice questionnaire survey, in which researchers gather information on the firm's CSR activities using questionnaires or interviews with corporate workers, executives, or informed respondents.

In this study, the author employs the content analysis method for many reasons. In Vietnam, there is no social rating agency that evaluates the CSR activities of businesses, hence the social rating technique cannot be used in this context. In addition, the questionnaire method is not used in this study as response bias is a possible disadvantage of this method. On the other hand, content analysis in conjunction with the scoring method contributes to quantifying the CSR disclosure of companies and is compatible with the existing data source.

The Global Reporting Initiative (GRI) standard is also used as a checklist combined with the content analysis method. Global Reporting Initiative (GRI) is a worldwide organization that assists firms, states, and other organizations in comprehending and communicating the effect of their operations on important sustainability concerns. GRI offers a standard methodology for reporting CSR indicators. GRI aims to standardize and make comparable CSR reporting to financial reporting. GRI defines CSR as a report that includes social, economic, and environmental factors.

The three aspects of CSR disclosure include the economic, environmental, and social consequences of a company's activities based on the GRI standards. According to GRI guidelines, the study is based on a set of indicators categorized into three groups of aspects:

- Economic responsibility (7 standards with 17 criteria) including the direct and indirect economic impacts of the business on the locality and government.

- Environmental responsibility (8 standards with 32 criteria) includes corporate impacts on the environment such as material used, water and energy consumption, emission, waste...

- Social responsibility (18 standards with 40 criteria) includes business support activities to other stakeholders such as employees, citizens and government, customers and suppliers.

To quantify the data assessed, a scoring methodology using an unweighted approach is used. If a company discloses the information in accordance with a standard, it earns 1 point for that standard; otherwise, it receives 0 points. The CSR dimension j for company i in year t is determined as follows:

$$CSR_{ij} = \frac{\sum_{k=1}^n SCORE_{jk}}{n}$$

CSR_{ij} is the sum of all scores company i earns for dimension j divided by the total number of criteria for aspect j ($0 \leq CSR_{ij} \leq 1$). $n = 17, 32, 40$, which corresponds to the number of criteria for each aspect j .

In particular:

$$0 \leq CSR_i = \frac{\sum_{k=1}^{89} SCORE_k}{89} \leq 1$$

$$0 \leq ECO_i = \frac{\sum_{k=1}^{17} SCORE_k}{17} \leq 1$$

$$0 \leq ENV_i = \frac{\sum_{k=1}^{32} SCORE_k}{32} \leq 1$$

$$0 \leq SOC_i = \frac{\sum_{k=1}^{40} SCORE_k}{40} \leq 1$$

Where:

CSR_i : Overall Corporate social responsibility index of firm i

ECO_i : Economic-related CSR index of firm i

ENV_i : Environmental-related CSR index of firm i

SOC_i : Social-related CSR index of firm i

Control variables

In order to examine the effects of CSR on profitability, other variables that affect financial performance and corporate value should be controlled. In this research, attempts were

taken to control and verify firm size, firm age, and financial leverage ratio since listed control variables are shown to have impacts on a firm's profitability.

Firm size (SIZE)

Company size seems to be closely related to the social performance and financial performance of that company. Company size is an important factor that determines profitability and corporate value. It has been shown (Alarussi & Alhader, 2018) that a company's performance and profitability may be improved by expanding into new markets. This gives support to the resource-based theory, which argues that a larger firm has greater access to more financial resources, which in turn results in a lower cost of capital and more profits. Stierwald (2010), and Malik (2011) have come to similar conclusions. Furthermore, many research which investigate the impact of CSR on profitability also used firm size as a control variable and found a significant (Mulyadi, Martin., 2012; Dkhili & Ansi, 2012; Ajide & Aderemi, 2014; Lee & Jung, 2016; Maqbool, S., 2017; Ngoc, B. N., 2018; Chen, Y.-C., Hung, M., & Wang, Y., 2018; Thuy, C. T. M. et al., 2021). In this research, the author has used total assets as a surrogate variable for company size which has been used by many preceding studies, the firm size is calculated by the natural logarithm of total assets as follows:

$$SIZE = \ln(\text{total assets})$$

Firm age (AGE)

Firm age is also a factor that can affect firm's profitability, thus should be added as a control variable in this study. According to Ilaboya and Ohiokha (2016), the age of a company is "the number of years after the firm's incorporation." However, others suggest that listing should be used to determine company age since it is more economical and because a business's existence begins at the time of listing. Therefore, the control variable Age is calculated as natural logarithm of firms' number of years that they have been listed on stock exchanges:

$$AGE = \ln(\text{number of listed years})$$

Financial Leverage (LEV)

The debt/equity ratio (LEV) is an indicator for determining a company's financial leverage. A high debt/equity ratio often implies that a corporation has been aggressive in using debt to fund its growth. As a consequence of the higher interest expenditure, profitability may be decreased. Firms with low levels of debt, on the other hand, may readily obtain capital, and firms could utilize their funds to facilitate CSR initiatives and disclosure. The debt/equity ratio is a measure of a company's financial strength that is determined by dividing total liabilities by total shareholders' equity:

$$LEV = \frac{\text{Total liabilities}}{\text{Total shareholder's equity}}$$

Table 3. Summary and Calculation of variables

Definition	Abbreviation	Formula
Return on Assets	ROA	$ROA = \frac{Net\ income}{Total\ assets}$
Corporate social responsibility	CSE	$CSR_i = \frac{\sum_{k=1}^n SCORE_k}{n}$
Economic dimension	ECO	$ECO_i = \frac{\sum_{k=1}^{17} SCORE_k}{17}$
Environmental dimension	ENV	$ENV_i = \frac{\sum_{k=1}^{32} SCORE_k}{32}$
Social dimension	SOC	$SOC = \frac{\sum_{k=1}^{40} SCORE_k}{40}$
Financial leverage	LEV	$LEV = \frac{Total\ liabilities}{Total\ shareholder's\ equity}$
Firm size	SIZE	$SIZE = \ln(total\ assets)$
Firm age	AGE	$AGE = \ln(number\ of\ listed\ years)$

Source: Authors' summary

4.4. Model specification

This study begins with a descriptive statistical analysis, examining significant features such as the mean, standard deviation, and minimum and maximum values for each variable. Pooled OLS regression analysis is utilized to evaluate the hypothesis. Two regression models is used to assess the influence of overall CSR and component dimensions on ROA.

Model (1):

$$ROA = \alpha + \beta_1 CSR + \beta_2 LEV + \beta_3 SIZE + \beta_4 AGE + \varepsilon_i \quad (1)$$

Model (2)

$$ROA = \alpha + \beta_1 ECO + \beta_2 ENV + \beta_3 SOC + \beta_4 LEV + \beta_5 SIZE + \beta_6 AGE + \varepsilon_i \quad (2)$$

Where:

- α : intercept term
- β : the coefficient for variables
- ROA : Return on Asset
- CSR : Corporate Social Responsibility
- ECO : Economic-related CSR
- ENV : Environmental-related CSR
- SOC : Social-related CSR

LEV : Financial leverage
 SIZE : Firm size
 AGE : Firm age
 ε : error term

5. Empirical test results and analysis

5.1. Descriptive statistics

In this section, the study provides an overview of companies in the sample by taking a look at the descriptive statistic. By providing brief summaries of the sample and data measures, descriptive statistics help understand the characteristics of selected companies. The most commonly used descriptive statistics are the mean, standard deviation, minimum and maximum values of the variables. By evaluating the figures, key insights are identified, therefore enhancing the relevance of the regression results.

Table 4: Descriptive statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	75	.102048	.0798538	-.0912	.3215
CSR	75	.7123849	.0829683	.5431836	.8930985
ECO	75	.7363972	.1071588	.5349363	.9529638
ENV	75	.6916189	.1143573	.4312943	.9581739
SOC	75	.7187925	.1217667	.4810709	.9800394
LEV	75	.9012306	.7657737	.2350355	4.121707
SIZE	75	14.80364	1.824134	12.02185	18.65253
AGE	75	2.1487	.6739081	0	2.772589

Source: Authors' calculation from STATA

As shown in Table 4, ROA has a mean value of around 0.102 or 10.2%, which is a higher number as compared to the average ROA of F&B industry (4,94% according to finance.tvsi.com.vn). The maximum value of ROA, which belongs to VNM in 2017, equals 32.15%, this high figure indicates a high level of profitability, showing that the company is in its efficient in generating profit relative to assets. However, there is a big gap between the company with the highest profitability and the company with the lower one, which is suggested by the gap between the maximum and minimum value of ROA. While the maximum is over 30%, the minimum value, belonging to SCD in 2021, is a negative figure, -9.12%, indicating that the F&B firm is unable to get earnings from invested capital.

As $0 < \text{CSR index} < 1$, an average of 0.71 in CSR variables shows that there is quite good awareness of CSR activities and disclosures among F&B firms with a standard deviation is only 0.08. Notably, the maximum value of CSR is 0.89, indicating that this firm is paying much attention to its social responsibility besides the economical business itself. This implication is reasonable as firms in developing countries, especially in Vietnam are operating in a dynamic economy with many new challenges regarding ethical issues. ECO, ENV, and SOC, are three dimensions of CSR representing the responsibilities of firms regarding economics, environment and society. The mean values of three CSR dimensions are arranged in descending order: ECO (0.7364), SOC (0.7187), ENV (0.6916). This illustrates that economic responsibility actions are often the most prevalent and sampled enterprises fulfill 73,6% of the GRI economic standard. Meanwhile, F&B firms also satisfied social responsibility and environmental responsibility with 71.87% and 69.16% respectively. As can be seen in Table 4, the maximum values of ECO, ENV, SOC are significantly high, over 0.95, showing that top CSR performers can satisfy nearly all their responsibilities toward stakeholders

LEV is also a variable that can affect profitability and is measured by the ratio of total liabilities and total shareholder's equity. The mean value (0.9012) shows that selected firms tend to balance their financing from borrowing and from shareholders. While the maximum value of LEV (4.1217) implies that a corporation has been aggressive in using debt to fund its growth. This may affect profitability as a consequence of the higher interest expenditure.

The natural logarithm of total assets is a measure of a company's size and profitability. The mean of this variable is 14.80 and its standard deviation is 1.82. From 2017 to 2021, the majority of enterprises grew in size, but some businesses have shrunk as a consequence of the pandemic. AGE is calculated as the natural logarithm of the number of listing years. The minimum value equals 0 showing that this firm in 2017 was just only listed for 1 year.

5.2. Correlation matrix

The correlation matrix depicts the pairwise correlation coefficients among the variables in the research model. These correlations are useful indications for determining if independent factors, such as CSR and its dimensions, have an effect on dependent variable ROA.

The correlation coefficients value has a range between -1 and 1. If the value is negative, the relationship between the two variables is negative, and vice versa. If the figure is approximately zero, this indicates that no connection exist between two variables. Moreover, the closer the coefficient approaches -1, the greater the inverse relationship. Conversely, the closer the coefficient approaches 1, the greater the favourable relationship.

Table 5. Correlation matrix

	ROA	CSR	ECO	ENV	SOC	LEV	SIZE	AGE
ROA	1.0000							
CSR	0.2748*	1.0000						
ECO	-0.1169	0.3387*	1.0000					
ENV	0.0748	0.7200*	0.0382	1.0000				
SOC	0.4042*	0.8484*	0.1107	0.3259*	1.0000			
LEV	-0.3478*	0.0303	0.1292	0.0231	-0.0197	1.0000		
SIZE	0.2073	0.3494*	-0.0891	0.3143*	0.3270*	0.0568	1.0000	
AGE	-0.2416*	-0.1238	0.3166*	0.1479	-0.4172*	0.2181	-0.1991	1.0000

*: significant at 5% level

Source: Authors' calculation from STATA

At the level of 5% significant, ROA and CSR have a significant positive correlation with the coefficient of 0.2748, which means when one is increased or decreased another follows the same direction. The same relationship is shown between ROA and the social dimension of CSR (SOC), which indicates that ROA and SOC are positively associated at 5% significance level. On the other hand, ECO has a negative but insignificant correlation with ROA, while a positive but insignificant relationship is shown between ENV and ROA.

It is also indicated that, among control variables, ROA has negative correlations with LEV and AGE at a significant level of 5%. On the other hand, SIZE has been found to be positively correlated with ROA, however, this relationship is not statistically significant.

5.3. Regression model test results

Table 6: Estimation results by Pooled OLS, FEM, REM

	Pooled OLS		FEM		REM	
	(1)	(2)	(1)	(2)	(1)	(2)
CSR	0.2189**		0.2695***		0.2661***	
LEV	-0.0351***	-0.0364***	-0.0126**	-0.0119*	-0.0125**	-0.0111**
SIZE	0.0054	0.0054	0.0110	0.0255	0.0058	0.0082
AGE	-0.0137	0.0133	-0.0257**	-0.0221*	-0.0235***	-0.0188
ECO		-0.1062		-0.0119		0.0103
ENV		-0.0812		0.2793**		0.1675*
SOC		0.2999***		-0.0047		0.0824

_cons	-0.0732	-0.0552	-0.1856	-0.3984	-0.1113	-0.1512
R ²	0.2331	0.3128	0.4525	0.4829		
adj. R ²	0.1893	0.2521	0.2765	0.2913		

* p < 0.1, ** p < 0.05, *** p < 0.01 *Source: Authors' calculation from STATA 14.0*

Table 6 demonstrates the influence of CSR and its dimension on profitability using the Pooled OLS, the Fixed Effect Method (FEM), and the Random Effects Method (REM) using the two previously selected equations.

CSR has a significant positive impact on ROA at a significance level of 5% in Pooled OLS method, and 1% in FEM and REM. Meanwhile, other explanatory variables such as ECO, ENV, SOC have different impacts on ROA between three methods. Therefore, the following section aims at choosing the most suitable regression method to explore impacts of CSR on profitability.

Model selection

To select the most appropriate method among Pooled OLS, FEM, REM, several tests are employed in this study. First, the author groups 3 methods into 2 pairs, which are FEM & REM, Pooled OLS & REM. Then, the Hausman test and Breusch and Pagan Lagrangian multiplier test are employed to choose a suitable regression method.

FEM or REM

Hausman test is employed to choose between FEM or REM, with the null hypothesis is the selection of REM

- H0: Select REM (p > 0.05)
- H1: Select FEM (p < 0.05)

Table 7: Hausman test result

Model (1)	Model (2)
Chi2 = 0.57	chi2 = 4.15
Prob > chi2 = 0.9666	Prob > chi2 = 0.6566

Source: Authors' calculation from STATA

A rejection of null hypothesis with a prescribed significant level means that REM is not more suitable for the regression model. From the Hausman test's result, both models (1) & (2) have p-value greater than 0.05, therefore there is not enough evidence to reject the null hypothesis. This means that REM is more appropriate in estimating the data.

Pooled OLS or REM

Breusch and Pagan Lagrangian multiplier test is a test to determine whether Pooled OLS or Random Effect Method is most appropriately used in estimating the panel data.

Hypothesis testing:

- H0: Select Pooled OLS ($p > 0.05$)
- H1: Select REM ($p < 0.05$)

Table 8. Breusch and Pagan Lagrangian multiplier test result

Model (1)	Model (2)
Chibar2 = 115.85	chibar2 = 100.47
Prob > chibar2 = 0.0000	Prob > chibar2 = 0.0000

Source: Authors' calculation from STATA

The result of Breusch and Pagan Lagrangian multiplier test shows that the p-values of both model (1) & (2) equal $0.0000 < 0.05$. Therefore, there is enough evidence to reject the null hypothesis and accept H1. A rejection of the null hypothesis means that Pooled OLS is not a suitable method for analysis and REM should be used instead of Pooled OLS

The table below summarizes the selection of model:

Table 9. Summary of the method selection result

Test	Hypothesis	Model selected	
		Model (1)	Model (2)
Hausman	H0: Select REM H1: Select FEM	REM	REM
Breusch & Pagan	H0: Select Pooled OLS H1: Select REM	REM	REM

Source: Authors' calculation from STATA

From Hausman test and Breusch & Pagan Lagrangian multiplier test, the results show that Random Effect Method is the most suitable method. Therefore, REM should be used instead of Pooled OLS or FEM for both models (1) and (2). Some other tests will be employed in the next sections for model testing.

Regression Diagnostics

Multicollinearity testing

In a regression model, multicollinearity is the occurrence of high intercorrelations between two or more independent variables. Multicollinearity can lead to skewed or misleading results when determining how well each independent variable can be utilized to predict or understand the dependent variable in a statistical model. Multicollinearity, in general, can result in wider confidence intervals that provide less reliable probabilities for the effect of independent variables in a model.

Therefore, the test for Multicollinearity is important. Variance inflation factor (VIF) is a statistical technique that can be used to detect and measure the amount of multicollinearity. If VIF value is larger than 10 and the tolerance value (1/VIF) is smaller than 0.1, it could be concluded that multicollinearity is a significant problem.

Table 10. Multicollinearity test result

Variable	Model (1)		Model (2)	
	VIF	1/VIF	VIF	1/VIF
CSR	1.14	0.874253		
ECO			1.25	0.803106
ENV			1.39	0.721923
SOC			1.70	0.587387
LEV	1.06	0.941364	1.07	0.931903
SIZE	1.18	0.846260	1.24	0.808122
AGE	1.11	0.903917	1.76	0.568663
Mean VIF	1.12		1.40	

Source: Authors' calculation from STATA 14.0

As can be seen from Table 10, VIF of all variables in both models (1) & (2) are smaller than 10 with the mean VIF of model (1) equal 1.12, and that of model (2) equals 1.40. Also, no value of tolerance (1/VIF) is less than 0.1. Then, we can conclude that there is no multicollinearity in the regression model.

Heteroskedasticity testing

Heteroscedasticity in regression analysis refers to the unequal scatter of residuals or error terms. Specifically, it refers to the situation in which the spread of residuals across the range of measured values experiences a systematic change. Heteroskedasticity is a breach of

the assumptions underlying linear regression modeling, and so it can affect the validity of the econometric analysis.

Therefore, the author employs the Breusch and Pagan test to determine whether heteroscedasticity is present in a regression model or not.

The null and alternative hypotheses of the Breusch and Pagan test are:

- H0: Homoscedasticity is present (the residuals are distributed with equal variance)
- H1: Heteroscedasticity is present (the residuals are not distributed with equal variance)

Table 11. Heteroscedasticity test result

Model (1)	Model (2)
Prob > chibar2 = 0.0000	Prob > chibar2 = 0.0000

Source: Authors' calculation from STATA 14.0

The p-values of both models are lower than 0.05, therefore, the null hypothesis is rejected and the alternative hypothesis is accepted for both models. Heteroscedasticity is present in the model, implying that the variance is not constant.

Autocorrelation testing

In the classical linear regression model, it is assumed that the successive values of the disturbance term are temporally independent when observations are collected across time. However, when this assumption is violated, the Autocorrelation problem occurs. When the disturbance term exhibits serial correlation, the standard error of the parameter estimates is impacted, and predictions based on ordinary least square estimates are not reliable.

Wooldridge test is employed to test for the serial correlation. Wooldridge's (2002) test is intriguing since it needs minimal assumptions and is straightforward to implement. The null hypothesis for this test is that there is no serial correlation in the data set with a significant level of 5%. This hypothesis is rejected when the p-value is less than the significance threshold.

- H0: no first-order autocorrelation
- H1: First-order autocorrelation is present

Table 12. Autocorrelation test result

Model (1)	Model (2)
F (1, 14) = 14.185 Prob > F = 0.0021	F (1, 14) = 24.130 Prob > F = 0.0002

Source: Authors' calculation from STATA 14.0

The Wooldridge test result with the p-values 0.0021, 0.0002 in the model (1) & (2) respectively shows that p-value < 0.05. There is enough evidence to reject the null hypothesis. A rejection of the null hypothesis means that there is an autocorrelation problem in the data set which needs to be corrected.

Correction model

The panel-corrected standard error (PCSE) method is used to correct the Heteroskedasticity and Autocorrelation problems of the data set. The method is employed because it generates results devoid of autocorrelation, generates consistent standard errors, and is less susceptible to outliers than other approaches.

Table 13. Corrected regression model result

	Model (1)		Model (2)	
CSR	0.2900***	[0.0000]		
LEV	-0.0227***	[0.0001]	-0.0222***	[0.0001]
SIZE	0.0129***	[0.0061]	0.0138***	[0.0044]
AGE	-0.0166***	[0.0044]	-0.0110	[0.2120]
ECO			-0.0258	[0.5626]
ENV			0.0267	[0.6618]
SOC			0.2511***	[0.0037]
_cons	-0.2361***	[0.0042]	-0.2453**	[0.0120]
<i>N</i>	75		75	
<i>R</i> ²	0.7551		0.7560	
<i>Prob > chi2</i>	0.0000		0.0000	

Source: Author's calculation from STATA

5.4. Discussions

It can be seen from Table 13 that the p-values (Prob > chi2) of both models equal 0.0000, significant at 0.01, indicating that the overall models are statistically significant. This implies that model (1) and (2) is appropriate to examine the impact of independent variables on the dependent variable. The R2 of model (1) equals 0.7551, indicating that 75.51% of the variance for ROA is explained by variables in this regression model. In particular, CSR, financial leverage, firm size and firm age can explain three fourth of ROA changes. Meanwhile, variables in model (2) can explain 75.6% of the variation of ROA as R2 equals 0.756, whereas 24.4% left could be explained by other variables which are not included in this model.

Overall CSR has a significant positive impact on ROA, according to the results, with a coefficient of 0.29 at 1% significance level. This implies that if firms increase their CSR disclosure by 1 unit, ROA will increase by 0.29 given all other variables in the model are constant. Thus, the author accepts H1. This result provides meaningful insight to F&B firms in

Vietnam, that they should engage more in CSR in all aspects such as economic contribution, energy saving, charity as well as other responsibilities toward their employees, customers, suppliers and society.

The study explores the influence of economic, social, and environmental responsibility on firm performance by decomposing CSR activities into three dimensions. Regarding the economic dimension, the estimated findings shown in Table 13 indicate that there is no significant association between economic-related CSR and ROA as $p\text{-value} > 0.05$, even the coefficient shows a negative influencing direction (-0.0258). Therefore, H6 is accepted. On the one hand, it is hoped that the publication of information about economic responsibly undertakings, including such antifraud, anticorruption, antimonopoly... would aid businesses in gaining trust of stakeholders and achieving social credibility. Based on the descriptive statistics, it is evident that the sample firms recognize the relevance of economic duties, as shown by the category with the highest mean value for CSR. On the other side, the broad reporting on the economic dimension may cause a company's actions in this dimension to go unnoticed if the company has not accomplished anything outstanding. Furthermore, according to the notion of slack resources theory, it is stated that CSR usually entails enormous expenditures that adversely impact financial performance (Qiu, et al., 2021). Therefore, the two contradict effects may result in the insignificant influence on profitability.

For the environmental dimension, the results of the model show a positive impact as shown by the parameter of 0.0267, but this effect is not statistically significant when the $p\text{-value} > 0.05$. H9 is accepted as the regression result. This insignificant impact could be explained by the fact that even engaging in activities can help build trust and the image of the company, which may generate social-economic benefits and increase profitability, however, this engagement could be a burden for firms as they would have to use large money to restrict emissions/wastewater discharge in order to publish environmental responsibility indicator. Therefore, the impact of ENV on profitability is not significant.

For social dimension, the coefficient of SOC variable, being 0.2511, indicates a positive impact of this variable on ROA and this effect is statistically significant at 1% level of significance. When the social responsibility disclosure increased by 1 unit, ROA will rise accordingly by 0.2511. Therefore, H10 is accepted. Information linked to workers, communities, goods, and legal compliance is always of great importance for listed firms. This conclusion is in line with the findings of Ngo et al. (2016), which imply that enterprises may increase their efficiency by demonstrating concern for the communities, concentrating upon the goods and services quality, facilitating conditions for their employees. These are consistent with the belief that CSR efforts assist establish and sustain strong and respectable corporate images, hence enhancing business performance.

From the regression results, the study accepts following research hypothesis and rejects others:

- H1: Corporate social responsibility has positive and significant impact on Profitability
- H6: Economic dimension has insignificant impact on Profitability
- H9: Environmental dimension has insignificant impact on Profitability
- H10: Social dimension has positive and significant impact on Profitability

Regarding control variables, the regression results of both models indicate that LEV adversely affects ROA, with coefficients of -0.0227 in model (1) and -0.0222 in model (2). This impact is statistically significant as the p-values in both models < 0.05 . This result is in line with the other studies which also added financial leverage as control variables to examine impact of CSR on profitability (Mulyadi, 2012; Dkhili & Ansi, 2012; Saragih et al., 2019; Thuy et al., 2021).

Firm size as control variable in both models has a significant positive relationship with profitability, as shown by the coefficients of 0.0129 in model (1) and 0.0138 in model (2). The p-value < 0.05 shows that this result is statistically significant. This result is consistent with (Mulyadi, 2012; Dkhili & Ansi, 2012; Ajide & Aderemi, 2014; Chen et al., 2018; Ngoc, 2018). As the resource-based theory argues that a larger firm has greater access to more financial resources, which in turn results in a lower cost of capital and more profits.

On the other hand, firm age, which calculated by the number of years that companies have been listed, is proved to inversely affect profitability. However, this impact is only significant in model (1) with the p-value being $0.0044 < 0.05$ but seems to not statistically reliable in model (2) as p-value being $0.2120 > 0.05$.

6. Implications

The research shows that overall CSR activities do enhance the profitability of F&B enterprises in Vietnam. However, the dimensions of CSR give a more complete view as only social-related activities positively influence the financial performance of the company, while Economic-related CSR activities and Environmental-related CSR activities show an insignificant effect on the profitability of F&B enterprises. This insignificant impact could be explained by two different effects which are the benefits companies gained after implementing CSR activities and the expenditures incurred to be socially responsible.

Companies must recognize that CSR influences both their internal growth such as employee engagement, productivity, and turnover rate, and external growth such as increased sales, customer loyalty, and brand awareness. By creating and participating in CSR initiatives, F&B firms can demonstrate their core values and build trust among their employees and clients.

Internally, CSR encourages good consciousness in corporate culture, thereby increasing employee engagement and organizational loyalty. Moreover, CSR improves productivity, sales, and profits. The CSR practices of an organization facilitate the attainment of improved performance and financial results, thereby influencing positively productivity and competitiveness. Externally, CSR improves the reputation of a company by gaining the trust and support of diverse stakeholders. CSR aids in assessing the conformity between the ethical value presented by business practices and societal standards. Furthermore, CSR is crucial to businesses for many reasons: CSR enables businesses give charity to needy societies; it facilitates the use of business resources to enhance the rights of various stakeholders directly effected by a firm's activities.; it assists the company in adapting to shifting public requirements and expectations; it assists the company in recognizing its moral responsibility.

For F&B firms to achieve these advantages of CSR, the study proposes the following orientation for CSR activities: F&B enterprises in Vietnam should boost efficient CSR activities to enhance profitability. Besides contributing to economic development, F&B firms should have practical activities to address environmental such as reducing GHG emissions through the refrigeration process, energy use, food distribution, and maintaining sustainable agricultural practices. F&B firms should pay attention to public health by increasing the quality and safety of products and providing nutrition. Furthermore, strict compliance with food safety regulations is crucial for enterprises in the F&B industry. Besides tackling the impacts F&B companies have on the environment and society, it is also important to contribute to society through charity or philanthropy as food and beverage are basic human needs, especially in a tough period like the pandemic.

This research still has significant limitations. Due to a lack of time, various other profitability measurements, including ROE, NPM, Tobin's Q..., were not studied. Second, A sample of 15 firms for a period of five years is relatively inadequate. As the study employed a content analysis methodology, the selection of sample firms is highly dependent on the availability of documents such as annual reports and sustainability reports. Hence more research might be conducted to examine a larger dataset in various sectors and countries, or to incorporate more variables. Third, the study observes that the economic and environmental dimensions have no significant effect on profitability while social dimension influence profitability positively. Therefore, the study concludes that various aspects of CSR must be investigated and examined separately to perceive a complete picture of their effects on financial performance.

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APPENDIX 1

A sample of F&B enterprises in the stock exchanges

CODE	Company	Subsector	Stock Exchange
MSN	Masan Group Corporation	Other food manufacturing	HOSE
VNM	Vietnam Dairy Products Joint Stock Company	Dairy Product Manufacturing	HOSE
SAB	Saigon Alcohol Beer and Beverage Joint Stock Corporation	Beverage Manufacturing	HOSE
TAC	Tuong An Vegetable Oil Joint Stock Company	Grain and Oilseed Milling	HOSE
KDC	KIDO Group Corporation	Other Food Manufacturing	HOSE
FMC	Sao Ta Foods Joint Stock Company	Seafood Product Preparation and Packaging	HOSE
SCD	Chuong Duong Beverages Joint Stock Company	Beverage Manufacturing	HOSE
CLC	Cat Loi Joint Stock Company	Tobacco Manufacturing	HOSE
LSS	Lam Son Sugar Joint Stock Company	Sugar and Confectionery Product Manufacturing	HOSE
HHC	Haiha Confectionery Joint Stock Company	Bakeries and Tortilla Manufacturing	HNX
SAF	Safoco Foodstuff Joint Stock Company	Other Food Manufacturing	HNX
CAN	Ha Long Canned Food Joint Stock Corporation	Fruit and Vegetable Preserving and Specialty Food Manufacturing	HNX
VSN	Vissan Joint Stock Company	Animal Slaughtering and Processing	UPCOM
QNS	Quang Ngai Sugar Joint Stock Company	Dairy Product Manufacturing	UPCOM
WSB	Sai Gon Beer Western Joint Stock Company	Beverage Manufacturing	UPCOM

Source: Authors' summary

DETERMINANTS OF EMPLOYEE ENGAGEMENT IN SMALL AND MEDIUM ENTERPRISES (SMES): EMPIRICAL EVIDENCE FROM VIETNAM

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Abstract

SMEs play a vital role in any economy worldwide, and Vietnam in particular. While large enterprises enjoy substantial financial and technological resources and exploit economies of scale and scope, SMEs take advantage of swift decision-making, entrepreneur dynamism, and flexibility in response to market opportunities (Rahayu and Day, 2015). When it comes to HRM, compared to larger ones, the salary level in SMEs is relatively low, and the compensation policies and welfare regimes are not stable. As a result, factors affecting the job engagement of staff at big organizations may not fit in with SMEs. This reality raises a question as to what precise determinants of employee engagement in SMEs are. Hence, this study aims to reveal the prime engagement determinants in the SME landscape to provide a comprehensive insight into employee engagement in Vietnamese SMEs. In addition, since Vietnam shares common characteristics with emerging economies, this research results and its implications also contribute tremendously to the literature on HRM for emerging and developing nations. Practically, the findings of the thesis serve as the basis for practitioners and SME owners/managers to improve the HRM system with appropriate policies to create a favorable environment for employees to drive their energy into work, ultimately contributing to the development of SMEs.

Keywords: *Employee engagement, Determinants, SMEs, Vietnam*

1. Rationale

Over the past few decades, small and medium enterprises (SMEs) have been regarded as the backbone of the world economy, contributing tremendously to the sustainable development of various countries across the globe in terms of jobs creation and exports revenue generation (Isichei, Agbaeze and Odiba, 2020; Rahayu and Day, 2015). Specifically, statistics reveal that SMEs account for more than 95% of all enterprises worldwide, employ 60% of the

workforce, and contribute about 40% of gross domestic product (GDP) (Bell, 2015; Dabić et al., 2020). Moreover, SMEs growth is often associated with increasing output, higher value-added, and profitability (Bouri et al., 2011). Its agility and dynamism facilitate continuous innovation and entrepreneurial activity of SME businesses, thus leading to productivity gains and a rising level of prosperity, which ultimately enhances the resilience of the overall economy (Yuhua, 2013).

Similarly, in Vietnam, SMEs have played a crucial role in the national economy since the major economic reforms (*Doi Moi* reforms) in the mid-1980s, which introduced free-market incentives while maintaining central planning. Opportunities during the transition to a market economy have resulted in significant growth in the number of SMEs and their increasing contribution to economic development (Nguyen Thanh Long and Le Nguyen Hau, 2020). According to OECD (2021), SMEs represent 96% of all firms in Vietnam, ensure 47% of jobs and generate 36% of national GDP.

Since SMEs take up the vast proportion of employment creation in Vietnam, examining the human resource management (HRM) in SMEs is of profound practical significance not only to SME owner-managers but also to the Vietnamese society at large. Furthermore, given its labor-intensive nature, SMEs highly rely on the performance of their personnel as an engine for success and development. Besides, the fierce competition for talents resulting from the recent trend in international economic integration also places more pressure on the human resource (HR) department's responsibilities in SMEs. Consequently, to utilize human capital as a source of sustained competitive advantage, Vietnamese SMEs' leaders must figure out how to engage the labor properly. Thus, the concept of employee engagement has received assiduous attention recently. Research reveals that highly engaged employees give a superior performance at work, and staff engagement is closely related to the goal attainment of a business, namely productivity, profits, customer satisfaction, and growth (Arvanitis, Seliger and Stucki, 2016; Sun and Bunchapattanasakda, 2019).

Nevertheless, despite the potentially promising outcomes of a high engagement level in practice, evidence illustrates that this poses a considerable challenge to most Vietnamese SMEs, and they pay much less attention to HR engagement activities compared to their larger counterparts (Gamage, 2014). The underlying reason stems from the inherent resource poverty of SMEs, making them unable to adopt several engagement-building tools and extensive programs internally (Long, Ajagbe and Kowang, 2014; Tsourvakas and Yfantidou, 2018). Hence, exploring the affecting factors of work engagement in the SME environment aids smaller firms in utilizing their limited resources to engage their employees efficiently, raise productivity and drive the growth of the national economy.

Reviews of literature indicate that the area of employee engagement has blossomed over the past decades and has been of keen interest to scholars both in Vietnam and around the world.

Previous studies have managed to discover the determining factors of work engagement, as well as its relationship with employee satisfaction and organizational performance. Furthermore, recent works also investigate the engagement situation of people in several specific sectors such as banking or hotel.

However, despite the increasing contribution to the engagement construct, current research seems to mainly examine it within the large enterprise environment, while the employee engagement concept from the perspective of SMEs only receives scant attention. This under-researched state of engagement understanding comes as a surprise since SMEs play a vital role in any economy worldwide, and Vietnam in particular. Moreover, the proposed solutions on a large scale are not suitable for the size and practical operation of SMEs in Vietnam as SMEs differ from large companies in various ways. Typically, while large enterprises enjoy substantial financial and technological resources and exploit economies of scale and scope, SMEs take advantage of swift decision-making, entrepreneur dynamism, and flexibility in response to market opportunities (Rahayu and Day, 2015). Besides, when it comes to HRM, compared to larger ones, the salary level in SMEs is relatively low, and the compensation policies and welfare regimes are not stable. As a result, factors affecting the job engagement of staff at big organizations may not fit in with SMEs. This reality raises a question as to what precise determinants of employee engagement in Vietnamese SMEs are.

This study aims to reveal the prime engagement determinants in the SME landscape to provide a comprehensive insight into employee engagement in Vietnamese SMEs. In addition, since Vietnam shares common characteristics with emerging economies, this research results and its implications also contribute tremendously to the literature on HRM for emerging and developing nations. Practically, the findings of the thesis serve as the basis for practitioners and SME owners/managers to improve the HRM system with appropriate policies to create a favorable environment for employees to drive their energy into work, ultimately contributing to the development of SMEs.

2. Employee Engagement Theoretical Frameworks

Theoretically, employee engagement has been explained using a variety of frameworks and models. In each empirical investigation, this concept is interpreted in different ways adopting different theoretical perspectives. Moreover, until now, scholars have yet to develop a distinctive theoretical framework for a better understanding of employee engagement. Hence, as a foundation for this thesis, the Need-Satisfying approach, Burnout-Antithesis approach, Job Demands-Resources model, and Social Exchange Theory are reviewed to demonstrate employee engagement. These theoretical frameworks are applied in this study since they are involved in a wide range of research regarding employee engagement and are deemed as highly integrative of determinants and outcomes of engagement at work.

Need-Satisfying Approach

The Need-Satisfying approach is the first framework that introduced the employee engagement construct in the enterprises (Shuck and Wollard, 2010). This approach was conceptualized by Kahn (1990), who defined engagement as “the simultaneous employment and expression of a person’s ‘preferred self’ in task behaviors that promote connections to work and to others, personal presence, and active full role performances” (p. 700). According to Kahn (1990), employees will display a higher level of engagement in their work if three psychological needs are fulfilled: meaningfulness, safety, and availability.

- *Meaningfulness* refers to the sense of return on self-investment in employees’ work roles. The nature of the job, or to be more specific, its duties, responsibilities, and work interactions, is believed to have an impact on meaningfulness.

- *Safety* is regarded as the feeling of one’s ability to express and employ oneself without the anxiety of adverse effects on self-image, reputation, or employment. The social environment has the greatest influence on psychological safety, including interpersonal interactions, group, and intergroup relationships, leadership style and procedure, and organizational cultures.

- *Availability* is described as the perception of having the physical, emotional, and psychological resources required to invest oneself in role performances. The personal resources that individuals can exert on their job performance, such as physical strengths, intellectual energies, uncertainty, as well as outside life, determine availability.

When a company fails to satisfy these resources, individuals tend to withdraw and disengage themselves from their duties.

Under the Need-Satisfying theory, Schaufeli (2013) presumes that if a job is demanding and purposeful, the social context at the workplace is secure, individual support is provided, the requirements for meaningfulness, safety, and availability are addressed, and therefore engagement is likely to take place. According to Saks and Gruman (2014), the Need-Satisfying approach is more persuasive since it identifies the psychological circumstances that result in engagement, and the elements that impact any one of the psychological states. Thus, Kahn’s (1990) model of three psychological variables: meaningfulness, safety, and availability should be involved in the proposal of every model concerning employee engagement (Saks and Gruman, 2014).

Burnout-Antithesis Approach

The Burnout-Antithesis approach was introduced by Maslach, Schaufeli and Leiter in 2001, who were pioneers in the employee engagement field and viewed this concept as the direct opposite of burnout. Initially, researchers considered that burnout was caused by continuous emotional and interpersonal pressures at work (Etzion, 1984; Maslach, Schaufeli and Leiter, 2001). Accordingly, characterizing job engagement as an extension of the burnout notion, Maslach, Schaufeli and Leiter (2001) referred to engagement as “a persistent positive

affective state [...] characterized by high levels of activation and pleasure” (p. 417). The two predominant characteristics of the burnout model are as follows:

- *Burnout* is highly connected with professions where staff take responsibility for interacting with people in stressful conditions (i.e., medical services, client interactions).
- *Burnout* is acknowledged as the antithesis of employee engagement.

Furthermore, engagement is quantified as the inverse of Maslach Burnout Inventory ratings (Maslach, Jackson and Leiter, 1997). As a consequence, engagement is expressed as opposing characteristics of the three burnout aspects: tiredness, cynicism, and inefficacy.

Importantly, Maslach, Schaufeli and Leiter (2001) also propose six domains of work-life that are the antecedents of either engagement or burnout: (1) workload, (2) control, (3) compensation and recognition, (4) social and community support, (5) perceived justice and (6) values. Job engagement, according to Maslach, Schaufeli and Leiter (2001), is linked to a manageable workload, perceptions of autonomy, adequate performance appraisal, a supportive working environment, fairness and equality, and purposeful and worthwhile tasks. Conversely, any mismatch in these six dimensions in business life will result in burnout.

At the same time, there are two schools of thinking on this subject. The first perspective regards engagement and burnout as two extremes of the same continuum (Schaufeli, 2013). As aforementioned, job engagement is portrayed by energy, participation, and effectiveness, which are assumed to be the opposites of the three burnout attributes: weariness, cynicism, and lack of achievement (Maslach, Schaufeli and Leiter, 2001). On the other hand, the second point of view regards employee engagement as a different term that is adversely associated with burnout (Schaufeli, 2013). According to Schaufeli’s (2013) definition, employees who are not in a state of burnout do not automatically engage in work. Aside from worries regarding the uniqueness of fairly similar concepts, a related issue has been some researchers’ predisposition to interpret engagement as the inverse of burnout (Saks and Gruman, 2014).

Job Demands-Resources Model

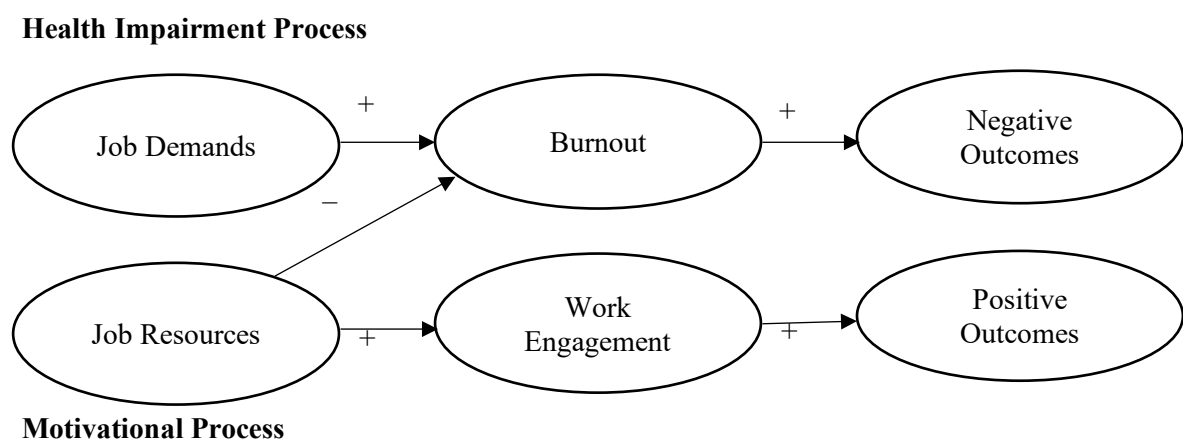
The Job Demands-Resources (JD-R) theory was first mentioned by Demerouti et al. (2001) to detect the potential predictors of burnout. Accordingly, the basic idea of this theory is that in the context of overwhelming job demands, accomplishing job-related aims requires extra effort, hence leading to exhaustion. Likewise, a shortage of job resources impedes the attainment of objectives in the workplace and results in undesirable outcomes, namely disengagement. Later, Schaufeli and Bakker (2004) elaborated on these notions and incorporated work engagement into the JD-R model as a positive aspect of employee well-being. Furthermore, Bakker and Demerouti (2007) classified job characteristics into two broad categories: job demands and job resources as drivers of employee engagement. Consequently, the JD-R theory applies to all occupations and may be adjusted to fit in with different working environments.

- *Job demands:* Job demands involve the physical, social, or organizational job-related attributes that necessitate persistent additional effort, both physically and mentally, and, as a result, are connected with particular physiological and psychological consequences (Demerouti et al., 2001). Exposure to excessive job demands, therefore, quickly consumes individual energy and impedes performance goals (Hakanen and Roodt, 2010). The instances of job demands are work pressures, time constraints, role ambiguity, overwhelming workload, or work-home interference. Crawford, LePine and Rich (2010) currently contributed to the research stream by introducing the concepts of hindering and challenging job demands. On the one hand, challenge-based job demands may enhance employee personal growth and future benefits and are regarded as learning opportunities. Consequently, challenging job demands have the potential to raise engagement. On the other hand, hindering job demands may stifle employee individual growth and are perceived as obstacles or impediments (Broeck et al., 2010).

- *Job resources:* As opposed to job demands, job resources are illustrated as characteristics of the job that are positively related to an employee’s work goals achievement, mitigate the job demands and their effects, boost physical and psychological well-being, and inspire learning and personal development (Demerouti et al., 2001); whereas personal resources are defined as an individual’s sense of his or her ability to successfully control and impact circumstances (Hobfoll, 2001). Prevalent examples are autonomy, innovative climate, and perceived organizational as well as supervisor support.

There are two causal and fairly independent processes in the JD-R model: the health impairment process and the motivational process. Figure 1.1 depicts this paradigm, which is adapted from Schaufeli (2017). As can be seen from this graph, the health impairment process implies that high job demands raise the likelihood of burnout (with exhaustion as the main characteristic) and lead to detrimental outcomes such as health complaints or intent to leave, while the motivational process suggests that job resources foster work engagement and promote favorable business outcomes such as superior performance and commitment to the organization.

Figure 0.1 Job Demands-Resources Model



Source: Schaufeli, 2017

Apart from the dual linear interactions, the buffering and coping mechanisms are also involved. Specifically, the adverse impacts of demands can be buffered or hindered with available appropriate job resources in hand, and from that sustain the high engagement levels and eventual positive outcomes (Bakker and Demerouti, 2007). Additionally, personal resources such as self-efficacy, optimism, and perseverance, also serve as psychological capital to aid in hindering burnout (Sweetman and Luthans, 2010). Moreover, job demands do not always lead to burnout unless they are extreme. If the demands are deemed as challenging and manageable instead of hindering, succeeding in controlling the situation is likely to support an increased feeling of purpose at work, and thereby boost engagement (Tims, Bakker and Derks, 2012).

Despite several modifications made to the JD-R theory recently by including job crafting or work performance (Bakker and Demerouti, 2017), the fundamental assumptions of the JD-R model remain unchanged: (1) job demands as a strain produce burnout, (2) job resources keep employees engaged, and at the same time, (3) job resources serve as a buffer against demands (see Figure 1.1). Therefore, creating an adequate balance between job resources and demands is critical to maintaining the engagement of employees, even in the presence of complex tasks.

Social Exchange Theory

Another key paradigm in examining employee engagement is Social Exchange Theory (SET). Its basic premise is that interactions between parties in interdependent relationships generate the reciprocity rule and, presumably, quid pro quo (mutual reciprocity) (Cropanzano and Mitchell, 2005). Unlike the three above frameworks that only illustrate the psychological circumstances or antecedents essential for engagement, SET clarifies why people react to these events with differing extents of engagement (Nel and Linde, 2018). In SET, the reciprocity principle states that receiving advantageous treatment obligates one party to perform favorable action in exchange (Gouldner, 1960). Besides, SET also highlights the need to keep a balance between giving and receiving in interpersonal interactions. In other words, if one party delivers a benefit, the recipient is bound to reciprocate. The reverse interpretation of this idea is also reasonable: When a hostile treatment is displayed, in return there will be negative conduct and unfavorable behavior shown. Notably, the provision of advantages in social exchange is discretionary, rather than tangible benefits as in an economic exchange (Huang et al., 2016). SET is developed based on four basic assumptions as follows:

(1) In general, people are rational and are always compelled to weigh up the costs and benefits of social interactions.

(2) Individuals involved in interactions are reasonably researching various methods to boost the earnings or advantages which could be obtained from such scenarios, particularly in terms of meeting a person's basic needs.

(3) Exchange activities yield multiple kinds of value, such as incentives for individuals and specific benefits in organizations, resulting in the altering of social relationships, particularly in the workplace.

(4) In an unconstrained social structure that is fiercely competitive, humans are separated into two categories: mission-oriented and profit-oriented.

Previous research has supported the application of SET and the reciprocity norm in organizations. When employees perceive that the organization offers them compensation, honor, justice, and other features, employees will be obliged to repay the organization with improved job performance, establish a high degree of trust in the organization, and increase their dedication and determination (Yin, 2018). In other words, employees react according to how they feel their firm treats them.

In light of this theory, Saks (2006) notes that one means for members to repay their enterprises is through engagement. In fact, according to Saks (2006), the availability of necessary physical, cognitive, and emotional resources to do the job is the condition for engagement to occur. In contrast, individuals are more prone to resign and disengage themselves from duties if the company fails to supply those resources (Schaufeli, 2013). Consequently, the degree of energy that an individual is willing to dedicate to the performance of his/her job function may be influenced by the perceived levels of organizational support. This idea is parallel to Kahn's Need-Satisfying approach in which employees feel inclined to devote themselves more fully to their work roles in exchange for the resources provided by their organization.

Furthermore, following SET, Ibrahim et al. (2020) assert that the employee-organization connection is primarily built on a fair social exchange relationship, that is, employees have a psychological expectation that participation in high job engagement will result in high organizational rewards and that investment in poor job engagement will lead to low organizational rewards. Hence, employees are more likely to be actively engaged and to perform better on the job if they believe that organizational rewards and resources are equally distributed (Kim, Liu and Diefendorff, 2014).

3. Determinants of Employee Engagement and hypothesis

On the basis of the four theoretical frameworks and previous studies regarding antecedents of employee engagement, this paper puts forward six determinants that have been involved in various research and have been proven to have an effect on employee engagement, which are: Compensation, Training and Development, Job Characteristics, Perceived Supervisor Support, Co-worker Relationship, and Work-Life Balance.

Compensation

Compensation is one of the indispensable drivers of employee engagement. Compensation comprises not only financial benefits like bonuses but also non-financial incentives such as recognition, praise from supervisors, gift cards, extra holidays, or opportunities for promotion (Anitha, 2014). By utilizing an effective compensation system, the organization can encourage its staff to work harder to achieve better results, thus the employees will focus more on their tasks and personal development. As noticed by Dajani (2015), the employees will react with corresponding levels of engagement in response to the perceived attractiveness of the rewards and benefits. In other words, it is not the amount or form of reward but the employees' impression of the similar that impacts their satisfaction and, as a result, their engagement in the work. Thus, if managers want to attain a high level of engagement, they must provide reasonable standards of compensation and recognition to their personnel.

Moreover, in accordance with SET, the receipt of recognition and rewards from the organization makes employees feel obligated to pay back the enterprise with a higher level of engagement. Meanwhile, top performers desire to be differently rewarded and acknowledged for the exceptional job they produce, especially when remuneration is performance-based (Sudiro, Adi and Fakhri, 2021).

An investigation executed by Indriyani (2017) with a sample of workers in Indonesia's startup companies has provided empirical evidence that rewards and recognition play a significant role in the workplace and that remuneration is a strong predictor of employee engagement. Conversely, employees may experience a state of job burnout if they do not receive an appropriate compensation package.

Therefore, the hypothesis is developed as follows:

H1: Compensation has a positive relationship with Employee Engagement

Training and Development

Training and development are other significant attributes of employee engagement since they allow workers to focus on a certain work dimension. Training is the process of gaining the abilities required to do a certain profession, while development is a shift within a firm to a more significant position or employment. In this study, training and development are grouped together because the aim of the training is to promote or improve the ability and working efficiency of employees.

When a person participates in training and development programs, his or her self-confidence in the field of training grows, inspiring that individual to become more engaged in one's profession. Siddiqui and Sahar (2019) also proposed that providing employees with opportunities to grow is equal to rewarding them. Management must prioritize the professional

advancement ladder through learning and development in order to provide timely chances for growth and progress as this will naturally raise the degree of engagement.

As proposed in the JD-R model, the training and development factor is considered a job resource since it provides employees with both intrinsic and extrinsic motivation:

- *Intrinsic motivation*: As an intrinsic motivator, training and development empower employee development and boost individual growth programs by serving fundamental human needs such as autonomy, belongingness, and competency (Dajani, 2015).
- *Extrinsic motivation*: Training and development can also be viewed as an extrinsic motivator since it offers workers knowledge and techniques like expertise, skills, and competencies which are used in the workplace and are essential for employees' goal attainment and career development opportunities.

Consequently, training and development as a job resource help employees diminish their physiological and behavioral costs at work, enabling them to execute their tasks more efficiently (Jain and Khurana, 2017). Further, this kind of job resource encourages workers to devote more effort and time to their job.

Empirically, greater learning chances, according to Chadha (2018), are a job resource for the engagement of employees in the service sector in Delhi and NCR regions. Similarly, learning opportunities were revealed to be one of the significant predictors of employee engagement by Antony (2018). As a result, a workplace that encourages learning and growth is critical for enhancing work engagement.

Thus, the following hypothesis is put forth:

H2: Training and Development have a positive relationship with Employee Engagement

Job Characteristics

The third fundamental factor that determines employee engagement is Job characteristics. Job characteristics include all significant variables and traits associated with the job, for example, skill variety, meaningfulness, job autonomy, or feedback (Ali et al., 2014). Saks (2006) found that job characteristics were positively correlated with employees' engagement in their job and increased their commitment to the organization. Interesting and challenging tasks will make employees love their work and thereby contribute to increased engagement. Authors of other empirical and conceptual research have also postulated job characteristics as a common antecedent of work engagement (Broeck et al., 2008; Nguyen, 2021). When employees are provided with sufficient information about the required results and feedback on their performance, as well as empowered in making job-related decisions, they will become increasingly satisfied with their work, hence raising their engagement. Moreover, jobs that require the utilization of various skills and are given autonomy encourage employees to engage with their work (Kahn, 1990).

Remarkably, with regards to job autonomy - one main aspect of job characteristics, Diana, Tokarz and Wardzichowska (2018) emphasized its positive connection with employee engagement from 318 workers in Poland. Job autonomy is regarded as the perceived control of employees over their job.

As a result, this thesis suggests the following hypothesis:

H3: Job Characteristics have a positive relationship with Employee Engagement

Perceived Supervisor Support

Perceived Supervisor Support (PSS) is defined as the evaluations of employees on whether or not their managers pay attention to them and appreciate what they are doing (Eisenberger et al., 2002). Supervisors that offer sufficient support to employees not only have a favorable influence on organizational performance in terms of reduced turnover and commitment, but also impact employees individually via enhanced job satisfaction as well as a lower level of stress, exhaustion, and burnout - the direct opposites of engagement (Disque, 2020; Shi and Gordon, 2019). Moreover, Bacharach and Bamberger (2007) emphasized that a comprehensive supervisory support environment would provide an important foundation from which unit participants may draw a critical object, physical, and social resources.

The SET offers a theoretical basis to understand the relationship between PSS and employee engagement. In SET, there exists a leader-member exchange (LMX) idea that employees will be dedicated to their supervisors and their work in exchange for received support (Erdeji et al., 2016). Thus, employee engagement is considered to be influenced by true and supportive leadership as a means of enhancing involvement, contentment, and excitement for work.

In addition, PSS also signals perceived organizational support (POS) since managers are the ones who take responsibility for communicating the corporate missions, visions, goals, strategies as well as expectations, etc., to employees on behalf of the organization (Guchait, Cho and Meurs, 2015; Hermawan, Tharmin and Susilo, 2020). Employees that receive an adequate amount of support from their organization and supervisors will experience a state of physiological safety and work without fear of negative impacts (Kahn, 1990), which ultimately leads to higher performance, job satisfaction, and engagement (Garg and Dhar, 2016; Tang and Tsaur, 2016).

Agarwal (2014) examined the impact of social exchange relationships on innovative work behavior, in which POS and leader-member exchange were found to be positively associated with work engagement.

Since PSS encourage employees to drive their energy into work, the hypothesis is as follows:

H4: Perceived Supervisor Support has a positive relationship with Employee Engagement

Co-worker Relationship

Co-worker relationship is one of the main determinants that affect employee engagement. In this thesis, a co-worker is understood as the one who works in the same company as you and with whom you frequently interact and share information regarding work. Since employees spend more time with their co-workers than with their supervisors in most occupations, employees' relationships with colleagues have an impact on job engagement.

According to Kahn's (1990) Need-Satisfying model, employee engagement is promoted through helpful and trustworthy interpersonal interactions, as well as supportive co-workers. An open and friendly atmosphere is vital for workers to feel psychologically safe in the organization and to fully engage in their responsibilities. Members in supportive environments are willing to explore, take risks, and even fail without fear of adverse impacts on their reputation or their job (Kahn, 1990). Moreover, Siswanto, Zahrotul and Masyhuri (2021) discovered that workplace connections had a substantial influence on meaningfulness, one of the dimensions of engagement. Similarly, Locke and Taylor (1991) emphasized the belongingness needs which humans own, arguing that employees who have positive interpersonal connections with their co-workers should also sense more purpose in their job.

To further investigate the relationship between co-worker relationship and engagement during the COVID-19 pandemic, Nguyen and Tran (2021) surveyed 216 staff in Hanoi, Vietnam. Their study eventually illustrated that a positive connection with colleagues together with co-worker support, as a part of organizational support, did relate to a high level of engagement. In support of the literature, a good relationship with co-workers enhances the engagement level of employees.

Therefore, the following hypothesis is developed:

H5: Co-worker Relationship has a positive relationship with Employee Engagement

Work-Life Balance

Work-life balance is another important influencing factor when it comes to employee engagement. As defined by Grzywacz and Carlson (2007), the balance between work-life is the achievement of role-related requirements that are discussed and shared between a person and his/her role-related partners in the work and family/life areas. In other words, it refers to an employee's ability to strike a balance (or fit) between multiple roles in work and out-of-work life (personal life). This practice may involve flexible working hours that allow employees to vary their start and finish timings given a specific amount of hours are worked, family leave programs, childcare services in the workplace, and financial support. Employees with a work-life balance are better able to take charge of their life, reduce psychological burnout such as

anxiety and stress, hence ultimately bring benefits to their employers through improved performance, focus, loyalty, motivation, and most importantly, engagement (Larasati, Hasanati and Istiqomah, 2019).

According to Anitha (2014), a company's flexible work-life policies have a major positive influence on employee engagement. Many studies (Dajani, 2015; Jaharuddin and Zainol, 2019) have underlined the significance of organizational international regulations that best assist flexible working conditions and help employees balance their work and home lives, as well as argued that organizations with such policies have more likelihood to acquire engaged personnel. Specifically, Jaharuddin and Zainol's (2019) findings with a dataset of 213 executive employees in Klang Valley, Malaysia demonstrate that work-life balance has a direct impact on job engagement, and on the contrary, work-life conflicts lead to turnover intention.

Looking from the SET perspective, when the company aids in balancing work and personal life, employees will experience a feeling of care and support. As a result, in accordance with the reciprocal norms, the employees are under the obligation to pay back the resources provided by the enterprise with better and positive attitudes and behaviors. And one of the ways the employees reciprocate is by displaying a higher level of engagement (Saks, 2006).

As a consequence, the following hypothesis is put forward:

H6: Work-life Balance has a positive relationship with Employee Engagement

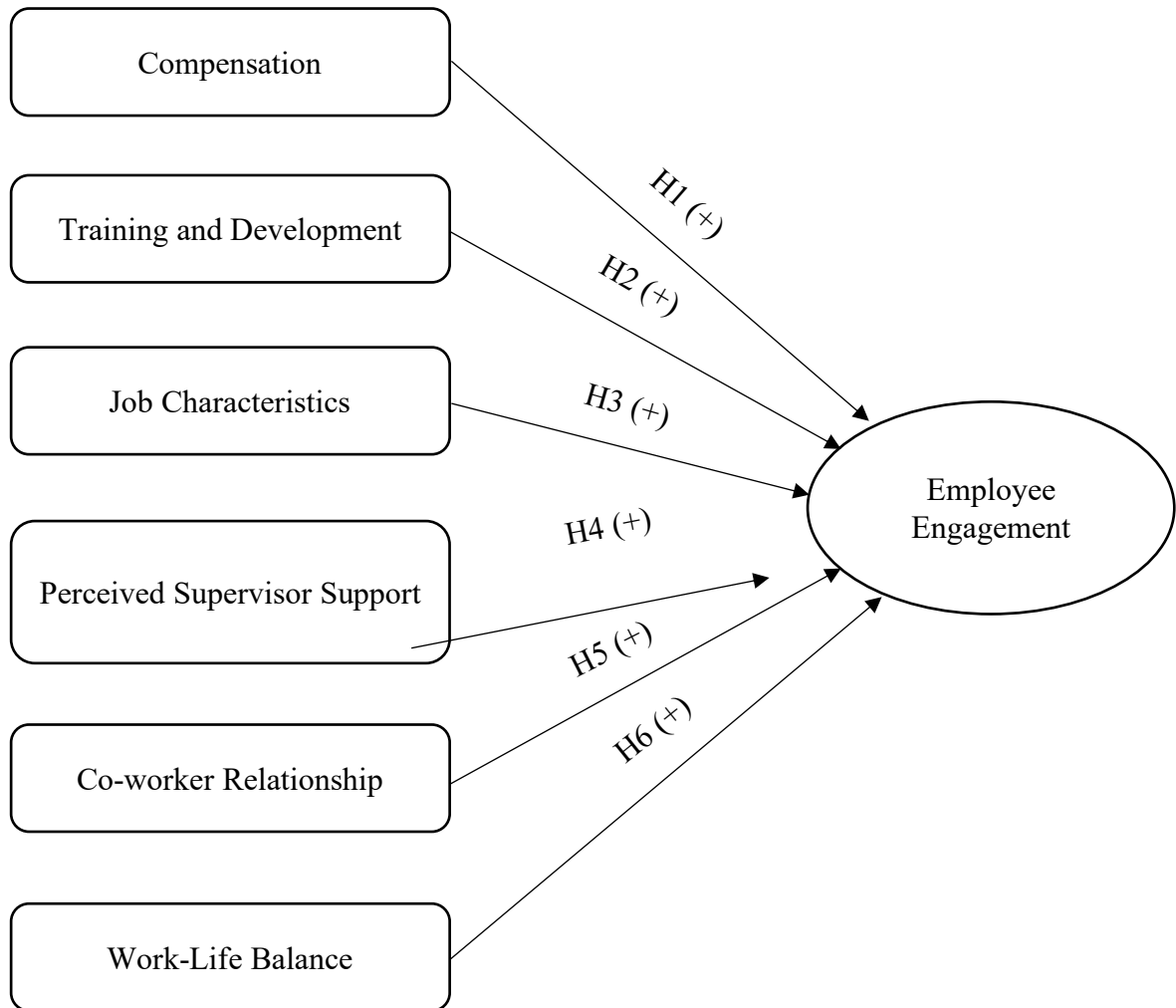
4. Research Model

The research model is proposed following the presented literature review and theoretical background to examine the determinants of employee engagement in SMEs with six independent variables, in particular, Compensation, Training and Development, Job Characteristics, Perceived Supervisor Support, Co-worker Relationship, and Work-life Balance, and one dependent variable, which is Employee Engagement (see Figure 1.2).

Accordingly, the six hypotheses are developed as follows:

- *H1: Compensation has a positive relationship with Employee Engagement*
- *H2: Training and Development have a positive relationship with Employee Engagement*
- *H3: Job Characteristics have a positive relationship with Employee Engagement*
- *H4: Perceived Supervisor Support has a positive relationship with Employee Engagement*
- *H5: Co-worker Relationship has a positive relationship with Employee Engagement*
- *H6: Work-life Balance has a positive relationship with Employee Engagement*

Figure 0.2 Proposed Research Model



Source: Synthesized by Authors

Measurement Scale Development

Content validity of items is evaluated by determining if they measure exactly what they are designed to measure (Nunnally, 1978). Thus, the measurement scales in this research were borrowed and adapted from previous studies in order to achieve content validity, and they are also modified to fit the purpose of this study. All have been confirmed to be valid and reliable.

The measurement scale for Employee Engagement was adapted from Schaufeli, Bakker and Salanova (2006) with the 9-item Utrecht Work Engagement Scale (UWES-9) measuring three dimensions of engagement, namely vigor, dedication, and absorption. Since its introduction, UWES-9 has been widely used in research regarding employee engagement.

The measurement scale for Compensation is adapted from Teseena and Soeters (2006) with 5 items. Training and Development are evaluated with 5 items developed by Hewitt (2015) and Robinson, Perryman and Hayday (2004). Job Characteristics are measured with a 5-item

scale developed by incorporating the prior research of Robinson, Perryman and Hayday (2004) and Saks (2006). Perceived Supervisor Support is evaluated with 5 items adapted from London (1993), Hewitt (2015), and Saks (2006).

Table 1. Measurement Scales

Determinant	Code	Observed Variable	Source
1. Compensation (COM)	COM1	Compared to other people doing similar work at my organization, I think I am paid fairly	Teseena and Soeters (2006)
	COM2	Compared to other people doing similar work outside my organization, I think I am paid fairly	
	COM3	My organization's compensation program reflects performance and encourages me to work more efficiently and effectively	
	COM4	My organization's compensation program meets the standard of living	
	COM5	Generally, my organization has an attractive compensation system	
2. Training and Development (TND)	TND1	My company provides regular training at an appropriate time	Hewitt (2015) and Robinson, Perryman and Hayday (2004)
	TND2	My company's training program helps me improve my working skills	
	TND3	Employees have equal access to training opportunities	
	TND4	My company has a fair and transparent promotion policy so that employees understand the necessary standards and conditions for development	
	TND5	My company always creates conditions and opportunities for my career development	
3. Job Characteristics (JOB)	JOB1	My job requires the use of various skills	Robinson, Perryman and Hayday (2004) and Saks (2006)
	JOB2	My job gives me freedom/opportunity to put my own ideas into work	
	JOB3	My job is interesting and challenging	
	JOB4	My job brings a lot of meaning and value	
	JOB5	I receive feedback on my job performance	
	PSS1	My supervisor really cares about my well-being	London (1993),

		PSS2	My supervisor gives me the authority that I need to do the job	Hewitt (2015), and
4. Perceived Supervisor Support (PSS)		PSS3	My supervisor provides me with a useful performance appraisal and ongoing feedback	Saks (2006)
		PSS4	Help is available from my supervisor when I have a problem	
		PSS5	My supervisor helps me develop my career plan	
5. Co-worker Relationship (COW)		COW1	I feel close and trustful of my co-workers	
		COW2	My co-workers really care about me	Ducharme and Martin (2000)
		COW3	My co-workers would fill in while I am absent	
		COW4	My co-workers are helpful in getting the job done	
6. Work-Life Balance (WLB)		WLB1	I am able to meet my family responsibilities while still doing what is expected of me at work	
		WLB2	I have a social life outside of work	Parkes and Langford (2008)
		WLB3	I am able to stay involved in non-work interests and activities	
		WLB4	Generally, I maintain a good balance between work and other aspects of my life	
7. Employee Engagement (EE)		EE1	At my work, I feel bursting with energy	
		EE2	At my job, I feel strong and vigorous	
		EE3	When I get up in the morning, I feel like going to work	Schaufeli, Bakker and Salanova (2006)
		EE4	I am enthusiastic about my job	
		EE5	My job inspires me	
		EE6	I am proud of the work that I do	
		EE7	I feel happy when I am working intensely	
		EE8	I am immersed in my work	
		EE9	I get carried away when I'm working	

Source: Synthesized by Authors

Co-worker Relationship is adapted from an instrument developed by Ducharme and Martin (2000) with 4 items. For Work-Life Balance, we adopt 4 measurement items from Parkes and Langford (2008).

In addition, employee background information, namely gender, age, marital status, education, position, and seniority is also included in the questionnaire.

All question items are graded on a five-point Likert scale, which is: (1) strongly disagree; (2) disagree; (3) neutral; (4) agree; (5) strongly agree. Likert scale is chosen due to several benefits: quick data-gathering process from a large number of respondents, highly reliable evaluation of a person's ability, and the provision of easily compared and contrasted information through various methods (Nemoto and Beglar, 2014).

To ensure that the measurement scales are suitable for assessing research concepts in Vietnam and the characteristics of SMEs, qualitative methods have been conducted in advance to serve as the basis for generating the final questionnaire for quantitative research.

The summary of measurement scales used in this study is presented in Table 1. The full version of the survey tool is provided in Appendix 1.

Sample and Data collection

This research employs convenience sampling, one type of nonprobability sampling in which researchers select any elements in the population that are easy for them to access until they collect enough data to meet the study's sample size requirements. Convenience sampling is often utilized due to the key advantages of being economical, efficient, and simple to execute (Jager, Putnick and Bornstein, 2017).

Since this study uses both EFA and linear regression methods, the sample size is chosen based on the principle that the larger the sample, the better. Specifically, the required minimum sample size for the study under the author's suggested research model with 28 observed variables under 5 independent factors is $28 \times 5 = 140$. The authors has proposed to collect data from 300 participants based on this computed result to ensure the sample's representativeness.

The study was conducted in Hanoi, the capital city of Vietnam with its emerging economy. Hanoi is selected to be the place to collect the sample dataset due to two main reasons. First, as the political and economic center of Vietnam, Hanoi is the gathering place of various enterprises, including SMEs. According to the Hanoi Authority for Planning and Investment, Hanoi's enterprises have improved in quantity and quality in recent years, with the number of newly established businesses increasing dramatically and SMEs accounting for 97% of the total. To be specific, Hanoi currently has over 280,000 enterprises, ranking second after Ho Chi Minh City, and has approximately 20,000 new firms every year. Second, SMEs in Hanoi have achieved outstanding performance, contributed more than 40% of GDP to the city, and created jobs for more than 50% of employees, according to Hanoi Small and Medium Enterprises Association. Hence, SMEs in Hanoi are progressively exerting their vital and pioneering role in the development of Hanoi and Vietnam. Moreover, many entrepreneurs have exemplified the characteristics and courage of a modern Vietnamese entrepreneur who is consistently dynamic, innovative, and proactive in global integration. In summary, SMEs in Hanoi have what it takes to represent SMEs across Vietnam.

Data were collected by two methods: (1) The questionnaires are sent directly to the employees of SMEs in Hanoi, and (2) The online survey created with Google Forms is sent to workers via e-mail or social media. Data collection lasts for two months (from March to April 2022).

Out of 347 received responses, the author obtains 314 valid and usable answers, reaching the rate of 90.5%. The invalid responses are either responses from workers that are not working in SMEs in Hanoi (28 responses) or responses that have some questions left blank (5 responses). The valid data was entered, encrypted, cleaned, and analyzed through SPSS 20.0 software.

The respondents are working at 38 SMEs in Hanoi, Vietnam. The specific company industries are demonstrated in Table 2. Particularly, the three most frequent industries are food and beverage (23.7%), education (18.4%), and transportation and logistics (15.8%). These figures are suitable in the current context of Vietnam where the service industry is dominant in the economy with a large number and population volume.

Table 2. Company Industry

Industry	Number of companies	Proportion (%)
Food and Beverage (F&B)	9	23.7
Education	7	18.4
Transportation and Logistics	6	15.8
Manufacturing	5	13.2
Information Technology	4	10.5
Banking/Finance	4	10.5
Consultation	2	5.3
Traveling	1	2.6

Source: Synthesized by Authors

In order to protect respondents' privacy, the author uses the principle of anonymity, promises to keep survey data and respondents' personal information confidential, and only uses it for research purposes.

Data Analysis Techniques

This study employs statistical techniques with the significance level (alpha level) of 0.05 ($\alpha = 0.05$). The collected data are analyzed through SPSS 20.0 software. The author has, respectively, performed Descriptive statistics, Cronbach's Alpha reliability test, Exploratory factor analysis (EFA), Regression analysis, and Mean difference analysis.

5. Empirical Research Results

Respondent Characteristics

Data processing is performed using SPSS 20.0 based on 314 valid responses from individuals working at 38 SMEs in Hanoi, Vietnam, with their industries specified in Table 2 above. The demographic information of the respondents is presented in Table 3.

Table 3. Respondent Characteristics

Category	Item	Frequency	Proportion (%)
Gender	Male	145	46.2
	Female	169	53.8
Age	< 31	221	70.3
	31 - 40	76	24.2
	41 - 50	11	3.5
	> 51	6	2.0
Marital status	Single	194	61.8
	Married	120	38.2
Educational level	High school	56	17.8
	Bachelor	207	65.9
	Master degree or above	51	16.3
Seniority (year)	< 3	187	59.6
	3 - 5	59	18.8
	6 - 10	50	15.9
	> 10	18	5.7
Department	Management	21	6.7
	Sales	77	24.5
	Marketing	78	24.8
	Financial/Accounting	31	9.9
	Human Resources	54	17.2
	Information Technology	26	8.3
	Manufacturing	27	8.6

Position	Staff	199	63.4
	Subsection chief	66	21
	Supervisor	37	11.8
	Manager	12	3.8

Source: Synthesized by Authors

Specifically, when looking at gender, males account for 46.2% of the survey respondents, equivalent to 145 people, compared to 169 females (53.8%). Thus, there is no significant difference in the distribution of respondents by gender.

In terms of age breakdown, most of the respondents are less than 31 years of age (70.3%), followed by those aged between 31 and 40 years old (24.2%), between 41 and 50 years old (3.5%), and over 50 years old (2%). The majority of respondents are under-31-year-old employees, who are very young and dynamic, as well as are born in the era of technology. This age group often enjoys creative, challenging work with opportunities for future advancement.

The results also show that 194 surveyed individuals are still single, making up 61.8%. The remaining 120 people (38.2%) have already got married.

With regards to the highest education level achieved, 17.8% have a high school diploma; 65.9% get bachelor's degrees; 16.3% acquire master's degrees or higher. This means that the quality of the SME workforce is at a high level and has been improved due to the national policies to enhance the educational and professional qualifications of Vietnamese employees.

When it comes to seniority, most of the participants work in the current company for less than 6 years (78.4%).

Moreover, the responding employees are distributed in six departments, as specified in Table 3.3, ensuring the diversity of the sample dataset. The marketing department takes up most of the respondents (24.8%).

In depicting the position in the organization, 63.4% are staff; 21.0% are subsection chief; 11.8% are supervisors; 3% are managers.

Descriptive Statistics

According to Table 4, using the five-point Likert scale, all observed variables have a minimum value of 1 and a maximum value of 5. In terms of mean scores, the majority of the observed values range between 3 and 4, with the highest value recorded of 3.43 (JOB1), except for the variable EE3 with the lowest mean of $2.99 < 3$, showing that the level of agreement of this variable is below the intermediate level. Additionally, the standard deviation is quite small (approximately 1), indicating that answers from respondents do not differ much from each other.

Table 4. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
COM1	314	1	5	3.32	1.079
COM2	314	1	5	3.11	1.096
COM3	314	1	5	3.27	1.140
COM4	314	1	5	3.26	1.052
COM5	314	1	5	3.13	1.113
TND1	314	1	5	3.11	1.161
TND2	314	1	5	3.19	1.128
TND3	314	1	5	3.28	1.188
TND4	314	1	5	3.21	1.082
TND5	314	1	5	3.18	1.057
JOB1	314	1	5	3.43	1.222
JOB2	314	1	5	3.19	1.202
JOB3	314	1	5	3.21	1.144
JOB4	314	1	5	3.22	1.142
JOB5	314	1	5	3.36	1.122
PSS1	314	1	5	3.28	1.100
PSS2	314	1	5	3.20	1.083
PSS3	314	1	5	3.41	1.096
PSS4	314	1	5	3.34	1.111
PSS5	314	1	5	3.23	1.032
COW1	314	1	5	3.29	1.168
COW2	314	1	5	3.26	1.136
COW3	314	1	5	3.20	1.095
COW4	314	1	5	3.32	1.123
WLB1	314	1	5	3.27	1.054
WLB2	314	1	5	3.36	1.156
WLB3	314	1	5	3.25	1.097
WLB4	314	1	5	3.25	1.052
EE1	314	1	5	3.15	1.061
EE2	314	1	5	3.25	1.042
EE3	314	1	5	2.99	1.099
EE4	314	1	5	3.34	1.059
EE5	314	1	5	3.21	1.063
EE6	314	1	5	3.29	1.067
EE7	314	1	5	3.17	1.116
EE8	314	1	5	3.36	1.129
EE9	314	1	5	3.09	1.165

Source: SPSS

Scales Reliability Analysis

Cronbach's Alpha coefficient, together with corrected item-total correlation was used to determine reliability. A reliability test was performed for each construct with multiple items. Any observed variable that does not fulfill this requirement will be removed from the measurement scale. The reliability analysis of measurement scales is demonstrated in Table 5.

Table 5 Cronbach's Alpha Test Results

Observed Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1. Compensation (COM): n = 5, $\alpha = 0.900$				
COM1	12.77	14.214	0.749	0.879
COM2	12.98	14.437	0.700	0.889
COM3	12.82	13.791	0.754	0.878
COM4	12.83	14.262	0.768	0.875
COM5	12.96	13.717	0.790	0.870
2. Training and Development (TND): n = 5; $\alpha = 0.915$				
TND1	12.86	15.162	0.782	0.896
TND2	12.79	15.133	0.818	0.889
TND3	12.69	15.179	0.755	0.902
TND4	12.76	15.663	0.788	0.895
TND5	12.80	15.914	0.776	0.898
3. Job Characteristics (JOB): n = 5; $\alpha = 0.920$				
JOB1	12.98	16.252	0.817	0.897
JOB2	13.22	16.594	0.792	0.902
JOB3	13.20	17.147	0.775	0.906
JOB4	13.19	17.163	0.774	0.906
JOB5	13.05	17.042	0.809	0.899
4. Perceived Supervisor Support (PSS): n = 5; $\alpha = 0.907$				
PSS1	13.18	13.883	0.772	0.884
PSS2	13.26	14.186	0.744	0.890
PSS3	13.05	13.716	0.802	0.878
PSS4	13.12	13.870	0.763	0.886
PSS5	13.23	14.505	0.745	0.890

5. Co-worker Relationship (COW): $n = 4$; $\alpha = 0.919$

COW1	9.78	9.225	0.827	0.890
COW2	9.82	9.357	0.835	0.887
COW3	9.87	9.926	0.773	0.908
COW4	9.75	9.515	0.820	0.893

6. Work-Life Balance (WLB): $n = 4$; $\alpha = 0.907$

WLB1	9.86	8.811	0.791	0.879
WLB2	9.77	8.441	0.758	0.892
WLB3	9.88	8.571	0.794	0.878
WLB4	9.88	8.686	0.819	0.869

7. Employee Engagement (EE): $n = 9$; $\alpha = 0.912$

EE1	25.69	45.429	0.691	0.902
EE2	25.60	45.302	0.716	0.901
EE3	25.85	45.518	0.655	0.905
EE4	25.50	45.516	0.686	0.903
EE5	25.63	45.044	0.720	0.900
EE6	25.55	45.558	0.677	0.903
EE7	25.67	44.285	0.734	0.899
EE8	25.48	44.838	0.683	0.903
EE9	25.75	44.282	0.697	0.902

Source: SPSS

As demonstrated in Table 5, Cronbach's Alpha coefficients are well above the required value of 0.7 in all measurement scales. The lowest figure is the Compensation scale with 0.900, and the highest is the Job Characteristics scale with 0.920. Moreover, corrected item-total correlations of all observed variables are greater than 0.3, indicating that the measurement model is reliable and all 37 observed variables can be retained to use in the next analysis of exploratory factors.

Exploratory Factor Analysis

Several criteria that researchers consider when conducting EFA are as follows:

- The KMO coefficient is a criterion for determining the suitability of factor analysis. Factor analysis is appropriate if the KMO value ranges between 0.5 and 1.
- Bartlett's test of sphericity is statistically significant ($\text{sig.} \leq 0.05$), then the observed variables in the population are correlated.
- Factor loadings are single correlation coefficients between variables and factors that serve as an indicator of the exploratory factor analysis' practical significance. Factor loadings of observed variables should be more than 0.5.
- The cumulative percentage of total variance explained must be greater than or equal to 50% for the scale to be acceptable.
- The Eigenvalues coefficient, which represents the variance explained by each factor, is greater than 1.
- To ensure discriminant validity between factors, the difference in factor loadings of an observed variable loaded onto various components must be less than 0.3.

Exploratory Factor Analysis for Independent Variables

After Cronbach's Alpha analysis, 28 independent observed variables are submitted for EFA. The first round of EFA illustrates that the measurement model has high convergent validity since all 28 items (i.e., observed variables) in the Rotated Component Matrix meet the requirement of factor loading value (> 0.5) (Table 7), and therefore, no observed variable is excluded from EFA. According to Table 6, the value of KMO is 0.963 ($0.5 \leq \text{KMO} \leq 1$), and the p-value in Bartlett's sphericity test is 0.000 (< 0.05), indicating that the dataset and the sample size are suitable to conduct EFA and that there are significantly large correlations between items for Principal Component Analysis. Six major factors are retained after factor extraction with Eigenvalues = 1.035 (> 1) (Appendix 2). The cumulative proportion of variance extracted is 76.087% ($> 50\%$), suggesting that six factors explain 76.087% of the variance in the data. In general, this data is found to be appropriate for conducting the EFA.

Table 6. KMO and Bartlett's Test for Independent Variables

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.963	
Approx. Chi-Square	7247.142	
Bartlett's Test of Sphericity	df	378
	Sig.	0.000
Cumulative % of Total Variance Explained	76.087	

Source: SPSS

Table 7. Exploratory Factor Analysis Results for Independent Variables

Observed Variable	Component					
	1	2	3	4	5	6
JOB5	0.744					
JOB3	0.740					
JOB1	0.736					
JOB2	0.718					
JOB4	0.711					
PSS1		0.734				
PSS5		0.721				
PSS3		0.696				
PSS4		0.670				
PSS2		0.639				
TND1			0.794			
TND2			0.704			
TND4			0.700			
TND3			0.688			
TND5			0.630			
COM4				0.770		
COM5				0.708		
COM1				0.707		
COM2				0.685		
COM3				0.642		
COW2					0.793	
COW1					0.747	
COW4					0.740	
COW3					0.706	
WLB3						0.783
WLB4						0.763

WLB1	0.756
WLB2	0.652

Source: SPSS

Table 7 shows that no variables have a factor loading value less than 0.5 (all range from 0.630 to 0.794), measure more than one factor, or are singularly separated into a component, signaling the discriminant and convergent validity. There has been no new factor discovered, either. EFA's findings have highlighted six key representative factors, down from the original 28 items. Generally, the components of the scale that affect employee engagement do not change, so the name of six major factors will remain the same, including:

(1) Factor 1: Job Characteristics are measured by the following observed variables:

- JOB5: I receive feedback on my job performance
- JOB3: My job is interesting and challenging
- JOB1: My job requires the use of various skills
- JOB2: My job gives me freedom/opportunity to put my own ideas into work
- JOB4: My job brings a lot of meaning and value

(2) Factor 2: Perceived Supervisor Support is measured by the following observed variables:

- PSS1: My supervisor really cares about my well-being
- PSS5: My supervisor helps me develop my career plan
- PSS3: My supervisor provides me with a useful performance appraisal and ongoing feedback
- PSS4: Help is available from my supervisor when I have a problem
- PSS2: My supervisor gives me the authority that I need to do the job

(3) Factor 3: Training and Development are measured by the following observed variables:

- TND1: My company provides regular training at an appropriate time
- TND2: My company's training program helps me improve my working skills
- TND4: My company has a fair and transparent promotion policy so that employees understand the necessary standards and conditions for development
- TND3: Employees have equal access to training opportunities
- TND5: My company always creates conditions and opportunities for my career development

(4) Factor 4: Compensation is measured by the following observed variables:

- COM4: My organization's compensation program meets the standard of living
- COM5: Generally, my organization has an attractive compensation system

- COM1: Compared to other people doing similar work at my organization, I think I am paid fairly

- COM2: Compared to other people doing similar work outside my organization, I think I am paid fairly

- COM3: My organization’s compensation program reflects performance and encourages me to work more efficiently and effectively

(5) *Factor 5: Co-worker Relationship* is measured by the following observed variables:

- COW2: My co-workers really care about me
- COW1: I feel close and trustful of my co-workers
- COW4: My co-workers are helpful in getting the job done
- COW3: My co-workers would fill in while I am absent

(6) *Factor 6: Work-Life Balance* is measured by the following observed variables:

- WLB3: I am able to stay involved in non-work interests and activities
- WLB4: Generally, I maintain a good balance between work and other aspects of my life
- WLB1: I am able to meet my family responsibilities while still doing what is expected of me at work
- WLB2: I have a social life outside of work

Exploratory Factor Analysis for Dependent Variable

Factor Employee Engagement comprises nine observed variables that evaluate the work engagement of Vietnamese SMEs’ employees. EFA is conducted to ensure the reliability and convergent validity of variables given on a theoretical basis. The outcomes obtained are as follows (Table 8):

Table 8. KMO and Bartlett’s Test for Dependent Variable

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.929
	Approx. Chi-Square	1478.134
Bartlett’s Test of Sphericity	df	36
	Sig.	0.000
Cumulative % of Total Variance Explained		58.797

Source: SPSS

- KMO = 0.929 > 0.5, hence conducting EFA is appropriate.
- Bartlett’s Test has sig. = 0.000 < 0.05, thus the correlations between observed variables are significantly large.
- Eigenvalues = 5.292 > 1, one factor is extracted (Appendix 3).

- Cumulative percentage of total variance explained is 58.797% > 50%, meeting the criteria.
- All factor loadings > 0.5 (Table 9).

Table 9. Exploratory Factor Analysis Results for Dependent Variable

Observed variable	Component
	1
EE7	0.801
EE5	0.788
EE2	0.786
EE9	0.768
EE1	0.762
EE4	0.757
EE8	0.755
EE6	0.749
EE3	0.732

Source: SPSS

The results of EFA for this scale show that the observed variables have convergent validity and reflect the same thing, that is, employee engagement.

Multiple Linear Regression Analysis

The unstandardized regression equation can be constructed as follows:

$$EE = \beta_0 + \beta_1 * COM + \beta_2 * TND + \beta_3 * JOB + \beta_4 * PSS + \beta_5 * COW + \beta_6 * WLB$$

where:

COM: Compensation

TND: Training and Development

JOB: Job Characteristics

PSS: Perceived Supervisor Support

COW: Co-worker Relationship

WLB: Work-Life Balance

EE: Employee Engagement

β_0 : the intercept of the regression model

β_i : the slope coefficient of each independent variable

Examining the linear correlations between the independent variables and the dependent variable, as well as between the independent variables, is the initial stage in conducting a regression analysis. The degree of correlation between these variables is shown in the correlation matrix.

Table 10. Pearson Correlation Matrix

	EE	COM	TND	JOB	PSS	COW	WLB
EE	1						
COM	0.745**	1					
TND	0.735**	0.663**	1				
JOB	0.719**	0.689**	0.672**	1			
PSS	0.760**	0.664**	0.703**	0.687**	1		
COW	0.713**	0.625**	0.677**	0.634**	0.672**	1	
WLB	0.743**	0.655**	0.644**	0.609**	0.672**	0.640**	1

****. Correlation is significant at the 0.01 level (2-tailed).

Source: SPSS

The Pearson correlations highlight a strong positive correlation between the dependent variable and all independent variables at the 1% significance level, as shown in Table 10 above. All correlation coefficients between EE and six independent variables are above 0.7. Furthermore, the variables still have discriminant validity since all correlation coefficients are different from 1. Nevertheless, the correlation coefficients among independent variables are relatively high, so the potential of multicollinearity exists. Results of the multicollinearity test will be discussed in detail after performing the regression analysis. In short, the data are appropriate for use in regression analysis.

Regression Analysis

The first step in regression analysis is evaluating how well the data fit the regression model using the R^2 (R square) or the goodness-of-fit measure.

Table 11. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	0.870 ^a	0.758	0.753	0.41506	1.818

Source: SPSS

The adjusted R² is 0.753, suggesting that 75.3% of the variation in the dependent variable (EE) is explained by six independent variables in the model (Table 11). Thus, the research model is suitable and fits the dataset.

Afterward, the F-test is conducted to examine the overall significance of the regression model (Table 12).

Table 12. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	165.210	6	27.535	159.831	0.000 ^b
	Residual	52.889	307	0.172		
	Total	218.099	313			

Source: SPSS

The value of F-statistic is 159.831 with a negligible p-value (sig. = 0.000 < 0.05), consequently, the null hypothesis H₀ is rejected at 95% confidence interval. In other words, the overall regression model is statistically significant and the predictor variables jointly explain the variation in the dependent variable.

The outcomes of linear regression analysis using the Enter method (i.e., all independent variables are entered in the equation in a single step) are presented in Table 13.

Table 13. Multiple Linear Regression Analysis

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0.304	0.097		3.148	0.002		
COM	0.181	0.040	0.201	4.505	0.000	0.396	2.526

TND	0.121	0.040	0.140	3.048	0.003	0.373	2.680
JOB	0.105	0.037	0.128	2.850	0.005	0.394	2.536
PSS	0.180	0.042	0.200	4.249	0.000	0.357	2.801
COW	0.111	0.036	0.135	3.117	0.002	0.420	2.383
WLB	0.192	0.037	0.222	5.164	0.000	0.429	2.333

Source: SPSS

The multiple linear regression is used to evaluate six hypotheses or how well six independent variables may explain the dependent variable in this research, as presented in Table 13. Accordingly, all t-values are greater than 2, the p-values of all six independent variables are lower than 0.05, and all standardized coefficients (beta) are higher than 0, indicating that there exists a positive and statistically significant linkage between Compensation, Training and Development, Job Characteristics, Perceived Supervisor Support, Co-worker Relationship, and Work-Life Balance and Employee Engagement. Hence, the hypotheses H1, H2, H3, H4, H5, and H6 are statistically supported at the 5% significance level.

Specifically, the standardized regression equation can be written as follows:

$$EE = 0.201*COM + 0.140*TND + 0.128*JOB + 0.200*PSS + 0.135*COW + 0.222*WLB$$

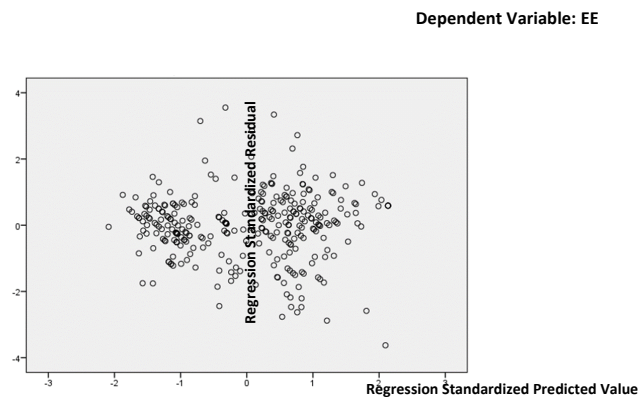
However, for this sample regression function (SRF) eligible to be used in estimating the coefficients of population regression function (PRF), the research continues checking the assumption violations in the analysis of the linear regression model.

Regression analysis using the OLS (Ordinary Least Square) technique requires several assumptions to guarantee that the model's estimates are relevant and reliable. As a result, discovering assumption violations is essential. The particular assumptions are as follows:

- *Linear Relationship*

The scatterplot between the residual (on the vertical axis) and the predicted value (on the horizontal axis), as shown in Figure 2, illuminates that the residuals are randomly dispersed in a region around the ordinate 0 rather than forming any shape, indicating that the linear relationship assumption is not violated.

Figure 2. Scatterplot



Source: SPSS

- *Multicollinearity*

Looking at Table 10 displaying the Pearson correlation analysis among independent variables above, multicollinearity may appear since the variables are connected with one another, so it is required to examine multicollinearity.

The test is performed using the variance inflation factor (VIF); if VIF is more than 5, it signals multicollinearity (Hair et al., 2022). According to Table 13, the highest value of VIF is 2.801, showing that there is no sign of multicollinearity in this study.

Homoscedasticity

The Spearman rank correlation is used to detect whether the residuals have constant variance (homoscedasticity) or suffer from heteroscedasticity.

Table 14 Spearman Correlation Coefficients

		ABSRES	COM	TND	JOB	PSS	COW	WLB
	Correlation Coefficient	1.000	0.013	0.067	0.034	0.071	0.029	0.047
ABSRES	Sig. (2-tailed)	.	0.470	0.620	0.784	0.737	0.455	0.995
	N	314	314	314	314	314	314	314

Source: SPSS

From Table 14, the significance value of the Spearman correlation between the absolute value of the standardized residual (ABSRES) and each independent variable is greater than 0.05. Thus, the homoscedasticity assumption is not violated.

In conclusion, after testing the assumptions, the estimates of the correlation coefficient of the sample regression function can be used for the population regression function.

6. Discussion and implications for Employee Engagement at Vietnamese SMEs

After analysis, the findings of this research reveal six determinants having a positive effect on employee engagement in the context of SMEs in Vietnam, which are presented in the decreasing order of impact level as follows: Work-life balance, Compensation, Perceived supervisor support, Training and development, Co-worker relationship, and Job characteristics.

- *Work-Life Balance*

Work-life balance has the most profound positive effect on employee engagement with the β coefficient of 0.222 (t-value = 5.164, p-value = 0.000). This result is consistent with that of Nguyen and Pham (2020). It seems that after the COVID-19 pandemic, besides career progress, employees pay more attention to the health of themselves as well as their family members, especially those with little children. Moreover, various workers are used to working from home since they feel that it is more flexible and they can not only complete their tasks efficiently but also do their other roles in the family, such as childcare. Besides, employees also desire to have more spare time for outside activities with their friends to relax from stress. Thus, work-life balance has become one of the concerns lately. In other words, they endeavor to maintain a good out-of-work life with their family and friends as well as fulfill their other roles in life. If the job at SMEs leads to any conflicts with the personal life of employees, it may cause stress and dissatisfaction, which ultimately results in their disengagement away from work.

In response to this, many SMEs in Vietnam have adopted flexible working mechanisms, in which the employees can work from home for certain days providing that they have a quiet working space and good Internet connections at home. Moreover, they also provide financial assistance to those in need, such as those with disabled children and elderly people to look after or those who suffer from financial shortages due to the pandemic.

- *Compensation*

The next significant predictor of employee engagement is Compensation ($\beta = 0.201$, t-value = 4.505, p-value = 0.000). This finding is similar to that of Armstrong and Taylor (2014) and Indriyani (2017). It is evident that a fair and transparent compensation system is vital to every employee since it reflects the true performance and makes them more eager to exert efforts on work to raise productivity. The reality in Vietnam proves that salary and rewards are one of the most important deciding factors for employees when choosing the workplace, as emphasized by a number of workers in the preliminary qualitative research. What they want to receive after doing their tasks is a competitive and fair compensation system.

Nevertheless, in Vietnam, the low wage rate in SMEs as opposed to large enterprises is one of the major constraints (Trinh and Thanh, 2017). Thus, it is implied from the research findings that SME owners should consider strategies and programs which raise the transparency and efficiency of the compensation system that plays a significant role in enhancing employee engagement.

- *Perceived Supervisor Support*

In addition, the path coefficient of Perceived supervisor support to employee engagement is 0.200 (t-value = 4.249, p-value = 0.000), showing that PSS has a positive impact on employee engagement. This result corresponds to that of Nguyen and Tran (2021) and Saks (2019). This also fits the reality of Asian workplace culture, where lower-level employees have the tendency to obey and wait for precise instructions and help from upper-level supervisors.

Moreover, since Vietnamese SMEs are said to not have a clear job description and instructions about how to execute it, it would be difficult for employees, especially newcomers, to perform their tasks properly without any direction from their seniors. Thus, the perceived support from their direct managers or supervisors in terms of detailed instructions and ongoing feedback would aid workers in finishing their work and improve their engagement.

- *Training and Development*

Training and development also has a positive influence on employee engagement ($\beta = 0.140$, t-value = 3.048, p-value = 0.003). This supports the findings of Antony (2018) and Armstrong and Taylor (2014). By enrolling in training programs, the employees can improve their skills and perform their tasks better, which eventually leads to higher chances of being promoted. As a result, the employees are more willing to engage themselves in work.

When being asked, workers at Vietnamese SMEs express that they want to attend training courses both inside and outside the company since they feel that their ability is upgraded and they can do the job better, thus enhancing their possibilities of being promoted to higher positions. Moreover, they also want to stay in a company where the promotion policies are clear and transparent so that they can know the criteria for the promotion.

From SMEs' side, they are paying increasing attention to training and career development, organizing necessary job skills training to improve skills, since it not only allows employees to confidently perform work but also improves the quality, image, and reputation of the company.

- *Co-worker Relationship*

Another crucial factor in determining employee engagement at Vietnamese SMEs is Co-worker relationship with β coefficient of 0.135 (t-value = 3.117, p-value = 0.002). This is in accordance with the findings of Anitha (2014). As above-mentioned, due to the limited size of SMEs, the relationship among employees in the company might be closer than in larger

organizations and has a direct impact on the employee's behaviors. Hence, building a friendly and supportive environment is of great importance in SMEs.

Interestingly, many respondents say that co-workers are one of the reasons they want to go to work every day. At the workplace, employees have the most frequent interactions with their colleagues for both work-related and emotional support. As a consequence, SMEs must make every member be like a family and feel at home when working through regular bonding activities or cross-department cooperation.

- *Job Characteristics*

The last driver of work engagement is Job characteristics with the path coefficient of 0.128 (t-value = 2.850, p-value = 0.005). This result is similar to that of Diana, Tokarz and Wardzichowska (2018). When employees feel the meaning of their job and that they can develop themselves through hands-on experience from their work, they will be motivated to enthusiastically perform their job.

Respondents of this research emphasize that they want to do their current job because it fits in with their knowledge and ability, as well as they are happy when they are able to do it and learn from it every day. Hence, a job that is appropriately divided and suitable for each employee's capacity, as well as the potential for further personal growth, is another aspect that boosts the appeal of work to workers, resulting in increased work engagement.

Empirical results indicate that all determinants have a statistically significant correlation with employee engagement. Empirical findings from the regression analysis illustrate that the model fits in with the sample dataset and all six factors have a positive relationship with employee engagement, in which they jointly explain 75.3% of the variance in the dependent variable. Specifically, work-life balance is of utmost importance to enhancing work engagement, followed by compensation, perceived supervisor support, training and development, co-worker relationship, and job characteristics, respectively.

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INFLUENCE OF BRAND EQUITY ON THE INTENTION TO ADOPT MOBILE BANKING: EVIDENCE FROM VIETNAM

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Abstract

Mobile banking's increasing popularity has changed both the way clients interact with banks and how banks conduct business. Since the mobile banking sector is getting increasingly competitive, customer acquisition is a challenge for any mobile banking service provider. Meanwhile, experts have paid close attention to the concept of brand equity as a source of long-term competitive advantage. As a result, using the case of Vietnamese banking customers, this study explores the influence of brand equity on customer's intentions to adopt mobile banking, based on which identify sustainable approaches to improve customer acquisition results.

To achieve the research objectives, the study constructed a research model incorporating the intentions to adopt mobile banking and brand equity determinants. Additionally, an online questionnaire survey was conducted among Vietnamese mobile banking app users. 193 usable responses were analyzed in-depth through the SmartPLS 3 software. Combining the analysis results using the PLS-SEM method, the research shows statistically significant influence of brand equity on the intentions to adopt mobile banking. It also reveals the influence of various factors, including brand awareness, brand association, brand loyalty and perceived quality, on brand equity that affects mobile banking adoption. Besides theoretical implications, this study provides practical recommendations to improve mobile banking customer acquisition from a brand equity perspective.

Key words: *Mobile banking, customer acquisition, brand equity, mobile banking adoption.*

1. INTRODUCTION

Mobile phones have radically changed the way individuals interact with finance. Mobile banking (m-banking) gradually replaces traditional banks' inconvenient travel and waiting requirements, thus allowing clients to meet their financial demands through low-cost and instant banking services on smartphones. Customers can simply complete transactions such as

payments, money transfers, billing, and savings on their phones. Contrary to the common beliefs, mobile banking services are not limited to simple, everyday transactions but gradually expand to constitute other complex areas of investments, savings and even non-financial activities such as monitoring alerts, vouchers, commerce platform (Suoranta and Mattila, 2004; Hoehle and Huff, 2012).

The undeniable convenience and endless customization capabilities have made mobile banking become increasingly popular among customers globally. According to Juniper Research, the number of global mobile banking users in 2021 is expected to be approximately 2.5 billion (2021). Banks and financial institutions are making significant investments in this developing business area from the same mindset that sees mobile banking as an opportunity (Alalwan et al., 2017; Owusu Kwateng et al., 2019). Even in growing markets like South East Asia, the number of digital banking services is increasing at an unparalleled rate. Among 200 new digital banks entering the market during 2021, 50 of which were based in Asia Pacific (Bordoloi, 2021). Advancements of mobile banking technology have increased the maturity rate of mobile banking applications, improved security, and provided banks with an alternative channel to offer services without time and geographical constraints. As cited by Alalwan et al. (2017), banks worldwide spent or invested more than \$115 billion at the end of 2013 to develop mobile banking infrastructure. Despite these promising signs, mobile banking penetration has yet to reach its full potential. The total of 2.5 billion mobile banking users (Jupiter Research, 2021) accounts for just 47% of the estimated total of 5.3 billion mobile phone users (GSMA Intelligence, 2021). This comparison implies that m-banking has significant future development potential, necessitating further research into techniques to convert people using traditional financial services to adopting novel online channels.

Over the years, brand equity has been a crucial research area to explain sources of consumer attraction. Existing marketing studies have pointed out the importance of developing brand equity in assisting corporate success, as it can make points of differentiation that lead to competitive advantages based on nonprice competition (Aaker, 1991). Consequently, there have been numerous research that specifically explores the development of brand equity, and how it affects consumer purchasing decisions (e.g. Srivastava & Shocker, 1991; Yoo et al., 2000). Literature has validated the strong influence of brand equity in finance and banking context yet few address the specific mobile banking conditions. Compared to traditional banking, the shift from face-to-face conversations with bankers to self-service banking on mobile phones often faces initial reluctance from customers (Agyei et al., 2020). Banks no longer rely on their extensive physical branch network to acquire and perform customer care but adopt innovative digital marketing methods to approach and impress customers. Consequently, there exists a need to apply the knowledge of brand equity into explaining mobile banking customers behaviors that potentially contribute meaningful values to the development of mobile banking.

Addressing these gaps, In particular, it examines the effect of brand equity on consumers' willingness to pay price premiums, consumers' attitude towards brand extensions, brand preference and purchase intention

Addressing the challenge to navigate a sustainable customer acquisition strategy that deeply concerns the rising digital conditions, this research proposes and tests a model to better understand the effects of brand equity on consumers' intentions to use mobile banking using data from Vietnamese customers. The research aims to contribute meaningful empirical evidence to the brand equity literature in the financial area while suggesting implications to improving mobile banking customer acquisition results. The study is organized into four main parts. First, the literature review summarizes an overview about brand equity and its relationship with banking, mobile banking. Next, the study develops the conceptual model and hypotheses, following which is methodology description and empirical analysis. Then discussions and implications are presented to provide useful insights for both researchers and practitioners.

2. LITERATURE REVIEW

Brand equity

Brand equity is one of the most important marketing concepts. It refers to the intangible assets that establish and maintain the relationship between firms and customers over time. In other words, brand equity defines the unique combination of functional and emotional values that impresses customers with the willingness to pay a premium price higher than the less recognizable brands, even though both brands share similar levels of quality and performance (Aaker, 1992; Keller, 2013).

The literature of brand equity is highly fragmented with three main viewpoints: a financial asset, the strength of relationship between company and buyers, and the brand associations in customer's minds (Feldwick, 1996; C. Burmann, M. Jost-Benz, and N. Riley, 2009). The financial perspective considers brand equity as monetary value to a firm such as greater volume and higher margins, which additionally provides a sustainable advantage (Srivastava and Shocker, 1991; Simon and Sullivan, 1993). Meanwhile, the consumer-based approach explains brand equity as the added value to an existing product or service compared to other products or services at equal utility level (Yoo et al., 2000; Chen and Chan, 2008). The extra value results from consumers' own perceptions rather than actual improvement of the products or services (N.M. Yasin, M.N. Noor, and O. Mohamad, 2007). Compared to the financial approach, the consumer-based method comprehensively explores the determinants of customer preference, and the drivers of purchasing behavior that ultimately lead to financial earnings and competitive advantage (Keller, 1993). Therefore, the literature about consumer-based brand equity is generally more extensive than that of the financial-based approach.

Since the consumer-based approach concerns human minds, the direct measurement of how consumers value a brand is highly challenging and methodologically impractical (Christodoulides & de Chernatony, 2010). D.A.Aaker developed one of the most well-known frameworks in the consumer-based brand equity literature that defined brand equity as “a set of brand assets and liabilities linked to a brand, its name and symbol that add to or subtract from the value provided by a product or service to a firm and/or to that firm’s customers”(1991). The author conceptualized brand equity with five dimensions, including: brand awareness, brand associations, perceived quality, brand loyalty and other proprietary assets. While awareness, associations, perceived quality and loyalty depends on the consumers’ subjective evaluation, other proprietary assets relate to the firm's internal capability. Besides D.A. Aaker, K.L. Keller proposed another foundational brand resonance model to consumer-based brand equity literature. The author described brand equity as “the differential effect of brand knowledge on consumer’s response to the marketing of the brand” (1993). According to K.L. Keller, CBBE consists of brand knowledge and brand associations that consumers have about a brand. Brand knowledge refers to the awareness and image consumers have about a specific brand. Meanwhile, brand associations determine whether a consumer holds favorability about that brand as a result of brand uniqueness and brand personality.

Following the consumer-based approach, this research examines the customer behaviors from a brand equity perspective through four key constructs of brand awareness, brand associations, brand loyalty and perceived quality. These determinants have been widely used in explaining the sources of brand equity and its influence on consumer behaviors (Yoo et al., 2000; Lee and Back, 2010; Kim and Hyun, 2011). Generally, the interaction with a brand starts with consumers’ knowing about the brand’s existence. During the interaction process, the unique brand characteristics form brand associations in that consumer’s mind. Consequently, the combined effect of awareness and favorable associations reinforces the perceptions about quality and the attitudes about using the brand’s product or service. Needless to say, brand equity improves the chances of brand preference and exerts influence on customers’ intentions.

Brand equity and the adoption of mobile banking

The literature about branding has confirmed a strong link between brand equity and business success. By developing brand equity, firms create the indispensable ability to differentiate and gain customer preference (Keller, 2013). A review about brand equity in the financial sector has revealed a strong link between brand performance and customers’ preference. Aziz and Yasin (2010) validated the impacts of brand equity dimensions on banking customers based on a study on 480 Malaysian respondents. Other researchers such as Farhana and Islam (2012), Nadernezhad and Vakilalroaia (2013), etc, also showed positive influence of brand equity on the preference of banking customers.

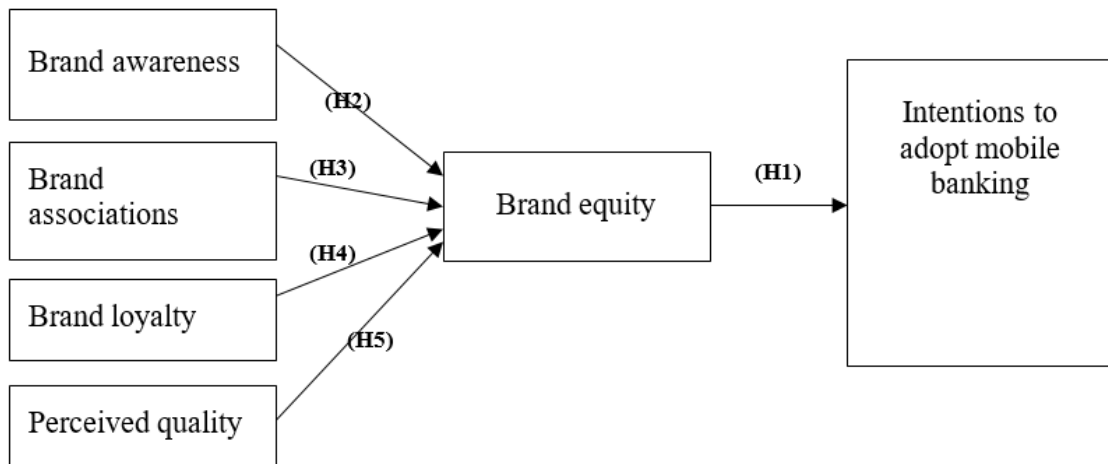
The emerging dominance of mobile banking in the banking industry has attracted scholars to conduct in-depth investigations about drivers of mobile banking adoption. Among the brand equity dimensions, perceived quality, brand associations and brand loyalty are key variables of customer-bank relationship development (Chau and Ho, 2008; Nadernezhad and Vakilalroaia, 2013). Once the actual performance meets expectations, brands gain satisfaction and repetitive purchasing behavior from consumers. The bank-customer relationship also emphasizes the intrinsic value from brand feelings and brand judgements (Aziz and Yasin, 2010; Farhana and Islam, 2012). A winning brand dominates customers' minds by its unique personality and attributes. Other constructs like attitude, user satisfaction and demographics also critically influence the willingness to use mobile banking (Muñoz-Leiva et al., 2017). The empirical evidence suggests theoretical foundations to further study the influence of brand equity on mobile banking adoption, which is a component of the banking sector.

Nevertheless, past studies mainly examine the role of brand equity within the traditional banking context, which is hardly applicable in the emerging mobile banking conditions as customers demand real-time experience while banks increasingly convert physical branches to digital channels. Researchers including Loureiro (2013) suggested the relationship between brand equity and mobile banking adoption, however, her research model focused on examining elements of brand equity instead of validating the influence of brand equity on adopting behavior. Another attempt by Wang and Li (2012) found significant impacts of brand equity on the intentions to adopt m-commerce services in general yet did not verify specific banking characteristics. The lack of concern about digital banking context reduces relevance of these study results, consequently, suggests further empirical investigation about customer's intention to use mobile banking from a brand equity perspective. Therefore, this study investigates the linkage between brand equity and mobile banking adoption that leads to implications about leveraging brand performance to enhance banks' sustainable competitive advantages in the digital era.

3. RESEARCH MODEL AND HYPOTHESES

Based on the literature review, a conceptual framework to investigate the influence of brand equity on the intentions to adopt mobile banking is depicted in Figure 4.1. Intention has been widely used as an indicator of consumer behaviors, including behaviors related to m-commerce services (e.g. Ko et al., 2009; Kuo et al., 2009). It refers to the motivational factors that influence a behavior, such as the willingness and expected efforts to perform a behavior (Ajzen, 1991). Consumers are more likely to perform a behavior if they have higher intentions to do it. Consequently, intention to adopt mobile banking is included in the research model to reflect the influence of brand equity.

Figure 1. Conceptual framework of the influence of brand equity on the intentions to adopt mobile banking



Source: Authors' summary

Brand equity and the intention to adopt mobile banking.

As supported by a great amount of literature, brand equity (BE) plays an indispensable role in motivating consumers to choose products or services from a certain brand instead of those provided by other competitors, even though these brands offer similar levels of quality (Aaker, 1991; Keller, 1993; Yoo et al., 2000). Through unique and strong sets of brand associations and perceived quality, brands dominate consumers' minds to gain preference during the selection process. The role of brand equity has additionally been found in the service and m-commerce industries (Berry; 2000). Researches by Wang & Li (2012); Chang and Liu (2009) found empirical evidence of brand equity's influence on the intention to adopt m-commerce services, which includes mobile banking. Therefore, these empirical evidence formulates the first following hypothesis:

(H1) Brand equity (BE) positively influences the intentions to adopt mobile banking (I)

The relationship between brand equity dimensions and brand equity

Drawing from the literature analysis, the D.A. Aaker brand equity model is among the most popular frameworks used to measure the strength of brand equity. Thus, this study integrates the consumer-based dimensions including brand awareness, brand associations, brand loyalty, perceived quality into the research model to identify indirect influence of them on the ultimate intentions. Although the D.A. Aaker brand equity model has five dimensions, the other proprietary assets factor is not included since it represents the company's internal capabilities and operation rather than reflecting consumer behaviors.

- Brand awareness (BAW)

According to Aaker (1991), brand awareness (BAW) is the extent to which customers associate a certain brand with their intended products or services, which occurs before the purchasing process. Numerous empirical evidence has supported the positive correlation between brand equity and consumers' decision making process (Hoeffler & Keller, 2003, Yoo et al., 2000). Research in specific m-commerce and banking service contexts also indicated the positive influence of BAW in improving brand equity (Loureiro, 2013; Chau and Ho, 2008). The strong connections between BAW and BE gives rise to the hypothesis:

(H2) Brand awareness (BAW) positively influences BE regarding the adoption of mobile banking.

- Brand associations (BAS)

Brand association (BAS) is the customers' favorable or unfavorable attitudes towards a brand, resulting from their perceptions about a set of related characteristics such as experiences, perceptions, opinions, attitudes, feelings, and thoughts (Kotler, 2000). BAS has strong impacts on intentions to favor a brand because it provides customers a reasoning set of information and feelings to match with their expectancy standards (Dissabandara, 2020). In banking services, BAS establishes points of differentiation and connections, which positively determine the overall effectiveness of BE (Taylor et al., 2007; Marinova et al., 2008). Hence, the following hypothesis is formulated:

(H3) Brand association (BAS) positively influences BE regarding the adoption of mobile banking.

- Brand loyalty (BL)

Brand loyalty (BL) describes customers' engagement and commitment with a brand. A high level of loyalty indicates retention, repetitive purchase behaviors or sharing the brand's information to surrounding people (Aaker, 1991). In the existing literature, BL is highly associated as a determinant of BE for consumer goods (Aaker, 1992; Lassar et al., 1995). Moving to the digital era, BL continues to exert its influence in improving BE as evidenced in the service industry (Wang and Li, 2012; Dissabandara, 2020) and in the mobile banking context (Loureiro, 2013; Garepasha et al., 2020). The meanings of BL to brand equity has led to the hypothesis:

(H4) Brand loyalty (BL) positively influences BE regarding the adoption of mobile banking.

- Perceived quality (PQ)

Perceived quality refers to the customers' perceived evaluation of a brand's performance regarding quality and overall satisfaction. Researchers have defined perceived quality (PQ) as the consumers' perceptions about the general product quality in comparison with other competitive brands (Aaker, 1991; Yoo et al., 2000). PQ has strong relationship with

brand equity in determining purchase as implied from various research by Jalilvand et al. (2011), Keller (2013). Moreover, recent findings about quality and user experience in the mobile banking sector also demonstrate the influence of perceived quality on improving the favorable attitude towards the brand, which is similar to brand equity (Amin, 2016). Therefore, the role of PQ to brand equity develops another hypothesis as follows:

(H5) Perceived quality (PQ) positively influences BE regarding the adoption of mobile banking.

4. RESEARCH METHOD

Instrument development

To test the framework in Figure 1.1, this study used a structured questionnaire to generate databases about consumer’s impressions about mobile banking brands and customers’ intentions to use mobile banking. The questionnaire has a total of 25 questions categorized into two parts as follows:

- Part I consists of 6 questions about the demographic information of the respondents measured through nominal scales.
- Part II has 19 questions measuring scales of brand equity (i.e. brand awareness, brand associations, brand loyalty, perceived quality), brand equity and respondents’ intentions to adopt mobile banking.

The research adopted measurement items developed and validated by Wang and Li (2012) and Rios and Riquelme (2008) to ensure reliability and relevance to the research topic. The content was adjusted according to the mobile banking contexts and the research objectives of this study. The questions were measured by the 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each respondent completes only one questionnaire. To test the validity of the modified measurement scales, the author performed a pilot study on a sample size of 50 (n=50). A sample size of minimum 10 units is reasonable for a pilot examination of the research instruments (Saunders et al., 2015). Results from the pilot test and feedback from these 50 respondents were employed to improve the questionnaire before releasing the official version. Table 1 shows these resulting items.

Table 1. Questionnaire survey

Dimension	Code	Measurement item
Brand awareness (BAW)	BAW1	I usually see or hear about the MBBank application
	BAW2	I can quickly recognize the MBBank application among other banking applications
	BAW3	When thinking about a mobile banking application, I immediately think of the MBBank application

Brand associations (BAS)	BAS1	The MBBank application is easy to use
	BAS2	I believe that the MBBank application is secure
	BAS3	Doing transactions on the MBBank application is fast and easy
	BAS4	The MBBank application is very convenient because it incorporates many services and features
	BAS5	The MBBank application provides quick and effective customer services
Brand loyalty (BL)	BL1	I still want to continue using the MBBank application instead of any others, even if they share similar features
	BL2	The MBBank application seems better, even if its features are not so different from those offered by other banks
	BL3	I will recommend the MBBank application to others
Perceived quality (PQ)	PQ1	The MBBank application has excellent quality and performance
	PQ2	The MBBank application performs better than other banking applications in Vietnam
	PQ3	The MBBank application is the leading mobile banking app in Vietnam
Brand equity (BE)	BE1	Overall, I would prefer the MBBank application
	BE2	The MBBank application is continuously improving its experience
	BE3	I enjoy excellent using experience on the MBBank application compared to using other mobile banking apps
Intentions to adopt the MBBank application (I)	BI1	I intend to use the MBBank application in the near future
	BI2	I will do transactions on the MBBank application more regularly

Source: Authors' summary

Population, sampling and data collection procedure

This research targets mobile banking users in Vietnam, including both current users and former users of mobile banking applications. Data was collected through an online questionnaire to overcome time and geographical barriers. The link to the online questionnaire was shared on different mobile banking customer groups on Facebook. These groups are specifically created by banks as discussion and information sharing channels for their customers with the number of members ranging from 3,000 to 220,000. One drawback of online surveys is the lack of guidance and possible technical issues, especially to the elderly respondents. Thus,

the author enclosed a detailed cover letter emphasizing the importance of the respondents' contributions and provided contact information to support in case of unexpected issues. During two weeks from 15th May to 23th May, 215 surveys were received. Validity screening was performed to filter out unqualified answers such as systemic responses, repeated responses or respondents who did not use mobile banking within the latest 1 year. Consequently, 193 out of 215 surveys were valid and used for the main data analysis, representing an effective rate of approximately 89.8%.

Data analysis process

The collected data was analyzed through a two-phase approach SEM technique (Anderson and Gerbing, 1988; Hair et al., 2006). At the first phase, the measurement model indicates the relationships between indicators and the construct by testing reliability, validity and discriminant. The second phase, structural model examines the hypotheses among different constructs through three steps: collinearity assessment through VIF; coefficient determination and bootstrapping method to test the relationships among different constructs.

5. RESULTS

Profile of the samples

The Table 2 below summarizes the information in terms of frequency and its relative percentage in the total sample. The majority of respondents belong to the 18-25 age group, accounting for 44.04%. The demographic profile also shows a balanced ratio between genders. While female respondents account for 52.33%, male respondents contribute 47.67% to the total number of respondents. Most of the respondents live in the North (47%) and the South (37.82%). More specifically, their locations concentrate in metropolitan areas such as Hanoi, Ho Chi Minh city, Can Tho,... with the largest contribution of 43.01%. By combining these results, it can be inferred that the respondents are mainly students or young and middle-aged office workers. The residential areas in big cities well introduce them to the modern, convenient lifestyle.

The demographic characteristics of the respondents well correspond to the profile distribution of mobile banking users in Vietnam. According to a report by the Commonwealth of Australia (2020), Vietnamese mobile banking users are mainly youngsters and middle-aged people living in big cities. Additionally, they are students, early professionals and office workers who have experienced the mobile banking services through the banks' early marketing efforts

Table 2. Demographic profile of respondents

		Frequency (N=193)	Percentage
Age	18-25	85	44.04%
	26-35	56	29.02%
	36-50	35	18.13%
	Above 50	17	8.8%
Gender	Male	92	47.67%
	Female	101	52.33%
Region	Northern	91	47%
	Southern	73	37.82%
	Central	29	15.03%
Location	Metropolitans (Hanoi, HCM city, Can Tho,...)	83	43.01%
	Provincial cities	55	28.5%
	Town/ district centers	34	17.62%
	Countryside	21	10.88%
Marriage	Single	125	64.77%
	Married	68	35.23%
Monthly income	Below 5 million VND	75	38.86%
	5 million VND to 10 million VND	34	17.62%
	10 million VND to 25 million VND	45	23.32%
	Above 25 million VND	39	20.21%

Source: Authors' summary

Reliability tests

To indicate indicator reliability, factor loadings were used as the main criteria. According to Chin (1998), a measurement item is considered reliable when its factor loading value is higher than 0.7 and has p values <0.05. Any measurement item unable to meet these standards would be removed from further statistical analysis. Table 3 below summarizes the statistical results from the indicator reliability test. All the factor loadings are higher than 0.7 and p values are maintained at 0.00, which suggest T-value is higher than 1.96. Therefore, the

research model satisfies the criteria of the indicator reliability test. Thus, the measurement items can reflect and evaluate the constructs included in the overall research model (Hair et al., 2011).

Table 3. Factor loadings and significance statistics

	Factor loadings	Sample Mean	Standard Deviation	T Statistics (O/STDEV)	P Values
BAS1 <- BAS	0.825	0.824	0.037	22.006	0.000
BAS2 <- BAS	0.833	0.832	0.032	25.733	0.000
BAS3 <- BAS	0.805	0.805	0.04	20.168	0.000
BAS4 <- BAS	0.781	0.78	0.037	20.936	0.000
BAS5 <- BAS	0.777	0.776	0.037	21.006	0.000
BAW1 <- BAW	0.842	0.84	0.035	23.874	0.000
BAW2 <- BAW	0.819	0.82	0.035	23.169	0.000
BAW3 <- BAW	0.89	0.889	0.027	33.386	0.000
BE1 <- BE	0.881	0.88	0.028	31.809	0.000
BE2 <- BE	0.914	0.914	0.014	63.458	0.000
BE3 <- BE	0.908	0.907	0.017	52.05	0.000
I1 <- I	0.94	0.94	0.012	75.286	0.000
I2 <- I	0.946	0.946	0.01	91.414	0.000
BL1 <- BL	0.805	0.801	0.049	16.343	0.000
BL2 <- BL	0.871	0.869	0.026	33.041	0.000
BL3 <- BL	0.885	0.886	0.018	49.405	0.000
PQ1 <- PQ	0.897	0.896	0.02	45.573	0.000
PQ2 <- PQ	0.924	0.924	0.013	69.16	0.000
PQ3 <- PQ	0.9	0.899	0.017	52.681	0.000

Note: BAW=Brand awareness, BAS=Brand associations, BL=Brand loyalty, PQ=Perceived quality, I=Intentions to adopt mobile banking

Source: Authors' summary

Besides indicator reliability, the composite reliability test refers to the internal consistency of each construct (Chin, 1998). It evaluates the variance contribution of the indicators relative to the total scale variance. To remain reliable, the values of composite reliability and Cronbach's alpha must be higher than 0.7 (Hair et al., 2011). As shown in Table

4 the measurement model is reliable and has good internal consistency with no value of either Cronbach's alpha or composite reliability lower than 0.7.

The measurement items satisfy both the indicator reliability and the composite reliability tests. Consequently, all the measurement items included in this study are reliable and significant. They enable evaluation of the main constructs that later accurately validate the research hypotheses

Table 4. Cronbach's alpha and composite reliability

	Cronbach's Alpha	Composite Reliability
BAS	0.864	0.902
BAW	0.809	0.887
BE	0.884	0.928
I	0.876	0.941
BL	0.815	0.890
PQ	0.892	0.933

Note: BAW=Brand awareness, BAS=Brand associations, BL=Brand loyalty, PQ=Perceived quality, BE=Brand equity, I=Intentions to adopt mobile banking.

Source: Authors' summary

Validity tests

Convergent validity is a necessary test to validate the indicators incorporated in the research model. To measure convergent validity, researchers use average variance extracted (AVE) as statistical criteria (Chin, 1998). A measurement model satisfies convergent validity when its AVE values are equal to or greater than 0.50 (Hair et al., 2011). According to the data in Table 5, all the AVE values are higher than 0.50, thus satisfying the requirements of the convergent validity test. This result indicates a strong relationship between each construct and its respective indicators.

Table 5. AVE and correlation of constructs

	Convergent validity		Discriminant validity					
	Average Variance Extracted (AVE)	Variance	BAS	BAW	BE	I	BL	PQ
BAS	0.647		0.805					
BAW	0.724		0.625	0.851				
BE	0.812		0.824	0.675	0.901			
I	0.889		0.762	0.601	0.832	0.943		

BL	0.730	0.834	0.667	0.884	0.807	0.854	
PQ	0.823	0.804	0.656	0.888	0.781	0.864	0.907

Note: BAW=Brand awareness, BAS=Brand associations, BL=Brand loyalty, PQ=Perceived quality, BE=Brand equity, I=Intentions to adopt mobile banking.

Source: Authors' summary

Finally, two discriminant validity tests were performed. The first method is to measure if each construct's AVE is higher than its squared correlation with other constructs. In Table 5, the diagonal numbers are greater than other relative off-diagonal elements, which suggests that the square root of the construct's AVE is higher than the correlation of the construct to other constructs in the model. Therefore, the research model passes the discriminant validity test. Another criteria of the discernment validity test is factor loadings (Chin, 1998). Measurement items should be greater on its connected constructs while be weaker on other unconnected constructs. Table 6 shows the factor loadings and all the cross-loadings. As an indicator's loadings is higher than its cross-loadings, the research model has discriminant validity.

As referred from both the convergent validity and the discernment validity tests, the measurement model is successfully validated. The constructs and measurement items used in the study are reliable and validate, thus capable of providing accurate examination of the hypotheses and the holistic research model.

Table 6. Cross loadings

	BAS	BAW	BE	I	BL	PQ
BAS1	0.825	0.529	0.686	0.738	0.681	0.641
BAS2	0.833	0.515	0.640	0.642	0.690	0.601
BAS3	0.805	0.470	0.648	0.611	0.657	0.653
BAS4	0.781	0.473	0.626	0.508	0.656	0.626
BAS5	0.777	0.524	0.707	0.560	0.668	0.705
BAW1	0.486	0.842	0.555	0.445	0.538	0.552
BAW2	0.546	0.819	0.537	0.487	0.557	0.526
BAW3	0.563	0.890	0.627	0.595	0.605	0.594
BE1	0.713	0.592	0.881	0.737	0.800	0.769
BE2	0.759	0.633	0.914	0.781	0.797	0.791
BE3	0.755	0.600	0.908	0.730	0.792	0.840
I1	0.688	0.503	0.766	0.940	0.720	0.712

I2	0.748	0.629	0.803	0.946	0.800	0.760
BL1	0.716	0.453	0.683	0.685	0.805	0.698
BL2	0.743	0.581	0.745	0.652	0.871	0.756
BL3	0.687	0.659	0.828	0.73	0.885	0.759
PQ1	0.754	0.538	0.803	0.762	0.798	0.897
PQ2	0.747	0.624	0.84	0.727	0.793	0.924
PQ3	0.685	0.623	0.773	0.633	0.760	0.900

Note: BAW=Brand awareness, BAS=Brand associations, BL=Brand loyalty, PQ=Perceived quality, BE=Brand equity, I=Intentions to adopt mobile banking.

Source: Authors' summary

Structural model

Structural model analyze the formulated hypotheses by evaluating the relationships among the constructs. The evaluation process includes collinearity assessment through variance inflation factor (VIF), coefficient of determination (R^2) and the significance of path coefficients.

Collinearity assessment through variance inflation factor (VIF)

The collinearity assessment through variance inflation factor (VIF) assessment evaluates the possibility of multi-collinearity, which means the independent variables highly correlate to each other in a regression model (Hair et al., 2011). In this study, the structural model includes BE as the independent variable to I and BAS, BAW, BL and PQ as the independent variables to BE. Statistics from Table 7 has shown that all the VIF values are under 5, which satisfies the evaluation criteria of this test.

Table 7. VIF values

	BAS	BAW	BE	I	BL	PQ
BAS			3.657			
BAW			1.910			
BE				1.00		
I						
BL			4.216			
PQ			4.467			

Note: BAW=Brand awareness, BAS=Brand associations, BL=Brand loyalty, PQ=Perceived quality, BE=Brand equity, I=Intentions to adopt mobile banking

Source: Authors' summary

Coefficient of determination (R^2)

The coefficient of determination (R^2) assessment is often referred to as the “goodness-of-fit” test (Hair et al., 2011). It is highly useful in trend analysis as it explains how one variable changes caused by the changes of its correlated variable. Researchers measure this correlation between 0.0 and 1.0, in which 1.0 represents perfect fit while 0.0 indicates an unreliable model. According to Chin (1998), the values for endogenous variables of 0.67, 0.33 or 0.19 respectively represent substantial, moderate or weak.

In this research, BE and I are two endogenous variables. The of BE is 0.853 and the of I is 0.692, both of which suggest substantial interpretability of the overall structural research model (Table 8)

Table 8. R square values

	R Square	R Square Adjusted
BE	0.853	0.849
I	0.692	0.690

Note: BE=Brand equity, I= Intentions to adopt mobile banking

Source: Authors' summary

Significance of path coefficients

The last assessment evaluates the significance of path coefficients through examining the values of path coefficient, t-value and P-value (Hair et al., 2011). Significant paths represent empirically supported hypotheses, thus justifying meaningful cause-effect relationships. For a hypothesis to be validated, the p-value must be lower than 0.05, which is equivalent to t-value higher than 1.96. Any path having t-value<1.96 and p-value>0.05 would be considered as insignificant.

Table 9 demonstrates the results of the structural regression model. The results show that brand equity has significant positive effects on behavioral intentions to use mobile banking applications with p-value=0.0 and path coefficient=0.832, which means the hypothesis H1 is meaningful. This conclusion is supported by earlier works in the existing literature that claims brand equity significantly influences individuals' behavioral intentions such as Aaker (1991), Dissabandara (2020).

Regarding the relationship between brand equity dimensions and the overall brand equity, both brand loyalty (path coefficient=0.344) and perceived quality (path

coefficient=0.417) share the same p-value=0.00. Therefore, they exert strong positive influence on brand equity in the mobile banking context. The hypothesis H4 and H5 is valid. The results are consistent with findings from previous studies such as Aziz & Yasin (2010), Marinova, Cui and Marinov (2008). Consumers are more likely to develop brand preference for the MBBank mobile banking application if they have a high level of brand loyalty or evaluate the app performance as excellent or good.

Brand associations also have positive relationships with brand equity even though the p-value=0.023 is higher than those of H1, H4 and H5. Thus, the hypothesis H3 is supported. This hypothesis is supported by other research from Marinova, Cui and Marinov (2008), Farhana and Islam (2012). Overall, a focus on strengths and weaknesses assessment reveals unique selling points as the fundamentals of an association's network, which is indispensable in improving brand positioning.

Unlike other paths, the influence of brand awareness on brand equity is insignificant in the mobile banking context due to the p-value=0.228, much higher than the standard evaluation value of 0.05. Hence, the hypothesis H2 is rejected. This finding is inconsistent with earlier research within the general brand equity literature such as Chau and Ho (2008).

Table 9. Path coefficient values of the structural model

Hypothesis	Path	Original Sample (O)	T Statistics	P Values	Remarks
H1	BE -> I	0.832	25.69	0	Significant
H2	BAW -> BE	0.076	1.271	0.204	Insignificant
H3	BAS -> BE	0.154	2.409	0.016	Significant
H4	BL -> BE	0.344	4.433	0	Significant
H5	PQ -> BE	0.417	5.395	0	Significant

Note: BAW=Brand awareness, BAS=Brand associations, BL=Brand loyalty, PQ=Perceived quality, BE=Brand equity, I= Intentions to adopt mobile banking

Source: Authors' summary

6. DISCUSSIONS AND IMPLICATIONS

Discussions

As seen from literature review, there is little empirical research on the relationships between consumer-based brand equity and the intention to adopt mobile banking. This study developed a comprehensive framework to evaluate the relationship between brand equity and

consumer's willingness to use mobile banking, additionally, examining the contribution of each brand equity dimension to the overall effect of brand equity.

Research results showed a positive relationship between brand equity and the intentions to adopt mobile banking. Similarly, three studies by Gill & Lei (2009); He & Li (2011); Qi et al. (2009) verified the significant link between brand equity and customer's behavioral intention under the specific mobile service context, which is in line with mobile banking conditions. Because mobile banking is delivered through digital channels without physical forms and human interactions, it is highly difficult to define and highlight the unique selling points. Therefore, improving brand equity plays a critical role in awareness creation and service evaluation that ultimately influence customer's choice of mobile banking.

Research results also indicated that brand associations, brand loyalty and perceived quality all have direct positive effects on the overall brand equity, which implies an indirect influence on the intentions to use mobile banking. The significant link between brand associations and brand equity is in line with both the knowledge about brand equity (Aaker, 1991; Chau & Ho, 2008) and the specific investigation of brand equity in the financial service market (Marinova, Cui and Marinov, 2008). Overall, a comprehensive network of brand attributes, benefits and attitudes critically increases the success of delivering the unique selling points to the consumers. Statistical results also validate the influence of brand loyalty on brand equity of mobile banking applications. Previous studies have shown supporting evidence regarding the central role of brand loyalty in determining customer's behavioral intentions, including Netemeyer et al., 2004; Yoo et al., (2000). In terms of mobile banking as well as the mobile commerce contexts, the phenomenon is also emphasized by evidence from Chau and Ho (2008); Troshani and Hill (2011). A strong base of loyal customers reduces the switching risk, which describes customers transferring their active activities to another mobile bank. The final variable of perceived quality also exert considerable influence on brand equity. Among the evaluated brand equity dimensions, perceived quality is the strongest determinant with $\beta=0.417$. A more seamless and satisfying experience on the mobile banking application corresponds to the higher tendency to elaborate favorable attitudes about using this service. Other researchers also demonstrated supportive findings about the relationship between perceived quality and brand equity regarding mobile services, such as Yoo et al. (2000). To enhance the perceived quality, banks should simplify the experience to prioritize user-friendliness, which additionally influences users' perception about the service quality.

Unlike other findings about brand equity, this research has shown insignificant influence of brand awareness on the customers' overall attitude about the app as well as their intentions to use the app. The exclusive conditions within the Vietnamese mobile banking landscape may explain this inconsistency. First, Vietnamese people are extremely alert in terms of financial services. As evidenced by Trinh et al. (2020), trust and security are two critical influencing factors of the intentions to adopt mobile banking. Mass advertisements, especially

online promotions on social media like Facebook, Youtube, and sponsored articles, are often associated with “scam” or “fake value”. The extent of negativity is further exaggerated since the online environment is noisy and filled with continuous streams of information. Thus, the combination of risk averse nature and online distraction may cause customers to ignore the banks’ marketing efforts despite the received information. To fill in the gap of trust, Vietnamese banks mainly rely on its existing customer base, referral programs and direct sales through the branches network. Customers are invited to try the app, from which process, gradually develop knowledge about mobile banking and preference for the service. In other words, they trust their direct experience with the financial service rather than the information they receive.

Implications

The study results demonstrate several implications for both theory development and practical branding management. Regarding theoretical implications, the research framework highlights the direct relationship between brand equity and intentions to use mobile banking among consumers. Consumers have higher intention to choose a mobile banking brand with higher brand equity. This finding addresses the gap in the literature of consumer-based brand equity as brand equity is often examined in the traditional banking contexts without concerns about the emerging conditions of digital banking, such as real-time communication, lack of human contacts compared to physical branches.

Additionally, the research suggests the significant influence of brand associations, brand loyalty and perceived quality on the overall brand equity of mobile banking applications. Among these dimensions, perceived quality demonstrates the strongest effect that implies a dominant role of performance stability, seamless user experience, user-friendly interface and safety in motivating consumers to choose a specific mobile banking brand. However, this study shows an insignificant relationship between brand awareness and brand equity of mobile banking. The result indicates that although brand awareness is indispensable in delivering initial knowledge about the mobile banking application to the mass audience, it is insufficient to induce actual adopting behaviors. Thus, mobile banking brands should focus on creating unique brand attributes, developing loyalty and continuously improving the in-app experience while maintaining wide awareness generation as a critical supporting element.

The theoretical findings also suggest a number of useful insights for managers in improving the mobile banking customer acquisition efforts. The recommendations can be classified into several aspects of communication, loyalty development and in-app performance. Although they belong to different categories, they are not completely separated yet closely support each other during user conversion. First, mobile banking brands should strengthen a clear and unique brand positioning in consumers’ minds. According to Keller (2003), a brand associations network consists of three dimensions: attributes, benefits and attitudes. A strong brand image means customers are still satisfied with the core benefits while being excited for

the innovative attributes. Therefore, clarification about each brand's core values while establishing favorable emotional connections help reinforce the overall brand preference. Clear message, consistent communication and dual interactions on social media can enhance the favorable attitude of consumers towards a mobile banking brand. Given the role of brand loyalty in determining brand equity, consumer loyalty needs to be prioritized in marketing management activities. According to Baxter (2015), membership is about building long-term, sustainable and emotional relationships with customers rather than just rewards or point redemption in the common loyalty systems. Mobile banking should re-define loyalty from mere point accumulations to developing a sense of belonging through incremental interactions with the brand. Finally, perceived quality should be given special attention resulting from its dominant role in convincing consumers to choose a certain mobile banking application. Based on different levels of perceptions, the study proposes a structural app quality reinforcement in consumers' mind as follows. First, the mobile banking brand has to stay relevant to the standard functional requirements and financial needs of end users. It then enhances satisfaction by improving customer engagement such as customer care service, dual interactions during communication activities. The brand image is further leveraged with a promise of convenience and innovation beyond traditional banking activities. With higher perceived quality, consumers add extra perceived value to the original brand and develop more motivation to choose mobile banking applications.

CONCLUSIONS

Mobile banking is no longer a vision but a pervasive reality in recent years. With mobile banking, customers enjoy a more convenient and satisfying experience while banks optimize their operation and simultaneously approach mass customers. Since mobile banking is mainly delivered through digital channels, new customer acquisition becomes increasingly competitive for financial institutions due to the distracting nature of the online environment. Although brand equity has received considerable attention as a key determinant of customers' intentions, there has been little effort to link the role of brand equity to the intentions to adopt mobile banking. Hence, this research attempts to empirically investigate the influence of brand equity on customers' intentions to adopt mobile banking through an empirical study in Vietnam.

To examine the stated topic, this research developed a research model incorporating four crucial dimensions of brand equity, including brand awareness, brand associations, brand loyalty, perceived quality. A questionnaire survey was carried out to collect data from MBBank's mobile banking users or former users. After in-depth tests using the PLS-SEM method, the research model provides strong evidence that supports the positive relationship between brand equity and mobile banking adoption. Furthermore, except for brand awareness, the other three factors of brand associations, brand loyalty and perceived equity exert influential effects on brand equity, which ultimately leads to higher intentions to adopt mobile banking.

Findings from this research provide both theoretical and practical implications for scholars and practitioners. However, this study still has a number of limitations. First, the research is specifically limited to the Vietnamese mobile banking context. The questionnaire survey validating the research model was performed in Vietnam with different cultural context and mobile banking development capability compared to other countries. Thus, the research findings may not represent the attitudes, beliefs or perceptions of mobile banking customers in other geographical areas. Second, the online questionnaire survey method possibly leads to inaccurate reflections of customers' feelings, attitudes, opinions and reactions. Further investigation about the influence of brand awareness on brand equity and accordingly on consumers' intention to use mobile banking is required to due the surprisingly insignificant effect of brand awareness on brand equity, which is inconsistent to common literature of consumer-based brand equity. Besides, there exists a need to find other underpinning variables of brand equity apart from the four key dimensions used in this research. The additional analysis helps explain in-depth mobile banking's brand equity and assist the development of marketing activities by better predictions of consumer behaviors.

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IMPROVING PROCUREMENT PERFORMANCE OF BUILD-TO-ORDER: DETERMINING FACTORS FOR VIETNAMESE MANUFACTURERS

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Abstract:

Purchasing activities, or in a broader approach, procurement is seen as a crucial activity in the manufacturing enterprises, and it is even more critical in the Build-to-Order (BTO) manufacturers who own the capability to build standard or mass-customized products upon receipt of orders quickly. Procurement at a BTO company has to be flexible and responsive to meet the wide variety of materials and components at the proper lead time, taking into account the trade-off between inventory levels and delivery lead time.

In Vietnam, the model of supplier management in BTO manufacturers still involves adversarial relationships, easy switching among suppliers, low information exchange, low commitment, price-based competition for supplier selection, and a search for new suppliers. This study presents some factors influencing procurement performance of BOT manufacturers in Vietnam. An integrated Delphi-AHP method is utilized to identify determining factors and their quantitative importance causing the better performance of procurement management. Delphi method has been used to survey expert opinion about major factors and Analytical Hierarchy Process (AHP) method has been utilized to define their significance, in a case study for Vietnamese BOT manufacturers. This study outlines out some most determining factors that improve the overall procurement performance with (i) purchasing demand forecast (ii) the buyer - supplier relationship, (iii) competencies of procurement human resource (iv) synchronization of the entire supply chain, etc. This study offers some recommendations for Vietnamese BTO manufacturers, thus a good reference for those doing research in this field.

Keyword: *supply chain management, purchasing management, build-to-order manufacturing, procurement performance.*

1. Introduction

The current context of the world economy with many fluctuations: The covid-19 pandemic has caused severe economic consequences, the global supply chain has been broken, material prices are unstable. This situation has also opened new opportunities for innovation, growth, and competitive advantage in the post-pandemic world. That situation has put global enterprises as well as Vietnam manufacturers into great opportunities as well as challenges.

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Also, in this context, manufacturers need to take a hard look at their processes and their business models, realize their weaknesses and strengths, analyze the situation and seek direction to improve their business.

Purchasing activities, or in a broader approach, procurement is seen as a crucial activity in the manufacturing enterprises and it is even more critical in the Build-to-Order (BTO) manufacturers who own the capability to build standard or mass-customized products upon receipt of orders. In any BTO enterprise, the production system relies strongly on the tight integration of the supplier to meet the responsiveness and flexibility- nature of BTO.

Research on procurement management has received considerable attention in the recent years. Despite of several studies concerning procurement management or procurement process, such as Christensen (2005), Hong (2009), and Malviya et al. (2019), there has not been conducted any research on determining factors that improve the procurement performance in BTO manufacturing in Vietnam in order to help Vietnamese company top managers, procurement managers and procurement experts to know how to control the cost and the entire supply chain management. Hence, this research was aimed to identify and prioritize the factors that affect to the procurement performance in Vietnamese BTO manufacturer.

2. Literature review

2.1 BTO manufacturing system and BTO procurement

BTO may be defined as the production or assembly of products after orders are received from customers... BTO strategy has the purpose and objective of providing custom-made (often modularized) products on a mass-scale. (WJ Christensen et al., 2005). In many circumstances, the BTO system is defined as a just-in-time production system that aims to follow lean manufacturing concepts. As soon as an order is submitted, the production line begins producing accurate quantities in accordance with the specifications and deadline. This means that customers determine when and what products are made. The customer demand is transmitted across the supply chain under this model, and all departments work together to achieve the standard and timelines. For highly tailored and low-volume products, the model is the best option.

Build-to-order supply chain as a strategy can be defined as “the value chain that manufactures quality products or services based on the requirements of individual customer or group of customers at competitive prices, within a short span of time by leveraging core competencies of partnering firms or suppliers and information technologies such the Internet and www to integrate such a value chain.” (Angappa Gunasekaran, 2005)

When running this model, the company gain significant benefits, such as

- Providing the customer with the exact product specification required, increasing customer satisfaction

- Better customer lead times and flexibility to adjust to consumer demand changes
- Reducing inventory holding costs (capital cost and warehousing cost)
- Less work in progress, easier to control the production system
- Eliminating production waste
- Improving cash flow

However, the following disadvantages tend to be characteristic of BTO:

- Having an insufficient ready supply of products to sell
- Taking a longer time to provide the product to the customer
- Taking higher costs for customization
- Requiring multiple revisions of specifications
- Taking up a significant portion of resources in case of last-minute changes
- Production plans are often inaccurate or hard to follow accurately

2.2 Procurement:

There is a great deal of ambiguity in regard to the nature, scope and role of procurement in this rapidly changing business environment. Prior research on procurement has been quite fruitful in many aspects.

Traditionally, firms regard low cost purchasing of quality materials or component parts or finished products as an important function of procurement (Nollet and Beaulieu, 2003; Schiele, 2007). However, today's dynamic market environment and intense competition drive all types of organizations to be more innovative in introducing new products and services fast to market and requires high level of flexibility in meeting changing customer requirements (Barragan et al., 2003; Hong et al., 2009). Firms concentrate on their core capabilities, reduce staffing levels, reduce management problems, and improve manufacturing flexibility through various types of outsourcing. In this context, procurement deals with contradictory nature of business decisions such as make vs. buy, control vs. flexibility, unit cost vs. total cost of ownership, and benefit vs. risk. (Hong.P et al,2012)

Procurement is more than technical function but strategic and organizational processes (Andersen and Rask, 2003). Since the portion of procurement is as large as 70% or more of total cost of goods sold in some industries, management needs to take effective procurement as strategic priority (Anderson and Katz, 1998; Barragan et al., 2003). Therefore, traditional back office purchasing function has been evolved to be more cross functional and inter-organizational business processes. The scope of procurement is defined including sourcing, supply management, purchasing, supplier development and innovation, and performance management (Gunasekaran; 2007). Strategic procurement involves effective cost reduction of all the component parts through long-term manufacturing process planning based on responsive

customer information systems and supplier integration (Carter and Yan, 2007). And the long-term strategic procurement planning involves both senior management and functional specialists in the areas of marketing, purchasing, operations and distribution as well (Paulraj et al., 2006; Tassabehji and Moorhouse, 2008).

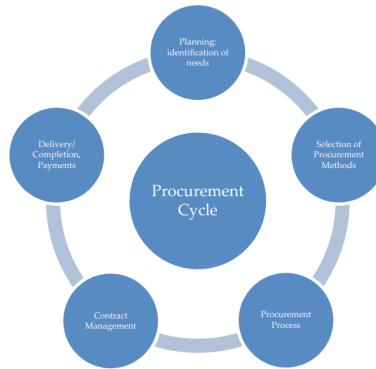


Figure 1: Different stage of procurement cycle

Source: Khan. (2018). How It Is Done: Procurement Cycle and Procedures. *Public Procurement Fundamentals*, 29–61)

In this innovation driven market environment, no single company has enough skill sets to fulfil timely demand, hence, procurement tends to be more dependent on efficient supply chain management (Andersen and Rask, 2003; Williamson, 2008).

2.2 Procurement Performance

Measuring procurement outcomes is an essential step in a sense that procurement impacts not only firms' financial performance but also overall performance of a firm (Bartezzaghi and Ronchi, 2004). Overall cost reduction throughout supplier coordination and impact of supply chain coordination and alliance have been considered important procurement performance measurement (Schiele, 2007)

In fact, procurement performance measures the degree to which a procurement function or process meets expected goals at the most competitive costs (Malviya and Kant, 2019; Tripathi and Gupta, 2019). For manufacturing firms, measuring procurement performance plays a significant role in predicting the performance of manufacturing firms and their supply chains (Malviya and Kant (2019). Procurement performance, in recent times, has been considered among the key organizational performance measurement indicators (Laosirihongthong et al., 2019).

Regarding some factors that affect to the performance of cycle in BTO manufacturers, *lead time* is a key factor of procuring raw materials by meeting the material and components demand which improve the ability to respond to individual customer requirements as quickly as possible. The manufacturing system in these businesses must be flexible and adaptive to fulfill the needs of specific clients. It's impossible to determine exact amounts of consumer

orders in today's increasingly uncertain market situation. However, a short procurement cycle is essential for the BTO model. Shortening lead time, suppliers will assume more risk. "The core of strategic procurement is how to handle this trade-off between production methods and lead time reduction." (Tomino et al., 2012)

Moreover, the *negotiating leverage* is hindered: Build-to-order industrial manufacturers will not be as well-positioned as companies with limited forecasting into consumption and highly specialized product offerings. Traditional component-level procurement strategies yield minimal benefits because of the inability to deliver accurate amounts to the market, reducing bargaining leverage in a build-to-order system. Due to the inability to deliver precise volumes to the market, traditional component-level procurement tactics generate limited benefits, limiting negotiation leverage in a build-to-order system. Furthermore, a mentality of "too small – too fragmented – too complex" pervades the sector, further hampering the effort and results from sourcing activities." (Wyman, O., 2019)

Firms achieve cost efficiency and improve quality and order fulfilment through effective *supplier selection* (Ellram and Krause, 1994). Firms regard low cost purchasing of quality materials or component parts or finished products as an important function of procurement (Schiele, 2007).

With the growth of globalization and international trade, easy access to low cost resources from overseas makes *global sourcing* as an important stream in procurement practices. Among many underlying drives for procurement outsourcing, firms strive to search for the best price or seek efficient ways of acquisition from outside sources. Accordingly, purchasing firms turned their focus from low cost purchasing to enhanced customer satisfaction by adding more values on their product, and a firm with green orientation is translated into developing environmentally sound products in today's competitive market environment. Green sourcing is also considered an important sustainable procurement practice. (Hong et al., 2009). However, global sourcing also carries risk in the form of hidden cost or tradeoffs which include transportation and logistics costs, delivery performance, service quality, production capacity, and other business factors (Lowson, 2002; Ramingwong and Sajeev, 2007). This requires organisation-wide efforts of sourcing and *procurement planning* and implementation (Prajogo et al., 2008).

Besides, some research mention to the role of procurement department and procurement personnel for making decisions and making plans while considering the plans of the sales department and manufacturing department. Macro factors such as logistics infrastructure, country specific elements including politics, culture, geographic locations, and administration systems also impact on sourcing performance (Min and Galle, 1999; Oke et al., 2009; Ruamsook et al., 2009).

4. Methodology

To achieve the objective of this research, mixed methods design was selected, which is “an approach to inquiry that combines or associates both qualitative and quantitative forms” (Creswell, 2009, p. 4).

As a two-phase, this research begins with a qualitative interview to explore some key factors by which the procurement performance can be evaluated in Vietnamese BTO manufacturing. Then, it is followed by a cross sectional quantitative survey for scoring and prioritizing the key factors in the initial phase.

At the first phase of the research (qualitative), the study utilized the Delphi technique. The Delphi technique is defined as “a method for structuring a group communication process so that the process is effective in allowing a group of individuals, as a whole, to deal with a complex problem” (Linstone and Turoff, 2002, p. 3). The notion of procurement performance in BTO manufacturing can be viewed as a complex problem that suffers from a lack of substantial knowledge. Thus, a consensus among managers and experts in Vietnam is taken concerning determining factors.

Given the selection of Vietnam as the study area of the research, the panel members (company directors, factory directors, procurement managers and experts/lecturers with more than 5 years of work experience in the BOT manufacturing) were selected in Vietnam. To select the panelists, the study used purposive sampling and sample size was 30 panel members with respect to the recommendations of Dalkey, an expert in Delphi methodology (Park, 2002). Among them, 15, 5, 5 and 5 experts were selected from company directors, factory directors, procurement managers and experts/lecturers respectively.

The Delphi technique included two rounds. In round 1, the 30 semi-structured interviews with panel members were conducted to explore the key factors affecting to the procurement performance in Vietnam’s BTO manufacturing. The opinions of the panelists were then returned to the researcher to be summarized. After reviewing the opinions expressed by the panel members, all the factors identified from round 1 and literature review were included in the questionnaire of round 2. In round 2, panelists were asked to determine the degree of importance of factors based on the five point. Likert scale from 1 = not important, 2 = slightly important, 3 = moderately important, 4= very important to 5 = extremely important to get a consensus on factors of procurement. The data of round 1 were analyzed by coding and indexing, and those of round 2 were analyzed using the Content Validity Ratio (CVR).

Next, at the second phase of the research (quantitative), the Analytic Hierarchy Process (AHP) technique that is “a theory of measurement through pairwise comparisons and relies on the judgments of experts to derive priority scales” (Saaty, 2008, p. 83) was implemented in terms of four steps using the Expert Choice software to determine the priority of the factors affecting to the procurement performance in the previous phase.

Accordingly, AHP questionnaire was designed based on the results obtained by Delphi. The affiliation of the experts and their characteristics were the same as those of experts of the earlier phase. Since the number of surveyed experts should not be too many and 5 - 15 is recommended as suitable number to complete AHP questionnaires (Lin et al., 2009), 12 experts were selected in this phase, including 6 experts from top managers, 3 experts from middle managers and 3 experts from academia. The procedure of the analysis of the quantitative data by the AHP is illustrated in detail in the next section.

5. Findings

5.1. Research findings from the Delphi technique

At the first round of the Delphi, 30 semi-structured interviews were conducted with panel members to get their opinions concerning factors affecting to the procurement cycle performance. Once the interview schedule was confirmed, the researchers contacted the panelists personally to invite them for interview participation. An interview was conducted for each panelist for between 20 and 30 min, giving an average of 25 min per interview. Next, the opinions of the panelists were summarized, selected, and transformed using coding and indexing. Thereafter, the obtained data were categorized and compared with the factors extracted from the literature. To facilitate the comparison process, the identified factors were tabulated and listed. Then, the final list of 15 factors in round 1 were determined (Table 1)

Next, at the second round, the factors identified by the panelists in round 1 and those abstracted from the literature were inserted into a questionnaire. Then, panel members were asked to determine the degree of importance of the indicators and drivers based on the five-point- Likert scale of 1 (not important) to 5 (extremely important).

Table 1: Procurement performance determining factors identified by Delphi panel members

No	Factors	Frequency of company directors (n = 15)	Frequency of factory directors (n = 5)	Frequency of procurement managers (n = 5)	Frequency of academia (n = 5)	Total (n=30)
1	Analyzing and forecasting purchasing demand	8		3	4	15
2	Estimating optimal purchasing budget/cost for each order.	5	3			8
3	Financial capacity of the company	10				10
4	Making a detailed Procurement Plan	3		5	3	11

5	Sourcing for a variety of domestic and foreign suppliers	3		4	1	8
6	Developing procurement criteria	0	2	4		6
7	Screening and ranking suppliers		3	2		5
8	Negotiating prices and contracting with suppliers	10	0	4		14
9	Synchronized the procurement with entire supply chain and internally controlling	3	3		2	8
10	Competencies of procurement human resource	5		2		7
11	Strategic positioning of the purchasing department	2	0	2		4
12	Building reputable and transparent relationship with suppliers	12	2	3	3	20
13	Sharing information between manufacturers and suppliers	4	2		1	7
14	Analyzing macro- and micro-economic factors	5			2	7
15	Capturing information and evaluating competitors	3			1	4

Finally, those factors that attained a Content Validity Ratio - CVR of at least 0.33 (this value is obtained with respect to the number of panelists that was 30 experts (Lawshe, 1975)) were selected as the final key competitiveness indicators and drivers of full-service airlines. The CVR for each indicator or driver was computed using the following formula:

$$CVR = \frac{Ne - \frac{N}{2}}{\frac{N}{2}}$$

In which, Ne is the number of panelists indicating “essential” and N is the total number of panelists (Lawshe, 1975). Since in this research the five-point Likert scale was used, it was required to match these two scales with each other. Accordingly, extremely important and very important were considered as equal to “essential”.

Table 2: Results of acceptance or rejection of factors determining the procurement performance.

No	Factors	Ne	CVR Result.
1.	Analyzing and forecasting purchasing demand	1	Accepted
2.	Estimating optimal purchasing budget/cost for each order.	0.375	Accepted
3.	Financial capacity of the company	1	Accepted
4.	Making a detailed Procurement Plan	0.875	Accepted
5.	Sourcing for a variety of domestic and foreign suppliers	0.75	Accepted
6.	Developing procurement criteria	0.5	Accepted
7.	Screening and ranking suppliers	0.5	Accepted
8.	Negotiating prices and contracting with suppliers	0.875	Accepted
9.	Synchronized the procurement with entire supply chain and internally controlling	0.875	Accepted
10.	Competencies of procurement human resource	0.875	Accepted
11.	Strategic positioning of the purchasing department	0.875	Accepted
12.	Building reputable and transparent relationship with suppliers	0.875	Accepted
13.	Sharing information between manufacturers and suppliers	0.875	Accepted
14.	Analyzing macro- and micro-economic factors	0.375	Accepted
15.	Capturing information and evaluating competitors	0.5	Accepted

Table 2 displays the selected factors in round 2. As it can be seen, all the indicators identified in round 1 attained a CVR of higher 0.33 in round 2. Thus, all of them were accepted for inclusion in phase data collection. Furthermore, the study explored the 15 key factors that affect to the procurement performance.

5.2. Research findings from the Analytic Hierarchy Process (AHP)

Lin. et al (2009) recommended 5 ~ 15 as a suitable number of experts. In this phase, 12 manufacturing experts agreed to participate in the AHP survey. The research utilized the AHP technique by the use of the Expert Choice software to determine the priority of the factors identified by the Delphi technique. At the first step of the AHP, the pairwise comparison matrix of factors was structured. The experts were asked to compare the importance of factors relatively. The relative values were determined based on the Saaty's scale (Table 3). At the second step, after collecting the questionnaires completed by the 12 experts, a normalized pair wise comparison matrix and criteria weight were calculated. At the third step, a separate consistency test was conducted for all questionnaires. If Consistency Ratio (CR) was ≤ 0.1 , the questionnaire passed the consistency test.

Table 3: Scale for AHP preference index.

Saaty's 1–9 scale for AHP preference index.

Intensity of importance	Definition	Explanation
1	Equal importance	Two activities contribute equally to the objective.
3	Moderate importance	Experience and judgment slightly favour one over another.
5	Strong importance	Experience and judgment strongly favour one over another.
7	Very strong importance	Activity is strongly favoured and its dominance is demonstrated in practice.
9	Absolute importance	Importance of one over another affirmed on the highest possible order.
2,4,6,8	Intermediate values	Used to represent compromise between the priorities listed above.
Reciprocal of above non-zero numbers	If activity <i>i</i> has one of the above non-zero numbers assigned to it when compared with activity <i>j</i> , then <i>j</i> has the reciprocal value when compared with <i>i</i> .	

Source: Saaty, T.L., 2008

Finally, the results of the AHP technique (Table 4) revealed that among the 15 key factors, analyzing and forecasting purchasing demand was ranked first as the most important factor, closely followed by building reputable and transparent relationship with suppliers (RSM); negotiating prices and contracting with suppliers; synchronized the procurement with entire supply chain and internal controlling; financial capacity of the company. On the other hand, the one ranked last (15th) was “analyzing macro- and micro-economic factors” that is the least important factor of procurement performance management.

Furthermore, it was found that competencies of procurement human resource and making a detailed procurement plan were also prioritized to sourcing or budget estimating. Therefore, BOT manufacturers in Vietnam need to pay more attention to human resource development for procurement as well as for the entire supply chain.

Table 4: Overall ranking of the factors determining the procurement performance in Vietnam BTO manufacturing.

Key Factors	Weight	Ranking
Analyzing and forecasting purchasing demand	0.105	1
Building reputable and transparent relationship with suppliers	0.098	2
Negotiating prices and contracting with suppliers	0.086	3
Synchronized the procurement with entire supply chain and internal controlling	0.077	4
Financial capacity of the company	0.077	5
Competencies of procurement human resource	0.076	6
Making a detailed Procurement Plan	0.075	7
Estimating optimal purchasing budget/cost	0.068	8
Screening and ranking suppliers	0.068	9
Strategic positioning of the purchasing department	0.052	10
Developing procurement criteria	0.050	11
Sourcing for a variety of domestic and foreign suppliers	0.049	12
Capturing information and evaluating competitors	0.046	13
Sharing information between manufacturers and suppliers	0.039	14
Analyzing macro- and micro-economic factors	0.034	15

6. Limitations and suggestions for future research

As expected in all research, our study has some limitations. First, since the research used the qualitative method in the first phase, the generalization of its findings is not possible directly to the larger population under study. Therefore, it will be interesting for future research to explore the determining factors in other manufacturing types or in other field of business.

Second, the study sample just included manufacturing experts. Since some factors such as financial capabilities or macro-analysis capabilities are related to the requirements of other expert, future studies are recommended to include the opinions of more various related personnel.

Third, the study is limited to the procurement performance of BOT manufacturing companies. Future research can select a real case study and then apply the factors to evaluate the performance of the procurement process and supply chain management as a whole.

Last but not least, since the same decision makers may get different weights utilizing different techniques, future studies are recommended to prioritize the factors of procurement management using the other MCDM techniques, such as Weighted Sum Model (WSM) or Analytic Network Process (ANP), to see whether similar results could be obtained.

7. Conclusion

To the best of our knowledge, this paper is the first study that has investigated the key factors determining the procurement performance with the importance ranking for Vietnam's BTO manufacturing companies. Base on the findings, this paper give out some critical recommendations to improve the overall procurement performance of the BTO manufacturing company in Vietnam.

7.1 Improve analyzing and forecasting purchasing demand capability

Combine BTO with forecasting: in the hybrid approach, companies make stable high-volume product specifications to forecast and build specifications to order less frequently. Hybrid BTO works well for standard products that are customized. By gradually reducing the number of high-volume variant inventory held in the warehouse, company would increase its BTO inventory until ultimately to the minimum quantity to accommodate lead times and variable volumes.

Purchasing staff and internal warehousing staff must always ensure that the purchasing process takes place according to the plan, and that plan is livable, proactively, ensuring a stable and long-term quantity of goods, so that the business has enough goods to serve customers. Make a detailed plan for the inventory such as preparation of the warehouse, total cost, and quantity of goods to be stocked.

7.2 Improve the Supplier Relationship Management (SRM)

For a BTO manufacturing enterprise, suppliers are important partners, directly affecting the company's business performance because these suppliers will ensure lead time, quantity, and cost of orders the company provides to customers. Screening on reputable suppliers and maintaining a long-term cooperative relationship, especially with core suppliers who provide the critical material or products are keys of success.

The company should keep the number of suppliers at a low level. Only qualified suppliers can be included in the list of suppliers. Assessment should be based on the potential supplier's overall economic and technological capabilities: quality, cost, technological capabilities, distance, and reliability in terms of on-time delivery of required quantities of inputs, as well as the entrepreneur's ability to implement a kaizen strategy in production and business.

Regular communication with suppliers to provide information about the company's needs, and regular monitoring the financial situation, production ability, and supply ability of the supplier should be integrated and implemented in a collaborative learning and development program. In the long run, all partners gain from growing the business together.

7.3 Enhancing the procurement department capability.

Purchasing responsibility is a highly demanded profession in manufacturing enterprises, and well-educated personnel with sufficient knowledge would solve all the tasks and bring better business results. Procurement department is a crucial part, in which manager and staff play vital roles in all activities. The manager should run the lean decision-making scheme by providing the purchaser with a higher level of understanding to make right decisions and provide staff the authority to decide depending on the maximum value of orders. Staff should be managed to perform their ability, to learn and update the knowledge and skills, and to join the course educating profession.

The purchasing department must work closely with the sales department in doing research on market demand for the company's products, making a purchasing plan for material and products. At a higher level, demand management techniques must be taken into consideration to manage fluctuations in volume. Most companies assume that they do not have any control over demand. However, demand can be managed by exercising control over prices, marketing incentives, promotional efforts, and the quality of the services offered. And the purchasing staff should be sensitive to market fluctuations, be aware of the trends of market so that adjust the appropriate purchasing plan for company.

7.4 Enhance synchronization of the entire supplying chain.

BTO requires a significantly greater degree of synchronization of the entire supply chain. Besides technical department, procurement department, production lines etc., several

other parties in the supply chain: customers, transporter, suppliers can easily and immediately connect with each other effectively on the same database and technology platform.

Technical standards need to be unified across departments. Higher technical standards will meet higher requirements, lower standards will save costs and reduce production complexity. These standards must at the same time meet the requirements of the customer, the supplier's supply capabilities, and the company's production and erection capacity. However, the most important thing is to find and follow the appropriate standards. This needs to be focused and updated in the process of many changes, and technical standards are constantly changing over time. It is a difficult task that needs long-term cooperation and continuous discussion related departments.

The company needs to learn how to integrate its own internal functions while coordinating them with those of its inbound suppliers. Communications on long-term forecasts, current demand, and perceived changes should be made available to supply chain partners. The innovative software ensuring trackability of order, real-time information of material, and demand forecast should be applied for the entire supply chain management.

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ADAPTING INTERNATIONAL MARKETING STRATEGIES DURING COVID-19: THE CASE OF AIRBNB AND IMPLICATIONS FOR VIETNAMESE PROPTech STARTUPS

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Abstract

The outbreak of the COVID-19 pandemic has led the majority of countries to take drastic measures. A wide range of firms, including innovative startups, have experienced an unforeseeable crisis as a result of movement restriction order and lockdown policies. The PropTech industry experienced rapid growth before the pandemic, but Airbnb - a unicorn in the PropTech industry - has recorded huge losses just four months after the pandemic was announced globally. However, this startup business quickly regained its position thanks to a series of changes in business, particularly marketing strategies. This study aimed to explore Airbnb's has changed their international marketing strategies and yielded viable lessons for Vietnamese PropTech startups. Based primarily on qualitative document review and content analysis methods, the study analyzed secondary data about Airbnb business performance and implementation of the 4P's marketing strategies before versus during Covid-19 as well as emerging real estate and Vietnamese PropTech startups' performance including marketing activities. Key findings included 1) Uniqueness of the Airbnb industry; 2) How Covid-19 impacted Airbnb and its customer behaviors; 3) How Airbnb adjusted its international 4P's marketing strategies during Covid-19 and 4) Airbnb's innovations and developments towards the 4P's during Covid-19 have helped them sustain and prosper afterwards. Based on the analysis, the study put forward practical implications regarding marketing strategies for Vietnamese startups with a view to supporting their recovery and thriving post-pandemic, after reviewing PropTech in Vietnam during Covid-19.

Keywords: *marketing strategy, Covid-19, Airbnb, PropTech, Vietnamese startups*

1. INTRODUCTION

1.1 Background

The COVID-19 global pandemic has devastated and frozen the healthcare systems and economies worldwide. It has induced a 'de-globalization' process and brought upon severe effects to the services industry, including real estate services. Hence, it is understandable that more research related to this issue is conducted in recent time (Zenker & Koch, 2020), one of which is proptech industry.

The property technology (PropTech), also known as "real estate technology" is the broad

application of technology to the real estate market aiming to improve the asset management of property owners, landlords, and tenants. It refers to the myriad tech companies working to transform the real estate industry, based on a rapidly changing digital landscape and ever

shifting consumption trends and patterns. The roots of PropTech lay in three independent movements, which are Fintech, Smart Building technologies, Shared Economy (University of Oxford Research, 2020). While the loss of Fintech and Smart Building stemmed from labor shortages, Shared Economy suffered serious damages from lockdowns and restricting movement policies. However, PropTech benefited significantly from COVID-19, especially in the second half of the pandemic (Starr et al., 2021). COVID-19 was credited with accelerating PropTech in commercial real estate, and the repercussions will be even more widespread. According to KPMG (2020), during 2020, approximately US\$23.3 bil. was invested in PropTechs.

During the pandemic, Airbnb, a leading PropTech company, was highly mentioned as an example of a business that severely suffered from and be able to well-managed COVID-19's impacts. Airbnb, which was founded in 2008, quickly established itself in the global PropTech market, primarily in the Shared Economy. Prior to the COVID-19 pandemic, Airbnb reported a US\$200 mil. profit for 2018. Despite the loss of US\$322 mil. during the early stage of COVID-19, Airbnb kept its business running and quickly accelerated its growth once travel resumed. During the first quarter of 2020, the company's revenue increased by 5%. As of 2020, Airbnb was valued at more than US\$100 bil. on the New York Stock Exchange after successfully completing its initial public offering (IPO) during the COVID-19 Pandemic (Hussain & Franklin, 2020).

The keys to success lies in Airbnb's ability to optimize its marketing strategies and adaptation to the New Normal. Rather than investing in scaling the business, Airbnb focused on improving the customer experience on both online and offline platforms during the pandemic. Furthermore, the company assured its customers of hygiene and safety, which was the most concerning issue at that time.

1.2 Significance of the Study

Keeping up with the global technological trend in real estate, the Vietnamese market is seeing smart technologies spread to many aspects. PropTech is changing the prospect of the local property landscape and improving users' experience in a smart and effective way, from property sales, leasing, or marketing activities to real estate management. The PropTech market in Vietnam has quickly emerged as an potential field, with lots of startups successfully raising millions of dollars in capital. According to the Viet Nam Real Estate Association, the Vietnamese property market will exceed US\$ 1.23 tril. by 2030, accounting for 22% of the economy's total assets (VNRea, 2021). Currently, almost 80% of market participants are foreign start-ups such as Airbnb, Oyo, or local start-ups funded by foreign investors. Furthermore, the

PropTech Vietnam Network reported that about 140 startups are now operating in Vietnam (PropTech Vietnam Network, 2021). However, the Vietnam real estate market was born young and is falling behind other countries. Worse off, the pandemic occurrence has weakened real estate startups from fully exploiting the market. As a result, developing a comprehensive business operation with appropriate marketing plans is critical, yet has not been received adequate attention.

However, the Vietnam real estate market was born young and is falling behind other countries. Worse off, Covid-19 has weakened real estate startups from fully exploiting the market. As a result, developing a comprehensive business operation with appropriate marketing plans is critical, yet has not been received adequate attention. Therefore, this study is designed to examine Airbnb's marketing strategies during the COVID-19 pandemic as a vivid case study for young Vietnamese PropTech businesses to learn how to manage their marketing strategies in the New Normal. From gaining a comprehensive understanding of how Airbnb adapting to an unprecedented situation, Vietnamese PropTech start-ups will be able to adjust their marketing strategies in a flexible and effective manner.

2. LITERATURE REVIEW

The lockdown changed the demand for real estate and accommodation services on both global and local scale which leads to numerous issues. There were ongoing discussions in various global locations regarding the effects of COVID-19 on the global real estate market (Balemi et al., 2021) or in a specific country such as Turkey (Tanrıvermiş, 2021), Italy (Vincenzo et al., 2020) and India (Bhoj, 2020).

Xie and Milcheva (2020) examined the effect of proximity to COVID-19 cases on real estate firm returns and found that the COVID-19 pandemic had made a significant negative impact. Ling and his colleagues (2020) demonstrated a negative relationship between COVID-19 case growth and real estate firms' risk-adjusted returns as well as the impact of the COVID-19 pandemic on real estate firms varies by property type, with the retail and hospitality sectors being the most affected.

Additionally, some research predicted the future of the real estate industry and also PropTech by indicating probable opportunities for mainly the Smart Building and Fintech aspects (Starr et al., 2021; University of Oxford, 2020; Yishuang, 2020). Sanderson and Read (2020) conducted a systematic literature review and discussed the significance of realizing the benefits of customer-focused property management, particularly after the outbreak of the COVID-19 pandemic. According to Poleg (2020), it was no longer impossible for tenants to procure property space within a shorter period than in the past. The flexibility is one of the emerging demands of the tenants, which has put pressure on traditional models of property management. When tenants had more negotiating power, they seek lease terms that are adaptable to changes in their space requirements (Msci & Paribas, 2018). It can be explained

by changes in tenants' business models (Msci & Paribas, 2019). After COVID-19, this is more likely to be in the norm due to the changes in tenants' portfolios.

According to a study conducted in the United Kingdom, the COVID-19 virus has altered housing demand. There is a greater emphasis on the comfort and quality of the indoor environment (Hipwood, 2020). Numerous policies and methods have been taken by real estate factors to ensure social separation during lockdown (Pickford, 2020). FaceTime or Skype has been used to conduct house tours to reduce the risk of infection (Nicola et al., 2020).

Some studies emphasized the development and large implementation of technology within the real estate industry and collect a series of data and research on future changes that could be implemented, as well as various initiatives (for example, a COVID-19 management model, PropTech and services, land registry and building information modeling) or a live virtual inspection service designed to draft real estate evaluations remotely via a teleconference system. Besides several studies, there were many of conferences, online and offline workshops on this topic were held in 2020 to discuss possible ways to recover from the crisis in a timely manner.

Recent studies focused on the analysis of the recovery from COVID-19 and PropTech was one of the possible solutions that has been mentioned. There were not many studies on how the real estate industry in general and PropTech in particular has taken advantage of COVID to turn the situation around. This is also the gap that this study attempted to fill in by conducting this study.

3. RESEARCH OBJECTIVES

The study strived to achieve two objectives. First, the study explored how Airbnb adjusted its international marketing strategy to adapt to COVID-19. Second, the study drew lessons for Vietnamese PropTech startups to adapt their marketing strategy to market changes.

To realize these two objectives, this study performed the following tasks. Firstly, the study detailed actual practices of Airbnb before, during and after the COVID-19 pandemic. Then it presented how Airbnb has developed their marketing strategies to accommodate changes in customer needs. Finally, the study came up with some recommendations for Vietnamese PropTech startups on how to adjust their marketing strategies and quickly adapt to unprecedented events. In terms of study scope, the study looked over Airbnb marketing strategies on the global scale during the period from late 2018 to 2021 when the global epidemic situation is at its most complex.

4. METHODS

The study adopted a qualitative research approach using document review and content analysis methods. Data and information were mostly obtained from secondary sources, the empirical studies of prior researchers, statistics and materials from existing reports as well as

popular websites. The collected data were then synthesized, consolidated and described and interpreted as per research objectives.

5. FINDINGS AND ANALYSIS

5.1 Overview of the PropTech Industry

Few businesses can realistically avoid the digital transformation that is sweeping the global economy. As an asset and an industry, real estate is not immune to the innovations enabled by the fourth industrial revolution. The real estate industry is the most traditional and slow to adjust to changes. However, the real estate industry has also undergone a significant period of modernization due to a radical shift in market demand and supply and a series of technological periods that have altered consumer preferences. Several global real estate firms are already utilizing technology to enhance customer experiences, increase sales, and enhance operational efficiencies. Also, many companies are currently operating strongly and widely distributed around the world with abundant capital from investors (Figure 1).

Figure 1: The global distribution of PropTech companies



Source: Luque, 2021

Despite the recent introduction of the term, PropTech is not a new concept; incremental advancements have been adopted to the real estate market over the past century. The industry has experienced a strong evolution of the market, from very basic applications of technology to the real estate industry (PropTech 1.0) in 1980 to far more advanced scenarios in which the primary enhancement originates from the implementation of technology to the property, fostered by the technological revolution on a global scale.

Real estate technology, also known as PropTech, describes the application of information technology and market economics to real estate markets (Guttman, 2015). Digitization, in particular, provide the foundation for PropTech advancement. Hence, without technological progress, PropTech would not be able to quickly develop. PropTech is typically considered a subset of financial technology, or fintech, due to its objective of streamlining transactions and eliminating paperwork. Besides, PropTech includes intelligent home

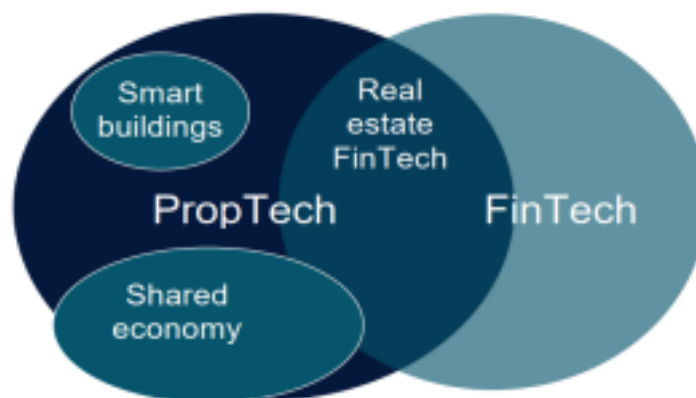
technology, 3D-space modeling and data collection, digital dashboards for property management, real estate project crowdfunding, and hardware. Another component of PropTech are collaborative consumption or shared economy businesses like Airbnb, which coordinates individual owners renting space and/or services to individual customers.

According to Weikal (2020) in the PropTech 2020 report published by the University of Oxford, “PropTech has its origins in the frustrations concerning the large, unmoving, illiquid asset class and the vested interests of the business which control it, plus unprecedented breakthroughs in technology — cloud computing, leaner coding, mobile devices, sensors —

and much lower costs, plus ubiquitous connectivity driven by dimensions of the PropTech phenomenon.”. Baum (2017) classifies PropTech into three categories, as shown in Figure 2, including real estate fintech, the shared economy, and smart real estate.

These are Fintech, Smart Building technologies, and the Shared Economy, as mentioned previously. Smart buildings are technological platforms that facilitate the operation and management of real estate assets. Multiple opportunities and outlets arise for continuously boosting the effectiveness of intelligent buildings. In terms of establishing the capacity for spacing and social distance, and other factors, these enhancements are particularly important in the era of COVID-19.

Figure 2: PropTech roots



Source: Baum, 2017

Real Estate FinTech refers to technologically facilitated platforms that facilitate the trading of real estate asset ownership. In terms of accommodation service, uniform data facilitated the automation of data and processes, including the occupant experience of a prospective homebuyer, finding a home using a variety of characteristics and algorithms, and determining the financial amount and/or underwriting a mortgage.

The Shared Economy is comprised of technological platforms that facilitate the use of real estate assets. The assets may include land or buildings, such as offices, stores, warehouses, and residences. The platforms may merely provide prospective space users and sellers with

information, or they may facilitate or directly effects on rent- or fee-based transactions.

In 2017, the world technology real estate market report to value at approximately US\$217 tril. and US\$900 bil. of real estate assets traded, many investors, entrepreneurs are pay more attention to the PropTech industry (Di Marco, 2017). In fact, the real estate market is one of the biggest industries worldwide, which accounts for around 60% of global properties (Di Marco,

2017). Along with the potential of the real estate market, property is a lucrative and distinct product that can create significant impacts on regional and global economic development. However, investing in this market obtain both huge opportunities and challenges. Although the amount of capital flowing into PropTech has never been higher, the risk that it will not be effectively utilized to withstand an unexpected downturn is high.

5.2 Adapting International Marketing Strategies during Covid-19 – The Case of Airbnb

5.2.1 Overview of Airbnb and its Key Attributes

Airbnb was first introduced in 2007. In 2021, they had served 7 million private accommodation listings in over 220 countries and regions (Airbnb, 2022), giving it more supply than the top five hotel chains combined (Walsh, 2018). Airbnb is the pioneer in the global PropTech industry and, in particular, the sharing economy. The rapid growth of the sharing economy and its dramatic effects on various aspects of the current social economic system have captivated the public's interest over the last decade (Cheng, 2016; Belarmino & Koh, 2020; Sutherland & Jarrahi, 2018; Aruan & Felicia, 2019; Sutherland & Jarrahi, 2018).

Since its establishment, Airbnb is the most prominent unicorn in the PropTech industry and especially the shared-economy tendency. Airbnb describes itself as a "trusted community marketplace for people to list, discover, and book unique accommodations around the world" (Airbnb, 2015). The rapid development of Airbnb and its unique methods of serving customers soon become a new global standard for short-term rentals of houses, apartments, offices and other kinds of renting properties. By mainly targeting on the web-based community, the company is able to scale up their business in a short time and approach a diverse of customer

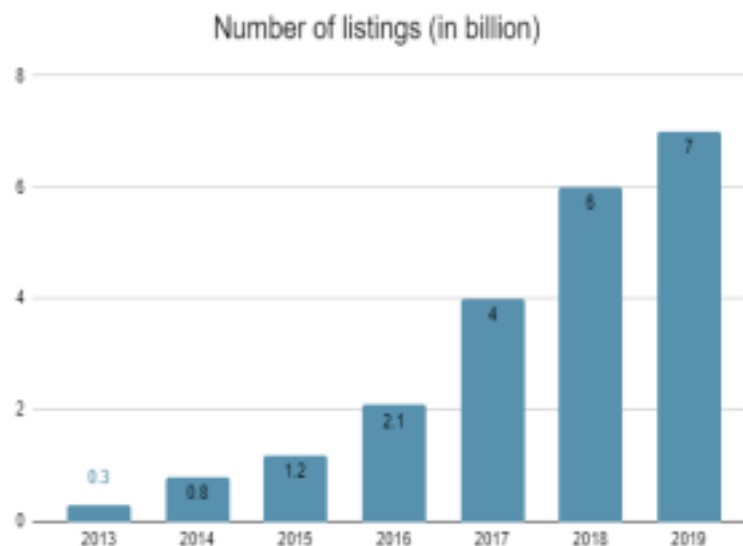
segments in different countries and territories (Stephany, 2015). This revolution has paved the way for accessing to a vast database of human-beings and properties, which enables the analysis and utilization of a substantial number of properties (The Economist, 2013). The rapid growth of Airbnb soon became a worldwide discussion. Many PropTech startups around the world started to analyze its unique operational system and come up with many valuable lessons. Airbnb's operation is mainly in locations that are guaranteed with regulatory oversight. The aim of this is to enable Airbnb's hosts and customers to establish mutual trust and ease the process of booking (Ert et al., 2016).

Regarding attributes, an Airbnb’s property typically owns these two: amenities and host guest relationship (HGR). First, it was reported that more than 85% of prospects chose Airbnb platforms due to its amenities (Airbnb, 2016), which also determines prices of services and create certain impacts on customer satisfaction (Wang & Nicolau, 2017; Gibbs et al., 2018). Customers perceptions of accommodation amenities include accessibility, cleanliness, quality, and also their probability to use new technology (Bruner & Kumar, 2005; Ha & Stoel, 2009; Park & Kim, 2014). Second, as Airbnb businesses mainly focus on exploiting the shared economy industry, they make huge efforts on HGR throughout customer journey. Specifically, the quality of service can promote HGR (Donabedian, 1980). Meanwhile, hosts and customers become strongly engage with each other. Hence, co-creation makes a significant effect on consumer satisfaction and behavior (Finsterwalder & Kuppelwieser, 2011).

5.2.2 *Airbnb Business Performance before Covid-19 and during Covid-19*
5.2.2.1 Before Covid-19

The success of Airbnb on the PropTech market is based on their recent creative ideas in the accommodation service and real estate industry. First of all, Airbnb applied a two-sided market model with the purpose of attracting providers and approaching prospects on the same platforms. From 300 hosts in 2012, the number of hosts sharply increased over the years. In 2019, Airbnb had cooperated with 2.9 million hosts worldwide (Deane, 2022). Similarly, the total number of listings also increased significantly from 300 mil. to 7 bil. in the 2013-2019 period (Figure 3).

Figure 3: World’s total number of Airbnb’s listings from 2013 to 2019 (in billion)



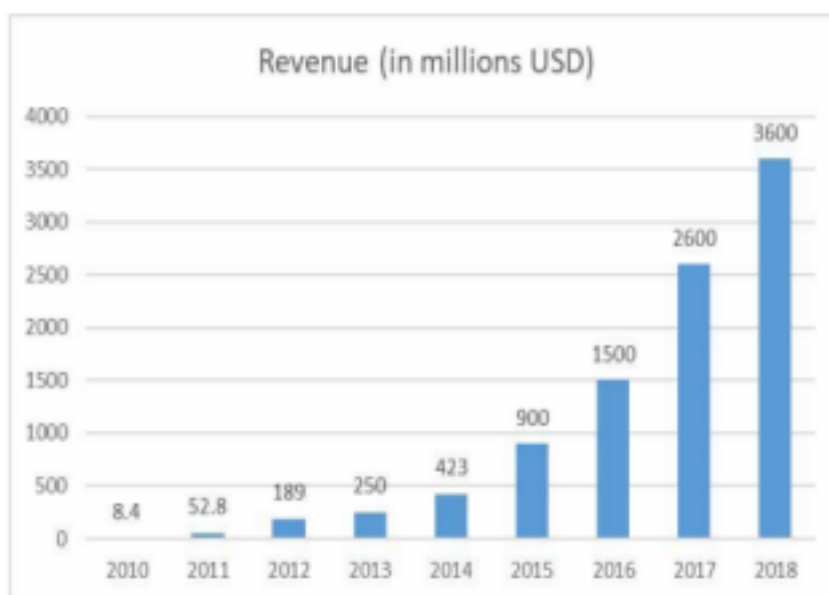
Source: *Business of Apps, 2022*

Second, Airbnb exploited the emerging market of holiday accommodation rental which formerly distributed mostly in coastal and mountain resorts. The difference of Airbnb is that they introduce the short-term rental services in a variety of regions via internet.

Third, the growth of Airbnb also promotes the PropTech business models largely, which is not long after adopted by many non-profit online networks including HomeExchange or Couchsurfing (Hajibaba & Dolnicar, 2018). Airbnb successfully positioned itself as an authentic, diverse, inclusive and sustainable sharing services other than any competitors by emphasizing the interactions between parties and the exploitation of underutilized assets. Airbnb's platform implements the same method to promote its new form of real estate activities (Oskam, 2019).

Before COVID-19, Airbnb recorded remarkable growth when its annual revenue recorded a growth rate of over 100% compared to the previous year (Figure 4).

Figure 4: Airbnb's revenue during 2010 - 2018



Source: Craft, 2021

5.2.2.2 During Covid-19

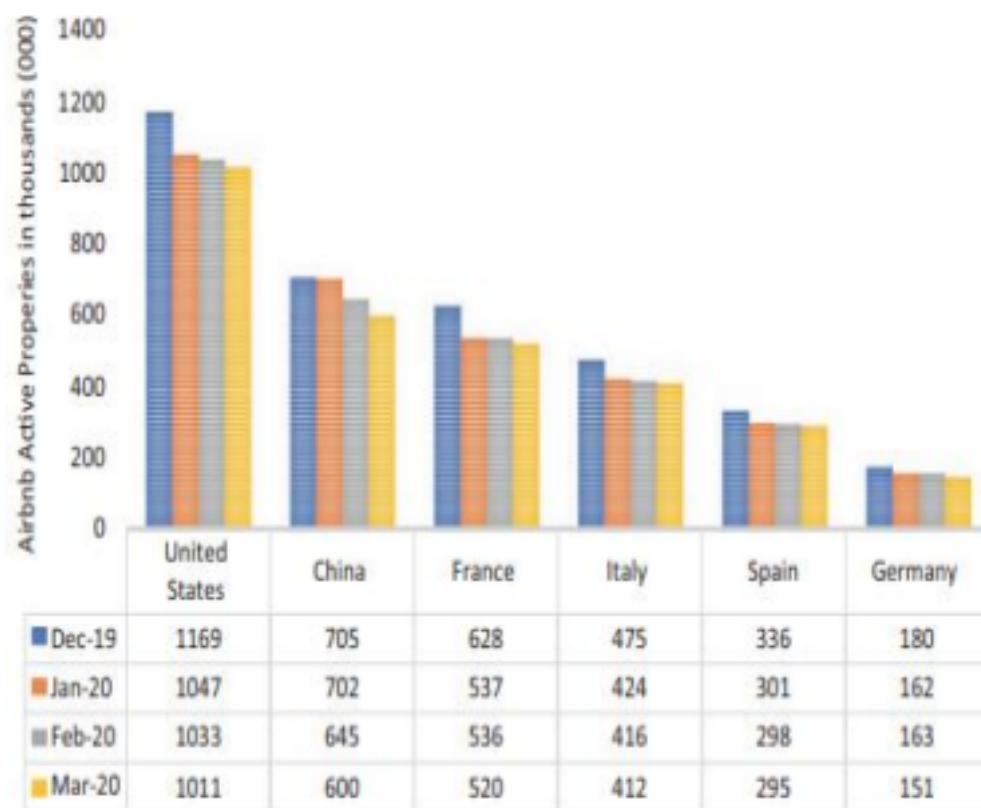
Impact of Covid-19 on Airbnb Industry

Coronavirus is a super-shock that has hit the world economy; the economic downturn and the resulting decrease in international tourist arrivals dropped by 20-30% (UNWTO, 2020). COVID-19 has severely disrupted Airbnb's business operations. Due to travel bans, event cancellations, and the need for social isolation to avoid contracting the virus, tourism and travel decreased significantly, as did Airbnb cancellations and bookings. According to the online short-term rental analysis platform Transparent Intelligence (2020), Airbnb cancellations in the United States on March 24, 2020 were 240% higher than the previous year.

Additionally, the widespread cancellations of Airbnb services put the hosts vulnerable because they immediately lack their main financial resources to afford different fees. Thus, Airbnb's online platform received loads of negative reviews, complains, petitions and even

lawsuits. The number of Airbnb’s active properties in many countries had decreased significantly in just three months, including United States, China, Italy, France, Germany, Spain (Figure 5). To cope with the hardship, Airbnb decided to establish a US\$250 mil. fund to compensate and support hosts for up to 25% of their lost revenue (Schaal, 2020). Moreover, Airbnb provided bailouts of an additional US\$10 mil. In 2019, Airbnb was reported to be valued US\$31 bil. more than a decade ago (Sherwood, 2020). However, this figure halved after COVID-19 severely impacted its business performance and its poor management of booking cancellations as well as refund policies.

Figure 5: Change in Airbnb active properties due to COVID-19 in selected countries from December to March 2020



Source: Statista, 2020

Changes in Customer Behaviors due to Covid-19

Existing research has shown that the external environment, government policies, and individual travel behavior all have a direct impact on the shared economy (Dirix et al., 2021; Gärling et al., 2000; Lu et al., 2020; Vlek & Michon, 1992). Consumers exhibited varying degrees and types of sensitivity and anxiety toward the coronavirus risk, which influenced their risk perceptions regarding shared accommodations. Among people who were more concerned about the coronavirus, pre- and peri-pandemic perceptions of the risk of staying in shared accommodations changed more.

Avoidance of long trips

During the COVID-19 pandemic, social isolation and quarantine regulations had a substantial impact on the sharing economy (Fong et al., 2020). Previous research has demonstrated that a pandemic influences the travel decision negatively. For instance, if international travelers are worried about health risks (such as 2009 H1N1), they may delay or cancel their trips (Reisinger & Mavondo, 2005). People normally believe that avoiding travel, especially to regions where a viral infection is spreading, will reduce their risk of getting infected (Lau et al., 2009). Furthermore, researchers discovered that Americans are more likely to avoid domestic travel due to confirmed cases of a virus (eg Ebola in late 2014; Cahyanto; Wiblishauser,...). As precautions were taken for prevention, traffic volume decreased significantly (Hotle et al., 2020). De Vos (2020) also reported that, between January and March of 2020, both the number of travelers and the motivations for travel changed significantly. The majority of people avoided making unnecessary journeys and they only traveled when necessary, for instance to purchase food and face masks. Additionally, trips for commuting, recreation, and other purposes were reduced significantly.

Anxiety about shared properties

Lee and Deale (2017) demonstrated that during the pre-pandemic and peri-pandemic periods, consumers' perceptions of the risk associated with staying in shared accommodations changed. During the pandemic, consumer perceptions of social, physical, performance, and convenience risks increased. Surprisingly, social risk changes were greater than those of other risk factors. This viewpoint may be connected to concerns regarding the brand image of sharing economy accommodation services, particularly during the pandemic. Given the pandemic's impact on both hosts and customers, it is perhaps not surprising that consumers' perceptions of the probability of a host becoming hostile have increased. Guests may fear that the host become enraged if they complain about the cleanliness of the accommodations or utilize the cancellation policy (Airbnb, 2020b). Hosts may be concerned about revenue loss and the need to implement stricter cleaning procedures.

5.2.3 Airbnb International Marketing Strategies during Covid-19

5.2.3.1 Product

New health and safety policies

Airbnb recognized that safety and trust are central to their platform prior to the global spread of COVID-19. The 'Trust & Safety' team at Airbnb is responsible for travel, hosting, community standards, and home safety. It was discovered by Abrahao and his colleagues (2017) in conjunction with Stanford University that robust reputation mechanisms on the platform can counteract bias and increase trust.

Another notable development of Airbnb during the year of COVID is professionalize

its labor practices. Airbnb has applied different methods with the aim of redefining and regulating workplace objectives in associate with contemporary social and economic pressures caused by the pandemic. To be specific, in April, 2020, Airbnb informed that they had formulated different health and safety policies which would be implemented in the following months. Moreover, Airbnb also requires their customers to comply with local travel advice and policies as well.

On the one hand, Airbnb encouraged hosts to adopt the five-step "Enhanced Cleaning Process". Later on, when the pandemic got worse, Airbnb required all hosts to implement the enhancement, or they might be limited to offer their services in any forms or even removed from Airbnb's platform (Airbnb, 2021). On the other hand, customers also need to follow certain requirements, or they might not be able to get their refund if their hosts canceled their booking for the same reason. Another directive was that hosts had to follow additional cleaning and maintenance regulations. Any hosts that are able to commit to Airbnb's new protocol would receive a "Superhost" labeled and displayed on the platform (Roelofsen & Minca, 2021).

In case there were hosts or guests exhibit certain COVID-19 symptoms or test positive, Airbnb immediately support to complete different measures (Airbnb, 2020). Additionally, the company recently announced the development of a Health Safety Attestation, a voluntary "tool" that enables hosts "to request that guests attest they are free of common COVID-19 diagnoses and have not been exposed to COVID-19 in the recent past" (Airbnb, 2021).

Partner with quality cleaning service providers

Control and determination of work modalities in the Airbnb "ecosystem" are implemented by prescribing the scope, scale, and boundaries of domestic work and hospitality. Now, Airbnb specifies what must be cleaned, how often, by whom, and with what supplies. Additionally, the company has partnered with platforms that offer quality cleaning services, making it "quicker and simpler for hosts to provide an enhanced clean. Similar to major hotel chains listed on the World Travel and Tourism Council website, Airbnb has now committed to "new normal" health and hygiene standards (WTTC & Wyman, 2021). In addition, the platform has partnered with renowned chemical companies, including Diversey, RB, and Dettol, and has encouraged hosts to buy their products and clean their homes with their detergents (Airbnb, 2021). This strategy seems to contradict Airbnb's business model, which has been built over a decade on the romanticized notion of sleeping in strangers' beds and homes rather than in standard (and sanitized) hotel rooms (Roelofsen & Minca, 2021).

Long-term rental services

Besides, during the COVID-19 pandemic, Airbnb also focused more on long-term rental services. In the past, the majority of customers booked Airbnb services with the aim of "engaging themselves in new communities and discovering different cultures on vacation". However, people now tend to purchase long-term accommodation services that enable them to

work remotely and relocate temporarily. They define the term "working remotely" as working from anywhere (Airbnb, 2020). Throughout the pandemic, it was reported that hosts offering long-term rental services which are private and socially distant, and pet-friendly received more bookings. Also, they lengthened their service time and provide customers with self-check-in" options in order to minimize in-person interactions.

5.2.3.2 Pricing

Smart pricing system

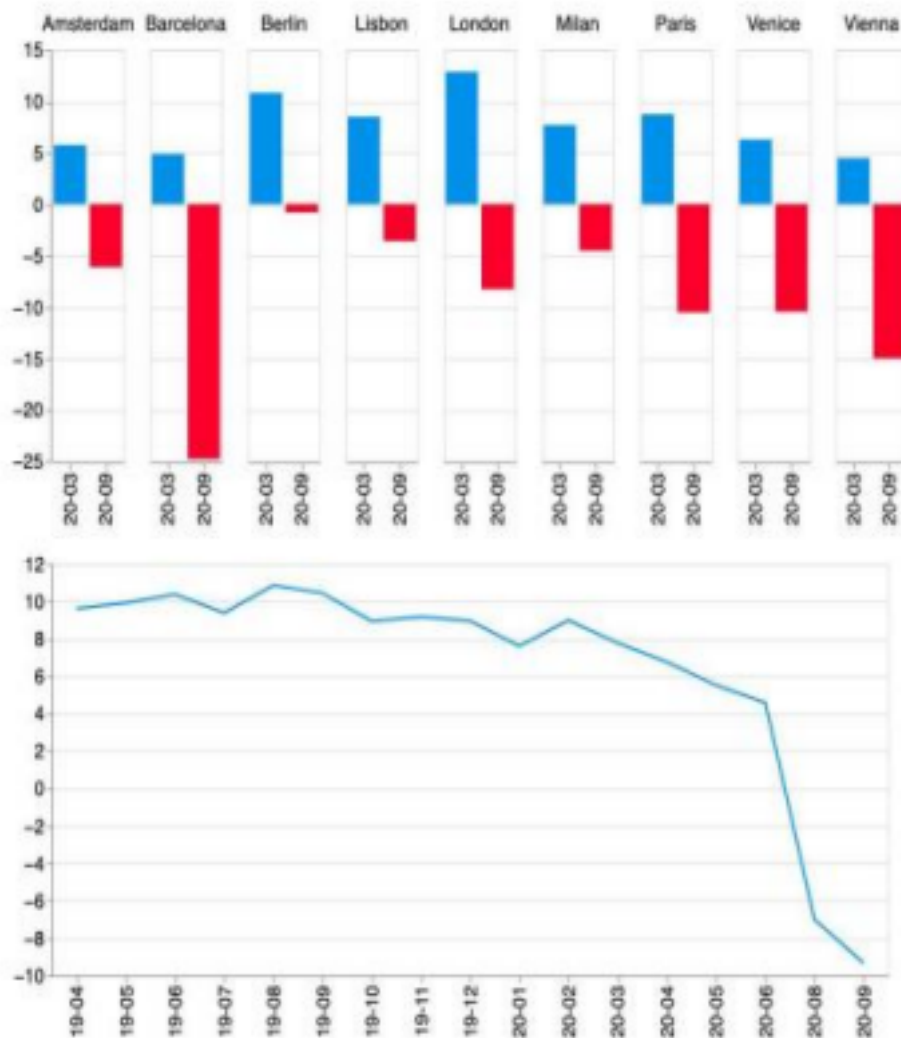
Airbnb hosts are able to set their prices according to what they believe the market will bear. Airbnb has developed and implemented a sophisticated Smart Pricing algorithm. This tool recommends the optimal price (Hill, 2015; Ye et al., 2018), but the host is free to accept or reject the suggestion. In the first place, a binary classification model will analyze the booking probability of listing the house. Afterward, a regression model predicts the optimal rental price. Additional personalization will be applied to the output of the second model to generate the final price recommendations (Yang et al., 2018).

Hedonic pricing model

Airbnb's pricing model, known as hedonic pricing, is a prevalent pricing strategy in the global PropTech and accommodation service industry. According to hedonic pricing theory, an Airbnb accommodation listing is a collection of elements that determine the quality of the overall product and also provide consumers with value and satisfaction. Consequently, it is a price proposal that reflects the host's assumptions regarding the implicit marginal prices of particular listing characteristics.

Specifically, after the 2018 outbreak of COVID-19, Airbnb hosts did not immediately reduce prices; rates for accommodations remained above average until the summer (Figure 2.4). In fact, the price of Airbnb in almost all regions has decreased, especially in Barcelona with nearly 25% decrease over the same period last year and in Vienna with nearly 15% decrease over the same period last year (Figure 6). When analyzing Airbnb's price change during COVID-19, Gyódi (2022) determined that Airbnb's hosts were not compelled to react immediately to the pandemic, but instead waited for market developments. In order to accommodate both the needs of tenants and the desires of hosts, Airbnb encouraged its hosts to offer services at reduced rates and to use their property for other purposes.

Figure 6: Airbnb's average price - percentage change between 2019 and 2020 and change through months across cities



Source:

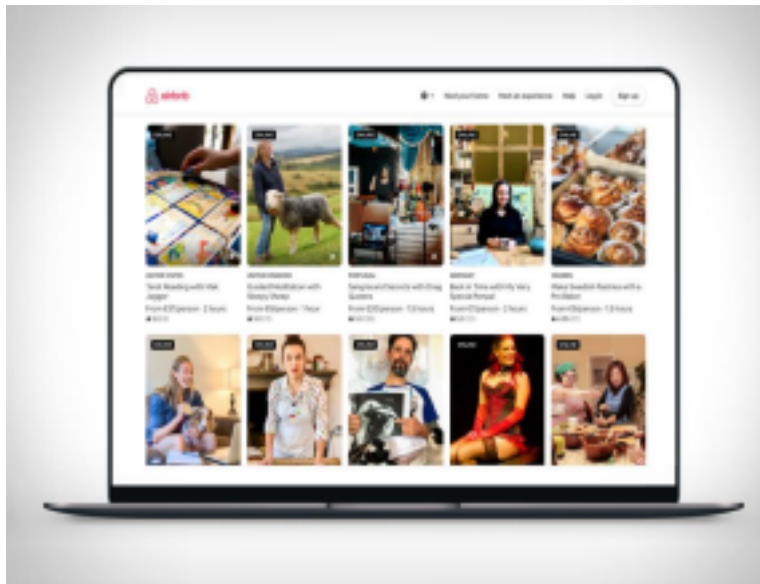
Gyodi 2021

5.2.3.3 Distribution

Online experiences strategy

During the pandemic, Airbnb proved that they understand the potential development of PropTech business by investing more on promoting their "Online Experiences" strategy (Figure 7). "Online Experiences" is a special program that enables customers to take virtual tours or classes and experience every activity via an online platform. The local experience using virtual tours consists of three main stages which are experience encounter, experience evaluation, and behavioral intention. This campaign was directly implemented and provided by the owners in over 30 countries, including Italy, Japan, Morocco, and Mexico, which enables customer access to a variety of destinations across the world.

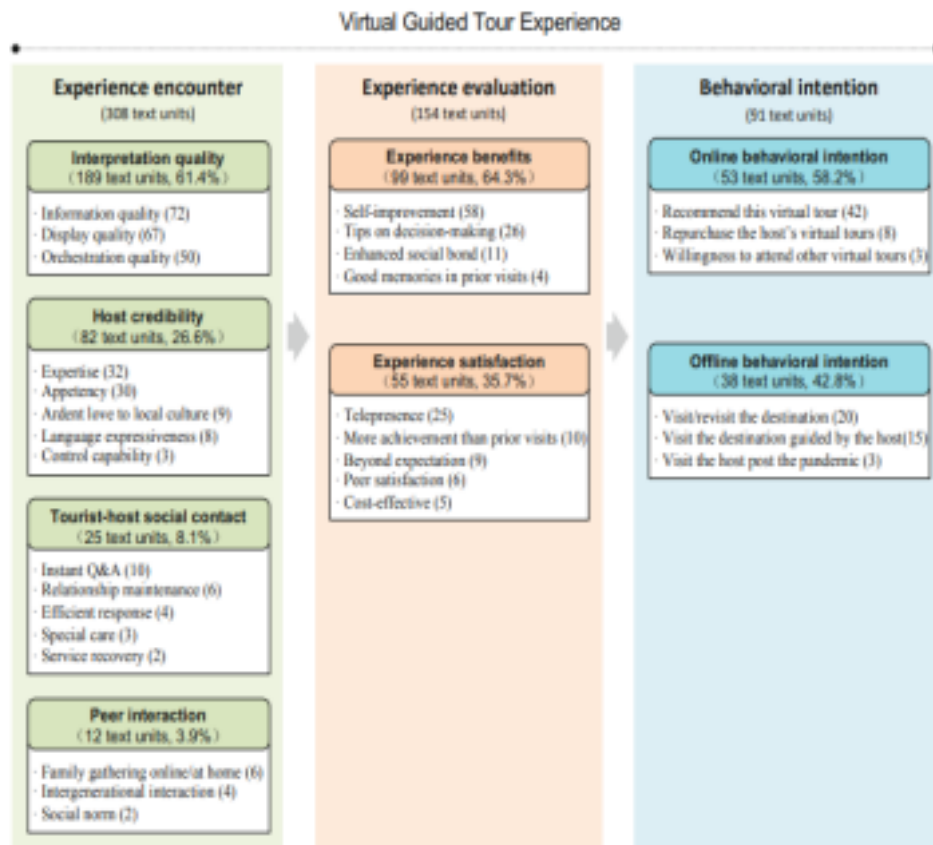
Figure 7: Online experiences served on Airbnb websites



Source: Airbnb website

Stienmetz and Ferrer-Rosell (2022) discovered that through an interactive experience based on culture and narrative interpretation supported by local hosts, tourists can feel a tangible space beyond the plane screen. The outcomes of such experiences may significantly raise tourists' propensity to recommend or continue buying online experience activities, which may result in a post-pandemic actual visit or return to the destination. After identifying the consumer experience frameworks and stages, a formation process for the virtual guided tour experience is developed (Figure 8). This suggests that the sociability and interactivity of virtual guided tours partially satisfied and encouraged consumers' travel desires during and after the COVID-19 pandemic.

Figure 8: Conceptual framework of virtual guided tour experience process



Source: Steinmetz and Ferrer-Rosell 2022

Lu and colleagues(2021) analyzed the potential of virtual tours and its impacts and possibility for global PropTech industry to recover from COVID-19 pandemic. They pointed out that customers are highly willing to experience this new form of travel and tourist destination during the pandemic. Nearly 60% of their interviewees answered that they were aspired to experience virtual tourism during COVID-19. Another 73% responded that they occasionally, often, or always search for pictures, videos, or websites of certain destinations, which somewhat prove their desire to take part in online travel (Table 1). Moreover, 58% of respondents expressed that they are very willing or willing to take part in an online tourism via virtual technology (Table 1). 62% of respondents strongly agree or agree that virtual tourism is a good substitute for in person visits, and 69% agree or strongly agree that virtual tourism can be used as a new form of entertainment (Table 2). Approximately 30% of respondents utilized virtual technology (such as tourism live streaming, virtual tours, and VR headsets) to experience the tourism destination during the pandemic.

Table 1: Respondents' desirability to travel and willingness to access virtual tourism

Statement		Frequency of scale					N	M	Md
Travel desire	When you cannot go outside to travel during the pandemic, do you aspire to travel to a tourism destination?	Not aspiring at all (1)	Not aspiring (2)	Neutral (3)	Aspiring (4)	Very aspiring (5)	1288	3.74	
		1.8%	7.5%	31.1%	34.5%	25.2%		4	
Frequency of browsing tourism destination	When you cannot go outside to travel during the pandemic, how frequently do you browse the pictures/videos/websites of tourism destinations?	Never (1)	Rarely (2)	Sometimes (3)	Often (4)	Always (5)	1288	2.99	
		7.8%	18.9%	47.9%	17.6%	7.8%		3	
Willingness to access virtual tourism	When you cannot go outside to travel during the pandemic, are you willing to experience the tourism destination via virtual technology?	Not willing at all (1)	Not willing (2)	Neutral (3)	Willing (4)	Very willing (5)	1288	3.62	
		2.0%	8.0%	32.3%	40.9%	16.8%		4	

Source: Lu et al., 2021

Table 2: Constructs of the planned behavior theory for virtual tourism

Statement		Strongly disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly agree (5)	N	M	Md
		Percentage							
Attitudes towards virtual tourism	During the pandemic, due to personal protection needs, virtual tourism is a good alternative to on-site visits.	5.7%	7.1%	25.7%	41.8%	19.7%	1288	3.63	4
	During the pandemic, virtual tourism can be used as a new form of entertainment, which can make people relax.	4.4%	5.1%	21.0%	49.3%	20.1%	1288	3.76	4
Social norm	During the pandemic, I know that other people around me (e.g. colleagues, family members, or friends) have used virtual tourism.	15.1%	24.8%	32.0%	20.1%	8.1%	1288	2.81	3
Perceived behavioral control to access virtual tourism	I know and understand how to access virtual tourism via mobile phones, computers, or other devices.	11.3%	20.9%	29.5%	28.0%	10.3%	1288	3.05	3

Source: Lu et al., 2021

It is evident that the pandemic is encouraging more participants to interact in virtual tourism while staying at home, and it is possible that the pandemic offers a particular potential growth for the virtual tourism industry. Airbnb's recovery during the COVID-19 pandemic has been fueled by this innovative solution, despite the fact that virtual guided tours are unlikely to replace traditional travel.

5.2.3.4 Promotion

#FrontlineStays campaign

Since the onset of the pandemic, Airbnb has launched numerous initiatives on a massive scale. The first initiative was #FrontlineStays, in which they partnered with hosts to provide free housing for 100,000 doctors, nurses, and other first responders. In lieu of a monetary donation, they offered their own contribution. The campaign was launched swiftly on March 26 - just thirteen days after the United States declared COVID-19 a national emergency. Utilizing the strength of its community, it motivated hosts to open their homes in an effort to prevent the virus's spread. These residences were made available to first responders at no cost or at a reduced rate. This is beneficial to leaving the spaces empty because it generates revenue and aids in the fight against the pandemic. Additionally, it keeps the community engaged, which is essential for Airbnb's recovery after the pandemic.

Go Near campaign

COVID-19 pandemic directly and negatively affects the global travel demand, which is the main factor motive the shift from global to local service demand. Different restrictive borders and execute lockdown were enacted since the wake of the pandemic, people had no other choices but stay closer to home. As a result, people prioritize local service other than international or remote travel. Especially during this time, many people expected to move to rural areas instead of being stuck in congested cities. In fact, Airbnb reported that the percentage of booking within 200 miles increased significantly from over 30% of total booking requests to over 50% within 4 months from February to May. Airbnb had gained a deep understanding of customer expectation during that time and they decided to start another campaigned call "Go Near" shortly after the introduction of #FrontlineStays with the purpose of promoting local travel and capitalizing on the demand for nearby vacations. Additionally, Airbnb also cooperate with 15 international NGOs, such as the National Park Foundation (United States), VisitDenmark (Denmark), and Hadong-gun (North Korea) to launch significant programs for different areas. For example, Airbnb and the French Association of Rural Mayors joined to promote 13 villages in France. The program was reported with an impressive outcome since the booking requests for Dordogne and Ardeche, two of those villages, increased by, respectively, 220% and 190% less than a year.

Apart from health and safety concerns, this trend will gain popularity as a result of the economic hardships that a large number of people around the world are experiencing due to job and income loss. After COVID-19, many customers will be able to afford more affordable local travel. According to Brian Chesky, CEO of Airbnb, the demand for domestic accommodations on his platform has more than doubled to over 80%. Prior to the implementation of COVID-19, only 33% of guests booked accommodation within 300 kilometers of their homes, compared to nearly 60% today. Additionally, since there were more and more people working remotely, individual demand for accommodation services significantly increased. Many of them expected

During Covid-19 , both the real estate market and PropTech were negatively impacted. Due to the prolonged pandemic, investors were hesitant to invest in the market, resulting in a precipitous decline in housing market demand. Simultaneously, the market supply decreased because market developers were unwilling to increase supply, resulting in a sharp decline in the market.

In many circumstances, rapid digitalization can be a solution, but not all PropTech segments will benefit equally. PropTech startups face a variety of obstacles, with the shared economy industry suffering the most due to its centralized platform model - asset ownership. Even in a time when the government does not regulate social distancing, people's fear causes them to fear sharing living, living, or working space. Under the pandemic's influence, these platforms can resume stable operations only after the social distancing period expires and service users are safely vaccinated.

Numerous major cities in Vietnam have a PropTech industry dependent on the expansion of tourism. This makes the PropTech model difficult to implement within the shared economy. In the event Covid-19 virus spreaded more rapidly than anticipated, local people avoid going to visit public and crowded spaces could disrupt the domestic consumer market.

6.2 Recommendations for Vietnamese PropTech Startups

6.2.1 Product

6.2.1.1 Improvement of cleanliness and hygiene

Due to the COVID-19 outbreak, travelers are likely to favor accommodation establishments that provide reassuring accommodation in terms of cleanliness and hygiene. Hence, PropTech startups should implement both manual and automated (e.g., robot-based) hygiene surveillance practices at their facilities. In addition, it is suggested that PropTech startups enhance their safety and hygiene protocols and underline their strong commitment with those regulations. This assertion was supported by research on how PropTech startups in Hong Kong handle the SARS and H1N1 pandemics. Specifically, they believed that cleanliness and hygiene regulations in accommodation facilities enables them to save their customers from infectious diseases.

Cleanliness is a fundamental component of accommodation services (Gu and Ryan, 2008). Numerous researchers have identified general hygiene and cleanliness as a major determinant of customer's accommodation preferences (Lockyer, 2005), customer satisfaction (Gu and Ryan, 2008), customer delight (Magnini et al., 2011), and also customer loyalty (Magnini et al., 2012). (Barber and Scarcelli, 2010). As previously mentioned, surfaces of objects usually used by people are more likely to be contaminated by touch (Park et al., 2019) and become sources of transmission of infectious diseases such as COVID-19 (Chen et al., 2020). Inaccessible areas, such as the central air conditioning system, may also promote the

aerosol transmission of viruses (Zhang et al., 2022). A more refined comprehension of hotel cleanliness will assist PropTech companies in streamlining their housekeeping procedures to guarantee effective cleaning and sanitization of accommodation properties.

6.2.1.2 Extra healthcare services

When planning trips, in the context of COVID-19 pandemic, customers tend to become more concerned about general health-care access, such as nearby medical facilities, health care policies and services. In fact, during COVID-19 pandemic outbreak, many individuals have begun to adjust their lifestyles and prioritize their physical and mental health (Wang et al., 2020). The new tendency of maintaining healthy lifestyle is predicted to become more popular after the pandemic which is both a chance and a challenge for PropTech and real estate companies around the world.

The COVID-19 pandemic has compelled people to recognize the significance of nature and the ecosystem (Zhou et al., 2020). After the COVID-19 pandemic, it is anticipated that environmentally friendly forms of activities (Oh et al., 2016; Xu et al., 2017) will increase in popularity, as these travel forms contribute to environmental sustainability and harmony between people and nature. Consequently, PropTech startups in Vietnam should seize this opportunity by promoting eco-friendly strategies and nature activities to address customers' environmental concerns. In this regard, PropTech startups should design marketing communication content and employ marketing communication strategies to demonstrate their ability to protect guests from public health crises, assure guests of their health and safety during their stay, and make them feel more at ease in the wake of the COVID-19 outbreak.

6.2.2 Pricing

During a recession, price typically becomes a major factor and a deciding factor in purchasing decisions. Typically, in such a circumstance, income decreases, and job security and wealth become uncertain (Hampson & McGoldrick, 2013; Piercy et al., 2010). Thus, during recessions, customers become more price-sensitive (Chou & Chen, 2004; Hampson &

McGoldrick, 2013), and they attempt to shift toward cheaper product prices (Dennis et al., 2005). Similarly, Rabadan and his colleagues (2021) reported that during a recession, price has a greater influence on customers' purchase decisions than the product's origin and quality. Similarly, Hampson and McGoldrick (2013) asserted that during a crisis, customers prefer to buy cheaper items, and their demand decreases; they reduce their expenditures by purchasing cheaper goods (Ang, 2001). In such circumstances, businesses attempt to increase demand and possibly boost sales by offering discounts (Ang, 2001; Grossberg, 2009; Grundey, 2009). Previous research revealed that companies either keep prices the same but offer higher-quality products assuming customers will remain loyal due to the added value, or they reduce prices but do not alter product quality (Ang, 2001; Koksal & Ozgul, 2007).

Startups in the Vietnamese PropTech industry must be highly adaptable in adjusting their prices to meet market demand and maintain capital flows that are still limited and unstable. Pricing campaigns must utilize technology, algorithms, and regular market research data more than ever before. During the pandemic, Airbnb employs this strategy to maximize revenue while maintaining market-appropriate practicality.

6.2.3 Distribution

6.2.3.1 Adoption of AI and robotics

The COVID-19 outbreak is therefore anticipated to hasten the adoption of AI and robotics in the real estate industry. Specifically, more accommodation establishments will likely adopt "unmanned" devices and employ robots to offer completely contactless service. In the near future, modern technology such as robot receptionists, self-check-ins are anticipated to begin replacing human-to-human contact services.

Changes in the real estate industry bring a huge opportunity for PropTech startups to enhance their services and better satisfy their customers by adopting AI and robotics in innovative ways (Huang & Rust, 2018). The wide implementation of artificial intelligence and robotics in property services and management promotes a new service concept which has been studied from a variety of perspectives. Kuo and other researchers (2017), for instance, indicated that service innovation utilizing AI technology can enhance sustainable competitiveness. In addition, they identified six factors that could influence the development of service robots for the PropTech industry including government support, market development, robotics industry development, technology development capabilities, fundraising, and talent development (Kuo et al., 2017). Concerning the effects of AI and robotics on travelers' experiences, Tung and Law (2017) identified future research directions regarding the human-robot interaction consumer experience.

6.2.3.2 Adoption of most suitable and effective channels

In terms of distribution strategy, Koksal and Ozgul (2007), Ang (2001) and other researchers recommended that during every crisis, it is important that businesses mainly focus and invest on a certain number of suitable and effective channels instead of implementing strategy on multi platforms and intermediaries. The purpose of eliminating some channels is to cut down budget and optimize the performance of each distribution channel. The outcome of the marketing strategy is significantly influenced by the improvement of channel cooperation (Koksal & Ozgul, 2007). Ang (2001) suggested that businesses should target discount retailers and wholesalers. In the past, it has also been stated that companies should leave markets in which they are not able to effectively exploit and reallocate their limited resources to more suitable markets (Ang, 2001).

6.2.4 Promotion

6.2.4.1 Corporate social responsibility

Corporate social responsibility was widely utilized during the COVID-19 pandemic because it is an effective way to demonstrate how a company is contributing to society within the context of a society's current value system. In this manner, businesses can increase customer confidence and support. Airbnb creates value for multiple parties simultaneously, including countries, frontline departments, and individuals on a global scale. This demonstrates an in-depth interest in and investigation of the thoughts and desires of people during the pandemic. Regarding the Vietnamese market, both the population and the government are extremely concerned about the pandemic and the real estate market crises. To be able to lead Vietnamese PropTech startups, it is necessary to conduct research and develop the most effective strategies for boosting consumer demand.

6.2.4.2 Suitable discount programs

In addition, businesses are discouraged from devaluing the market, despite the fact that adjusting prices can have a minimal impact on the price level. In addition, Vietnamese customers are extremely sensitive to discount programs, particularly in the accommodation industry. Consequently, PropTech startups must offer variable and continuous discounts.

7 CONCLUSION

The pandemic caused by the COVID-19 virus has been called the most significant crisis of our generation. Within a relatively short period of time, the world has undergone dramatic changes in ways that no one could have foreseen. It will take some time to determine the full extent of the damage caused by this catastrophic outbreak, and the problems it has caused on an economic level will take years to be solved.

The PropTech industry is one emerging economic sector that was negatively impacted by COVID-19. Pre-Covid-19, it was robust and dynamic; yet it came dangerously close to failing during Covid-19. PropTech companies around the world, particularly those that provide sharing services, almost went out of business. PropTech-based Airbnb has successfully proved itself as the pioneer in the modern real estate era thanks to its ability to quickly adjust different strategies and stand firm throughout the pandemic. Airbnb has comprehensively modified their 4P's marketing strategies in response to customer unique requirements during the pandemic, including price, product, distribution, and promotion.

Some recommendations for Vietnamese PropTech startups to quickly seize opportunities from a global recovery after the pandemic and experience in responding to future crisis. In the PropTech industry, technology is an indispensable factor. Hence, it is important that PropTech startups implement modern technology into developing and promoting their services. Although the pandemic has nearly upended, the public's sense of hygiene and safety has completely changed compared to before. Choosing the right marketing channels is also an

important matter. PropTech startups need to thoroughly optimize the appropriate promotion channels instead of squandering their investment capital on a series of ineffective campaigns.

As the world is recovering post-pandemic, it is hoped that the PropTech industry will gradually regain its strength and popularity. Despite the obvious challenges of the coming months and years relating to consumer behaviors like travel, purchasing, and the selection of sharing services, they have undergone significant changes over the past few years, primarily because of the pandemic. Therefore, innovations do not cease with the pandemic, and startups must continue to adapt to meet the evolving needs of customers.

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THE EFFECT OF EARNINGS PERSISTENCE AND CORPORATE GOVERNANCE ELEMENTS ON SOCIAL RESPONSIBILITY ACCOUNTING DISCLOSURE: EMPIRICAL EVIDENCE FROM CONSTRUCTION MATERIAL COMPANIES LISTED ON THE VIETNAMESE STOCK MARKET

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Abstract

The study aims to provide empirical evidence on the impact of earnings persistence and corporate governance elements on the social responsibility accounting (SRA) disclosure of listed companies in the construction materials industry. Data were collected from 40 companies listed on the Vietnamese stock market that disclosed SRA information in the period from 2017 to 2021. The study used the Global Reporting Initiative 2016 to evaluate the SRA disclosure level and multiple linear regression to analyze the relationship between SRA disclosure and earnings persistence and some corporate governance elements. The results point out three factors affecting the SRA disclosure level: board independence, company size, and director ownership.

Keywords: *Social Responsibility Accounting; Corporate Social Responsibility; Information disclosure; Earnings persistence; Corporate governance.*

1. INTRODUCTION

Social responsibility accounting (SRA) is a rapidly evolving area of research that focuses on enhancing corporate accountability and transparency to a wide range of external stakeholders beyond just the traditional financial metrics (O'Dwyer, 2006). This field of accounting takes into account the social, ethical, and environmental impacts of a company's operations and decisions and attempts to measure and communicate these impacts to stakeholders. With the increasing attention being paid to social responsibility issues in today's society, including concerns about climate change, social justice, and corporate ethics, SRA is becoming increasingly important for businesses to consider.

The goal of SRA is to provide a more complete picture of a company's performance than just its financial results. SRA disclosure is the dissemination of financial and nonfinancial information about the environment, the community in which the business operates, and the society to which the firm contributes (Khuong et al., 2022). By providing this information, stakeholders such as investors, customers, and employees can make more informed decisions about their engagement with the company.

While SRA is a relatively new field, it has already had a significant impact on the way that businesses operate. As many companies started noticing that being socially responsible can

help improve financial results and competitiveness they now report on their sustainability performance, and some have even developed sustainability strategies that integrate social and environmental considerations into their core business operations. In order to achieve these goals company involving in corporate social responsibility should disclose accurately and credibly information on the social and environmental effects to both external and internal stakeholders (Wildowicz-Giegiel, 2014). As a result, SRA has led to increased transparency and accountability, as companies are held to higher standards by their stakeholders. However, the issue of measuring, evaluating, and presenting this data in a CSR report in accordance with international standards and frameworks causes many problems (Wildowicz-Giegiel, 2014). The main barriers are lack of awareness, lack of resources, lack of motivation (Akbari, 2021), and resistance from industry stakeholders (Isreb, 2021).

In this research paper, I will examine the implementation and disclosure of SRA information by comparing them to the Global Reporting Initiative (GRI) Sustainability Reporting Guide and evaluate the benefits and limitations of this approach. This research paper also explores the factors affecting the SRA disclosure of enterprises in the construction materials industry listed on the Vietnamese stock market. Finally, some recommendations will be proposed to promote the implementation and disclosure of SRA information to meet the sustainable development goals.

The following portions of the study are organized as follows: Section 2 introduces the background of the research and literature review; Section 3 presents the theoretical framework and hypothesis development; Section 4 explains the research method; Section 5 summarizes and analyzes the research results; and Section 6 addresses the study's conclusions and implications for government as well as for businesses.

2. LITERATURE REVIEW

The definition of SRA has evolved over time, reflecting the dynamic nature of CSR and sustainability issues. The earliest definitions of SRA focused on the measurement and reporting of social and environmental costs and benefits associated with business operations. More recent definitions have emphasized the role of SRA in promoting sustainable business practices and enhancing stakeholder engagement and accountability. The majority of academics view SRA as a tool to improve corporate transparency and accountability to a wide range of external stakeholders, addressing the concerns and values of people who are affected by a company's non-economic activities in terms of the environment, society, and ethics (O'Dwyer, 2006). Three major goals can be achieved with SRA. The organization and its resources are fully depicted in the report, first and foremost. Second, this component of the accounting system is seen as a tool for preventing socially irresponsible actions. Finally, CSR accounting inspires and stimulates businesses to engage in socially responsible activities (Krasodomska, 2013).

Several frameworks and standards have been developed to guide the practice of SRA. These include the Global Reporting Initiative (GRI), the Sustainability Accounting Standards Board (SASB), and the Integrated Reporting Framework (IRF). The GRI is the most widely used framework for sustainability reporting, providing guidelines for measuring and reporting on a range of sustainability issues. The SASB focuses on industry-specific sustainability standards, while the IRF emphasizes the integration of financial and non-financial information into a single report.

SRA is used to measure, disclose, and be accountable to internal and external stakeholders regarding their environmental, social, economic, and organizational performance through CSR-related reports (Wildowicz-Giegiel, 2014). The most important reasons for the disclosure of information on CSR are improving firm reputation (Alqahtani & Anasser, 2020), achieving loyalty of customers and employees (Gupta, 2015), enhancing efficiency of internal processes and production (Wildowicz-Giegiel, 2014), and improving financial performance (Shenghui Tong, 2019). However, international comparison studies indicate that there are significant variations among nations in terms of CSR understanding and disclosure level (Chen, 2009; Freeman, 2011; Amran, 2016). Since the last decade, the Asia-Pacific has gradually become a focus region for CSR disclosure studies (Belal, 2009). Emerging economies like China, India, and Malaysia play a crucial role in reviving and facilitating the continued growth of the global economy, giving the Asia-Pacific economies an important place within the global economic framework (Zha, 2015).

According to Visser (2008), the main reason for studying CSR in the context of developing or emerging markets is the greater potential for economic development and investment, which could result in more negative social and environmental effects. In addition, developing countries present distinctive CSR challenges that are quite different from those faced in developed countries (Visser, 2008). Vietnam is a developing nation with significant economic growth and social issues caused by corporate activities. Even though Vietnam's unique political, economic, social, and cultural characteristics make it a perfect place for implementing CSR ideas, there is little research on CSR in Vietnam in general and on SRA disclosure in particular (Khuong et al., 2022).

In the Vietnamese context, CSR disclosure is just voluntary, not required. The Vietnamese government encourages voluntary CSR disclosure to improve market efficiency and transparency. To control CSR disclosure in Vietnam, the Vietnamese government issued numerous legal regulations. The latest is Circular 155/2015/TT-BTC on Vietnamese listed business disclosure. This circular has increased information transparency, improving company performance. Nevertheless, after 2018, no new CSR disclosure laws were established, and thus this study's findings concerning factors affecting SRA disclosure would encourage further research on this topic to give a more comprehensive view for other related parties.

By examining 125 annual reports of 40 construction material companies listed on the Vietnamese stock market based on the 2016 GRI standard, this research paper evaluates the CSR disclosure level of the construction material industry, which is believed to have significant effects on the environment and society. Additionally, this study assesses factors affecting the SRA disclosure from an earnings persistence and corporate governance elements perspective, including EPS growth, board independence, board size, board meeting frequency, and director ownership.

3. THEORETICAL FRAMEWORK AND HYPOTHESES DEVELOPMENT

- Earnings persistence and SRA disclosure

Most social and environmental reporting research examines corporate legitimacy and social reporting using legitimacy theory (Aerts, 2009; Chu, 2013). The legitimacy theory, developed by Dowling and Pfeffer in 1975, emphasizes that companies can only exist when their value system aligns with the value system of the surrounding society. When there is a conflict between those two value systems, the legitimacy of the company is also affected. Accordingly, in order to maintain legitimacy, companies must operate within the bounds of socially acceptable behavior (Chu, 2013). When a company exceeds the legal minimum, it might gain additional reputational benefits, such as better-qualified employees and loyal customers (Brammer & Pavelin, 2006). As a result, permitted activities help businesses improve their performance (Wang et al., 2020; Magness, 2006; Khuong et al., 2022).

According to signaling theory, stakeholders use information to make decisions that benefit them (Rezaee, 2016; Huang & Watson, 2015). Good SRA disclosure communicates and portrays a more positive image to the public than poor SRA disclosure (Lys, Naughton, & Wang, 2015). Furthermore, being aware of social and environmental changes may assist firms in improving performance, reducing opportunities for income management, and so retaining the stability of high-quality financial statements while growing earnings (Rezaee, 2016) (Wang, Zhang, & Xu, 2020).

Based on legitimacy theory and signaling theory, the following hypothesis is formulated:

H1: There is likely a significant positive relationship between SRA disclosure and earnings persistence.

- Corporate governance elements and SRA disclosure

Institutional theory is used to explain the structure of society. The content of the theory refers to the role of organizations, including governmental, professional, and social agencies, in the establishment of organizational structure and corporate behavior. This theory suggests that a change in the legal (political) environment will create pressure that will lead to a change in stereotypes as well as in the management practices of organizations. Hence, the significant

relationship between corporate governance structure and SRA disclosure can be explained based on institutional theory.

Corporate governance structures define a company's interaction with its stakeholders (Smith, 2005). Corporate governance qualities improve firm performance and report quality in a variety of ways. Governance frameworks, in particular, have been linked to voluntary disclosures of CSR information (Haniffa, 2005). Some elements that represent effective corporate governance are board independence (Haniffa, 2005; Rao, 2012), board size (Said, 2009; Rao, 2012), board meeting frequency (Khanchei, 2007), and director ownership (Eng, 2003; Mohd Ghazali, 2007). The relationship between these factors and SRA disclosure can be explained by agency theory.

Agency theory suggests that corporations are viewed as a hub for contracts among various stakeholders, such as shareholders, managers, and the board of directors. These stakeholders have different objectives and information asymmetries, which can lead to agency problems. CSR disclosure can be seen as a way to mitigate these problems by reducing the information asymmetry between stakeholders and improving accountability and transparency. Modern organizations have independent non-executive directors on their boards to reflect the interests of many stakeholder groups, both financial and non-financial. The larger the number of independent directors, the more independence the board has. Independent directors may also impact directors' CSR program decisions and might pressure corporations to implement CSR programs to benefit non-financial stakeholders (Zahra, 1988; Abdullah, 2011; Haniffa, 2005). Thus, the following hypothesis is formulated:

There is likely a significant positive relationship between the SRA disclosures and the board's independence.

Regarding board size, agency theory suggests that larger boards may be associated with higher levels of monitoring and oversight of management, which can lead to better CSR performance and disclosure. This is because larger boards have more diverse perspectives and can bring different skills and experiences to the boardroom. Additionally, larger boards may be better equipped to identify and address CSR risks and opportunities. However, there is also a potential downside to larger boards, as they may be less efficient in decision-making and may experience coordination problems. Several studies have examined the relationship between board size and CSR disclosures and observed a significant positive relationship between the extent of CSR disclosures and board size (Rao, 2012; Said, 2009). Following the past research, the third hypothesis is developed as follows:

H3. There is likely a significant positive relationship between SRA disclosures and board size.

In addition to the size and composition of the board, the effectiveness of the board is also determined by the frequency of its meetings. The frequency of board meetings is viewed

as an indication of an active and dedicated board in terms of managing and addressing organizational issues (Khanchei, 2007). Abdifatah (2013) found a substantial positive correlation between board meeting frequency and CSR disclosure. Based on this research, the following hypothesis is formulated:

H4: There is likely a significant positive relationship between SRA disclosures and board meeting frequency.

According to agency theory, directors with high levels of ownership may prioritize their own interests over those of other stakeholders and may not always act in a socially responsible manner. Substantial shareholding by the executive directors leads to fewer agency-principal conflicts (Jensen and Meckling, 1976), thus reducing the pressure on the insiders to provide additional corporate disclosures. Prior studies found support for such claims as they witnessed a negative relationship between director ownership and corporate disclosures (Eng, 2003; Mohd Ghazali, 2007). Building on prior studies, the current study expects a negative relationship between SRA disclosures and director ownership.

H5: There is a significant negative relationship between the SRA disclosures and director ownership.

In addition to earnings persistence and corporate governance perspectives, it was discovered that company-specific factors influenced the level of CSR disclosures (Haniffa, 2005; Mohd Ghazali, 2007; Amran, 2016; and Saying, 2009). The current study measures the SRA disclosures in relation to three company characteristics: size, profitability, and leverage. These variables are used as control variables in the regression model. Prior research has found a significant positive relationship between SRA disclosures and company size, but the relationship between SRA disclosures and profitability and leverage is unclear (Abdifatah, 2013). As a result, this study anticipates a positive relationship between the SRA disclosures and company size, but no indication of expectation exists in forecasting the relationship between the SRA disclosures and profitability or leverage.

4. METHODOLOGY

4.1. Data

Data was collected from the annual reports and sustainability reports of 40 construction materials enterprises listed on the Vietnamese stock market in the period of 2017 to 2021. Although annual reports only constitute a small portion of corporate information channels, their use to capture SRA disclosures is largely preferred. However, due to the amount of missing data from the initial sample, only 125 observations represent the final sample of this study.

4.2. Research model and measurement

The regression model established based on the research hypotheses is as follow:

$$SRAD = \beta_0 + \beta_1 EP + \beta_2 BI + \beta_3 BS + \beta_4 BMF + \beta_5 DO + \beta_6 Sz + \beta_7 Prof + \beta_8 Lev + \varepsilon$$

Where, β_0 is intercept, β_1 to β_7 are the coefficients estimated from the regression mode, SRAD is the SRA disclosure level, EP is the earnings persistence, BI is the board independence, BS is the board size, BMF is the board meeting frequency, DO is the director ownership, Sz is the size of the company, Prof is the profitability, Lev is the leverage of the company and ε is the random error.

Dependent variable measurement

The SRA disclosure (SRAD) of a company is calculated by grading its annual report following the GRI *Sustainability Reporting Guide*. Accordingly, each annual report is scored based on the 33 mandatory items for SRA disclosure, divided into 3 groups: economic, environment, and society. Each item is given from 0 to 4 marks depending on the level of disclosure of both quantitative and qualitative information.

Table 1: Disclosure level of CSR disclosure following GRI 2016

Disclose both quantitative and qualitative information	4
Only qualitative information is published. Lack of quantitative information.	3
Lack of qualitative information. Quantitative information is disclosed in terms of budgeting and performance values.	2
Lack of qualitative information. Only quantitative information about the performance value is disclosed.	1
Non-disclosure	0

Source: Global Reporting Initiative, 2016

After scoring all 33 items according to GRI 2016, the SRA disclosure is measured as the unweighted average amount.

$$Y = \frac{1}{33} \sum_{i=1}^{33} (S_i)$$

Where: S_i is the score of each item from item number 1 to item number 33.

Independent variable measurement

The independent variables in the model are measured using the following method:

Table 2. Independent variable measurement

Acronym	Variable name	Measurement
EP	Earnings persistence	EPS growth rate
BI	Board independence	Proportion of individual non-executive directors to total directors

BS	Board size	Number of directors on the board
BMF	Board meeting frequency	Number of board meetings in the year
DO	Director ownership	Proportion of shares held by executive and non-executive directors to total shares issued

Control variable measurement

Table 3. Control variable measurement

Acronym	Variable name	Measurement
Sz	Company size	Nature log of equity
Prof	Profitability	Return on equity (ROE)
Lev	Leverage	Total debts to total assets

4.3. Data analysis method

The data in this study was initially assessed using descriptive statistics in order to check the distribution of the data. Tests showed that the data is normally distributed, as indicated by the relative equality of the mean and median and the Skewness and Kurtosis values of the variables.

This study also included correlation analysis to examine the relationship between the dependent and independent variables, as well as the connection among the independent variables. The correlation analyses diagnose multicollinearity between continuous independent variables. Pearson correlations were done to discover multicollinearity among the study's independent variables and the correlation between dependent variables and independent variables.

By taking multicollinearity into account, multiple regression studies were performed to demonstrate how a set of independent factors might explain the dependent variables (Black, 2004). In order to determine the presence of multicollinearity in the current review, correlation analyses were done. Multicollinearity can also be discovered using the variance inflation factor (VIF) and tolerance levels (Black, 2004). Both tests showed that there is no concern with multicollinearity in this study.

5. RESEARCH RESULTS AND DISCUSSIONS

5.1. Descriptive statistics

The results of the descriptive analysis for the study variables are shown in Table 4.

Table 4. Descriptive statistic

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
SRAD	1.456	0.631	0.636	2.789	0.405	0.283
EP	0.247	0.396	-1.602	0.641	0.533	0.856
BI	0.467	0.3416	0.256	0.876	-0.723	0.387
BMF	7.46	1.24	4	10	0.892	0.672
BS	5.2	1.071	3	11	0.318	0.296
DO	0.144	0.523	0.000	0.337	-0.571	-0.724
Sz	28.533	1.536	24.695	31.602	0.830	-0.913
Lev	0.465	0.210	0.147	0.959	-0.631	-0.428
Prof	0.141	0.117	-0.103	0.468	0.868	0.945

The SRA disclosures ranged from 0.636 to 2.788, with a mean score of 1.456. The results indicate that during the research period, construction material businesses listed on the Vietnamese stock exchange reported, on average, just 36.4% (1.456 out of 4) of the needed GRI framework information. Of which, the company has the highest level of SRA information disclosure at 69.7% (2.788 out of 4) and the lowest at just 15.9% (0.636 out of 4). The substantially low value of SRA disclosure may be a result of the voluntary disclosure policy in Vietnam regarding CSR activities. Among the 40 companies selected as the study sample, only three companies issued sustainability reports separately from their annual reports. Thus, it can be seen that enterprises in the construction materials industry listed on the Vietnamese stock market have been interested in disclosing SRA information, but the disclosure information is neither transparent nor detailed.

According to the descriptive analysis of earnings persistence, the EPS growth of the construction material companies varied from -160.2% to 64% due to the uncertainty of the economy in the evaluation period. The Vietnamese construction materials industry faces a number of challenges, including a decline in global construction demand, rising input costs, and a considerable oversupply. This is the result of the COVID-19 pandemic, worldwide inflation, and economic and political instability.

In terms of corporate governance, the results indicate that each of the evaluated businesses adheres to the Vietnamese Company Law. Each firm has between three and eleven directors, including at least one non-executive director. The average proportion of independent directors is 46%, which is significantly greater than the minimum requirement of 20%.

Throughout the study period, the board of directors held between four and ten sessions, both scheduled and adhoc. On average, directors own 14.4% of the company they oversee.

Descriptive statistics also show that construction materials companies have a large size, with an average equity capital of 2,465 billion VND, and the mean of the "Sz" variable is 28.53. During the assessment period, they generated relatively high profitability, with a ROE of 14% on average. In general, the companies in the construction materials industry did not use too much financial leverage, which averages 46.5%.

5.2. Correlation matrix

The correlation matrix in Table 5 demonstrates that the relation between SRA disclosure (SRSD) and leverage of the company is relatively low, which suggests that the SRA disclosure is less likely to engage in financial leverage of Vietnamese construction material companies. In addition, earnings persistence (EP), board independence (BI), board meeting frequency (BMF), company size (Sz), and profitability (Prof) are positively related to SRA disclosure, whereas board size (BS) and director ownership are negatively related. The matrix also shows that the model does not have significant multicollinearity as no pair correlation coefficient has an absolute value greater than 0.9 (Tabachnick, Fidell, & Ullman, 2007).

Table 5: Correlation matrix

	SRAD	EP	BI	BMF	BS	DO	Sz	Lev	Prof
SRAD	1								
EP	0.156	1							
BI	0.373*	0.136	1						
BMF	0.161	0.325*	0.123*	1					
BS	-0.331	0.412	0.059	0.081	1				
DO	-0.439*	-0.098*	0.274	0.327	0.09	1			
Sz	0.395*	0.388*	-0.175	0.316*	0.266	0.28	1		
Lev	-0.078	-0.253	0.03	0.101	-0.035*	-0.279	-0.108	1	
Prof	0.287*	0.325	-0.165	0.135	0.148	0.023	0.112*	0.054	1

*Note: * Significant at 5% level or below*

5.3. Regression results

For regression analysis including control variables, hierarchical multiple regression is commonly used because variables will be included in the equation in a predetermined order. The results showed that the overall regression model was perfectly consistent (Prob > F = 0.0445). The adjusted R² of 0.276 can be considered relatively high (Amran, 2016).

To detect multilinearity in the regression model, the VIF test was conducted. The results show that all variables in the model have a small variance inflation factor ($VIF < 2$), proving that the model does not exhibit multilinear phenomena.

Table 6. Multiple regression results for the SRA disclosure

Variables	Standardised Coef.	t-value	P-value	VIF	Tolerance
_Cons	1.171	0.574	0.572		
EP	-0.018	-0.242	0.810	1.23	0.811
BI	1.948	2.08	0.048*	1.20	0.836
BMF	0.044	0.08	0.935	1.14	0.874
BS	0.041	1.25	0.223	1.14	0.880
DO	-0.513	2.18	0.039*	1.06	0.943
Sz	0.769	1.673	0.081**	1.56	0.641
Lev	0.022	0.312	0.843	1.489	0.672
Prof	0.176	1.65	0.132	1.602	0.624

Board independence and director ownership are statistically significant at $p < 0.05$, whereas firm size remains significant at $p < 0.1$. The correlation coefficients of board independence, company size and director ownership, which are 1.948, 0.769 and -0.513 respectively, indicate that board independence has the greatest impact on SRA disclosure, followed by company size and director ownership. In contrast to board independence and firm size, director ownership has a detrimental impact on the SRA disclosure of construction material companies as it reduces the need for insiders to disclose additional information about the company. These results confirm the findings of (Zahra, 1988), (Abdullah, 2011), (Haniffa, 2005), (Eng, 2003) (Mohd Ghazali, 2007), (Abdifatah, 2013)... None of the other variables included in the model (earnings persistence, board meeting frequency, board size, leverage and profitability) is significant in explaining the SRA disclosure.

The findings imply that the Hypothesis 2 and Hypothesis 5 are verified at the level of significant of 5% whereas the Hypothesis 6 is verified at that of 10%. Other hypotheses are rejected.

6. CONCLUSION

For Vietnamese-listed firms in the construction materials industry, the research paper examines the association between SRA disclosure and earnings persistence along with corporate governance elements by analyzing panel data collected from their annual reports for

the period from 2017 to 2021. According to the research results, board independence, director ownership, and company size have a significant impact on the SRA disclosure level. While board independence and director ownership have positive effects on SRA disclosure, director ownership has a negative effect. These findings imply that in the construction materials industry, a company with more individual non-executive directors is likely to disclose more information about CSR through its accounting system. Furthermore, larger businesses have a greater probability of disclosing SRA information. In a detrimental way, a company whose directors hold a large proportion of shares is less likely to disclose complete and detailed SRA information.

This study has contributions to both the theoretical framework and the practical issue.

Firstly, the findings support the signal theory's explanation for the link between research themes. This study provides empirical evidence to assess the relationship between CSR disclosure and inter-company factors containing earnings persistence, board independence, board size, board meeting frequency, director ownership, company size, leverage, and profitability. In the context that the existing literature about this topic is not many and the findings are still inconsistent, the study contributes to a deeper insight into the given topics.

Secondly, as a high level of SRA disclosure is a favorable signal to stakeholders that the company is focused on sustainable goals, it may aid the organization in enhancing its reputation, achieving customer and staff loyalty, and enhancing its performance. Hence, the management must understand the significance and advantages of CSR in order to incorporate it into the purpose, objectives, strategy, and corporate culture. In addition, businesses must concretize their efforts by spending on social responsibility initiatives and implementing training programs for staff to enhance their professional ethics and understanding of social and environmental concerns. These activities should be included in the annual reports and integrated reports of businesses so that stakeholders have a thorough foundation for evaluating the performance of businesses.

Thirdly, the study has policy implications for enhancing the legal framework controlling CSR for publicly listed companies in order to enhance information transparency and offer investors more data to make educated investment decisions. Thus, the management agency should continue to provide new circulars of advice in conformity with global CSR disclosure regulations. Managers must always maintain a positive firm image, and enhancing non-financial information will help to increase stakeholder trust.

Businesses must analyze their performance with regard to environmental and social implications in order to achieve sustainable development. In this process, SRA is an efficient instrument for collecting, processing, and disseminating information on CSR performance and the overall operating efficiency of the firm. SRA information should also be provided in a clear and timely manner so that business-related parties may access and utilize it. The authors of this

study demonstrated how to evaluate the amount of SRA disclosure and identified important criteria, such as profit margins and audit firms, in order to provide organizations with some advice. Although there are some inconclusive aspects about the amount of effect, the purpose of the study is also to serve as a guide for future research by extending the sample size, the research profession, or the variables.

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CREATING PREMIUM VALUE IN SOLUTION BUSINESSES BY GENERAL PURPOSE TECHNOLOGY: CASES OF KOMATSU'S KOMTRAX AND SONY'S BROADCASTING EQUIPMENT

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Abstract

This paper discusses the integration of technological development and emotional value in the solution business. Today, with the focus of value creation shifting from products to services, the importance of services and marketing activities for business is increasing, especially when it is essential to produce sentimental and emotional value for customers, but there too, technology is involved. Hardware is necessary even to realize certain services, which requires the development of hardware technology. In such service dominant situation, what role does technological development play and what are its features? In this paper, we present an exploratory hypothesis on the possibility of technological development that is suitable to improve emotional value by utilizing existing technologies and standard technologies in the solution business.

Keywords: Solution business, emotional value, existing technology, Sony, Komatsu

1. Preface

This paper discusses the integration of technology and emotional value in product development associated with the solution business³⁶. The primary industry in the twentieth century was the manufacturing industry, where new product technologies had brought about an evolution in product functions and performance, and such evolution of functions and products had made customers recognize the added value as functional value (Nobeoka, 2010). However, digitization of the electronics industry has brought about a significant improvement in basic performance, and advances in product functions and performance have gone beyond the awareness level of customers. Since such functional value can be easily imitated, even if value is created, development companies may not always be able to capture its value (Kusunoki, 1999; 2004). Though DVD is a digital device developed by the Japanese companies Panasonic and Toshiba in 1998, those who gained profits from the DVD player business in the early 2000s were mainly the Chinese manufacturers. Thus, even though Japanese manufacturers created the value, they were not able to capture the value.

³⁶This paper has been prepared as a discussion on the integration of the emotional value and technology in solution business by revising and updating the cases in the Japanese paper of Semantic Value Creation and R&D in B-to-B Business — Cases of Sony and Komatsu —, Waseda bulletin of international management, No.49, pp. 57 - 68 written by Osanai, Atsushi (2018).

Research in the field of marketing theory points out that the key concept of customer value creation is shifting from product development to co-creation of value between companies and customers by providing services and solutions. Vargo and Lusch (2008) refer to the traditional product-centric business as Goods-Dominant Logic and point out that today the focus of business is shifting from Goods-Dominant Logic to Service Dominant Logic.

Nobeoka (2010), has also pointed out the importance of services in the discussion on creating non-functional value for B2B business. Nobeoka in his discussion on non-functional value, points out that in B2C business, creating non-functional value is a matter of product planning to impress customers, while in B2B business, non-functional value such as trust and feeling of security towards the manufacturers can be created by providing after-sales service to customers beyond their expectations in addition to supplying products with superior functional value.

However, if the non-functional value of B2B is just perceived as service after the fact or for creating confidence, then the non-functional value in B2B will only be a problem of marketing and quality control. Also, the strength of Japanese companies lies in well-balanced manufacturing, through skillful reconciliation, and differentiation through business models is a forte of U.S. companies (Clark & Fujimoto, 1991). A competitive advantage cannot be created for Japanese companies with just after-sales service. Instead, the hypothetical proposition of this paper is to discuss if it is possible to build a competitive advantage for Japanese companies by embedding the strong integral manufacturing of Japan in the solution business.

Therefore, this paper has picked up two good examples for solution business by Japanese companies for analysis and tries to show the relationship between emotional value creation, and technological development and product development, in other words, this paper attempts to explore and present the integration problems of the two companies.

The reason that this paper has picked up the context of integration of solution business and technological development is not just because manufacturing is the forte of Japan. It is because of the consideration that the value generated by the hardware business where products are manufactured and sold in the manufacturing industry and the value created by services in the solution business do not exist independently and separately, but there is an interdependence and synergistic effect between both the values, and management of the integrated value creation of manufacturing and services is considered to be the key. This is a critical suggestion against the simplistic shift to the solution business as viewed by the Japanese companies of today, warning against the short-sighted shift to services based on the premise that "Hardware is not good", and is considered to have an implication on the actual business. Leveraging the strengths of manufacturing.

This paper has picked up the examples of broadcast equipment business of Sony and construction machinery business of Komatsu. The descriptions of the examples have been revised and updated using the case study by Osanai (2018) which was published in Japanese.

2. Integration of technology and emotional value in solution business

The most distinctive feature of technological development in a company is that it is carried out by always being aware of the integration with the customer value, considering technology as a means to create customer value. Schumpeter (1934) perceived technology as exogenous; however, Schumpeter later recognized technology to be more endogenous and managerial (1942), in the same way, customer needs are not involved in the technological development by the so-called Technology Push (Coombs et al., 1987). The linear model of R&D is perceived negatively, with technology being developed first, embedded into a product, and then sold to customers in the market (Kline, 1990; Schon, 1967). If companies only develop technologies, then it will not result in value capture, and they need to consider technological development from a more dynamic perspective (Utterback, 1994).

For value capture to be possible, it is essential to integrate technological development, product development and customer value by considering R&D as a chain linked model (Kline and Rosenberg, 1986; Leonard-Barton, 1988).

The importance of integrating technology and customer value has also been pointed out in the external integration by Clark and Fujimoto (1991), and the discussion on technology integration by Iansiti (1998). Weinrauch and Anderson (1982), in their study on marketing theory have pointed out that both, R&D and marketing, stand on an equal footing in terms of areas they emphasize on.

These discussions on the integration of conventional technology and customer value are based on the assumption that a product has functional value and mainly aimed at striking a harmony between the direction of the evolution in functions and performance brought about by technology and the directionality of customer needs.

On the other hand, customer value generated in the solution business is not a functional value, but it is generated from the competition process between companies and customers through services (Groenroos, 2008). These values are called experience value, emotional value, non-functional value, etc. (Schmitt, 1999; Nobeoka, 2010), and in contrast to a functional value, which is objective, quantitative and explicit, such as functions and performance, emotional value is subjective, qualitative and implicit, which appeals to the sentiments and emotions of customers.

Nobeoka (2010) has discussed non-functional values based on the relationship of the subjective and qualitative values with technological development. Though iPhone and iPod from Apple or notebook of VAIO Corporation are products that present a sentimental value of

high designability, technology is used in these products to improve the sentimental value and not for the realization of functions and performance. In the early days of iPhone and iPod touch, etc., although the back surface with a high-quality design having stainless-steel mirror finish was achieved by polishing³⁷, only a few Japanese companies had the expertise in the polishing technology that was used³⁸. In the VAIO Type T notebook PC released in 2006, to realize the proposed design of ultra-thin display screen³⁹, the system infrastructure of liquid crystal display and backlight have been developed independently⁴⁰. In these examples, the subjective and intuitive value of design is realized by technology having differentiation potential, increasing the competitiveness of the products. In other words, technology is not used as a means to create functional value, but as a means to create non-functional value. Of course, even if technology creates a non-functional value, that value must match the potential needs of customers, and the imposition of technology by the so-called technology push does not create value. In other words, emphasizing the importance of technology in non-functional value creation does not deny the importance of marketing activities. Instead, it means that non-functional value creation is not necessarily a proprietary item of marketing activities, but has two aspects, product development and marketing.

Nobeoka (2010) points out that in contrast to B2C business, where product planning elements such as design and realization of operability that appeals to sentiments are strong, in B2B business, such as solution business, service-related elements, such as building trust among companies, providing consultation solutions, maintenance and management are strong. As illustrated above, the non-functional value created in B2C is an emotional value realized through the realization of technologically superior design and operability. On the other hand, as stated by Nobeoka, if the non-functional value in B2B, such as solution business is the value of customer trust and service, then how is technology involved in it? The purpose of this paper is to present the role and features of technology for the creation of emotional value in the solution business, and in the next section, we will use the two examples of Sony and Komatsu to analyze the relationship between the service business that generates emotional value in the solution business and the supporting technology.

3. Broadcast equipment business of Sony

Though Sony has a strong image as a company that deals with consumer businesses such as home electronics, games, movies and music, and about one-third of the electronics business of the company comprises of industrial devices and components. The industrial business of Sony is broadly divided into three categories, namely, semiconductor business, components business, and professional use AV equipment and system solutions business⁴¹.

³⁷ <http://www.apple.com/jp/ipodtouch/design/> (Access date: July 25, 2011)

³⁸ <http://www.tsubamesanjo.jp/kanko/archives/3698> (Access date: July 25, 2011)

³⁹ Products of Sony Corporation at that time.

⁴⁰ <http://www.vaio.sony.co.jp/Products/Inside/TX/index.html> (Access date: July 25, 2011)

⁴¹ Sony Corporation "Annual Report for the business year ending March 2011", p. 35.

Among them, Sony is the leading manufacturer of video equipment for broadcasting with a 70% share in the global market. The factory of Sony manufacturing videotapes for broadcasters is located in Tagajo City in Miyagi Prefecture, which was affected by the tsunami during the recent Great East Japan Earthquake. The factory had temporarily shut down its operations, and the presence of Sony in the market for broadcast video equipment is so significant that there was an "Outcry" from the television industry because of the shutdown⁴².

Sony entered into the video equipment for broadcasting for the following reason, U-format (U-matic) VCR (Video Cassette Recorder), which was developed for home use did not sell well at all as a consumer product. The U-matic is a home use video format jointly developed by Sony, Matsushita Electric Industrial Co., Ltd. (now Panasonic Corporation), JVC, and five other overseas manufacturers in 1970 using the cassette-based video technology developed by Sony. However, at that time, the penetration rate of color television was less than 40%, and the cassette was too big to handle, due to which the U-matic home use video was a premature product. Therefore, Sony tried to adopt the U-matic in video equipment for professional use applications such as news coverage of broadcasters. At that time, large open-type reel video was introduced by broadcasters, since the reels were too large to be carried, film cameras were used for news coverage. News films shot by cameramen at various sites were converted to television signals after being developed at the broadcasters and then broadcasted. If the portable video deck of U-matic is used, then it can be combined with a television camera to record videos as television signals on a video cassette directly. In 1976, Sony developed the U-matic video deck BV series for news coverage along with CBS, one of the three major networks in the United States, and this new system which used a video camera instead of the film camera, was sold under the name "Electronic News Gathering (ENG)".

In 1981, Sony developed the Betacam format based on Beta format video for home use and released the Betacam video camera BVW-1 with integrated video deck and camera, which strengthened Sony's foundation as a broadcast equipment manufacturer. Even in 1984, when the general meeting of shareholders was held for 13.5 hours due to sluggish sales of home use Betamax, video division sales had actually exceeded 30%, this was because of the reason that in addition to the income from patent (since VHS also used the patented technology of Sony) related to home use video, Betacam for professional use had contributed significantly to the sales.

At first glance, the development of ENG appears to be a technology push. The reason being that the U-matic and Beta format were initially developed in anticipation of house use needs and not planned for professional use. The formats were later developed for professional use because the technology was already available, and there was no other use (Fig. 1). This

⁴²MSN Sankei news "No tapes! Television industry outcry, Sony's factory with '70% share' hit by disaster" April 2, 2011 (<http://sankei.jp.msn.com/entertainments/news/110402/ent11040201190000-n1.htm>)

shows that the integration of technology and customer value does not have to be a needs-pull type of development. Even with technology-driven product development, technology and customer value can be integrated as long as the product concept perfectly matches with the needs of customers. In other words, the issue of whether technology comes first or needs come first, such as the traditional technology push or need-pull controversy, is not very important, and no matter whether technology comes first or needs come first, the question is whether there is a product concept with a consistent story between technology and customer value.

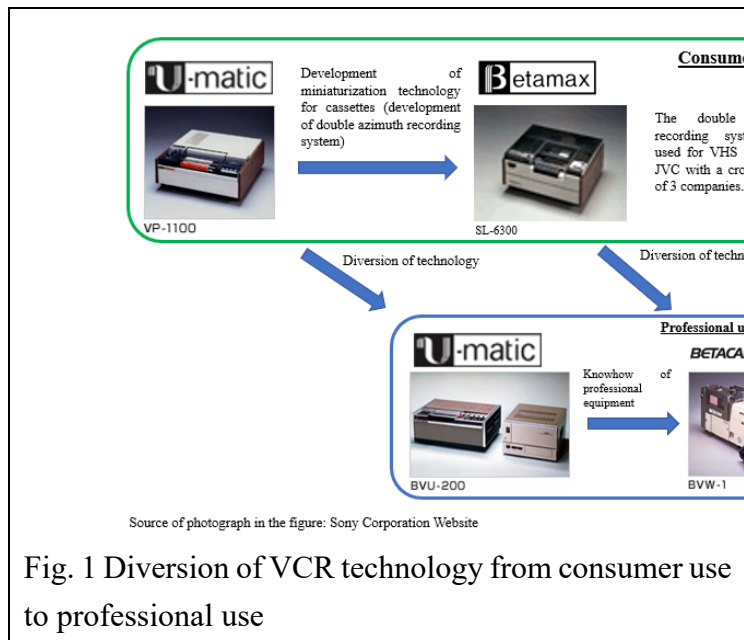


Fig. 1 Diversion of VCR technology from consumer use to professional use

Betacam, which was successful as ENG, has since undergone various improvements and a new format has emerged, even though the electrical format has been changed, the original Betacam architecture is being used as the mechanical format without any change. In 1986, Sony developed Betacam SP format that used metal tape to achieve high image quality and extended use, and the ENG video camera BVW-505 of Betacam SP system was

released the following year. Around this time, Sony held an unchallenged position in the ENG market, and people went to the extent of saying that "Even broadcasters from the communist bloc will use Sony".

The turning point for the ENG market came in the late 1990s. Panasonic developed DVCPRO, the digital video for standard broadcasting (SD broadcasting) in 1996, and then released its independent video equipment for broadcasters compatible with high vision (HD broadcasting) as DVCPRO HD, an enhanced version of DVCPRO⁴³. As a digital video format for broadcasters using the same 1/2-inch cassette and mechanical mechanism as the conventional analog Betacam, Sony too developed digital Betacam (for SD broadcasting) in 1993, digital Betacam SX having compatibility with Betacam SP in 1996, and HDCAM supporting HD broadcasting in 1997.

Video of digital recording type has excellent image quality, which is the basic performance, and it is difficult for manufacturers to create differences in performance with competitors, which was possible in the era of analog video. Moreover, Sony adopted 1/2-inch

⁴³Matsushita Electric Industrial Co., Ltd. (2005) "VTR/Camcorder for Broadcasters", "Matsushita Technical Journal" Vol. 51, No. 2, pp. 172-181.

tape same as the home Beta system and VHS system, but DVCPRO uses the 1/4-inch tape same as the DV system video camera for home use to make the cassette compact⁴⁴. This can be said to be a significant advantage for ENG, which requires mobility. Also, in the late 1990s, since broadcast equipment was replaced due to the digitization of broadcasting, it was easy to switch to a product of different format. Furthermore, products from Panasonic had a cost advantage over Sony. The situation was very favorable to Panasonic, and in fact, DVCPRO received an order from TBS in the late 1990s, and since Panasonic was the official sponsor of the Olympic Games, DVCPRO was adopted as the official broadcast equipment for the Olympic Games, and it was an impetus that broke the dominance of Sony in video equipment for broadcasters⁴⁵.

However, the momentum of HDCAM saw a revival in the 2000s. Given the fact that Sony had an unchallenged position in the analog era, DVCPRO from Panasonic continues to fight bravely even today. However, starting with the adoption of the HDCAM system by NHK and movie production companies from Hollywood in 2000, HDCAM was introduced to all terrestrial broadcasters of Japan in 2006, and Sony continues to hold the advantage even today⁴⁶. Again, this is even though Panasonic has an advantage in terms of mobility and cost. The newspapers at that time had mentioned, "'DVCPRO' was being sold at a price, which was half that of the flagship product of Sony. The marketing of Matsushita (Panasonic) was so enthusiastic that the executives of a broadcaster said, 'Please use this product'", there was a considerable difference in price⁴⁷, and though DVCPRO also has many advantages, Sony's overall dominance has been continuing since Betacam.

Although Panasonic rivaled Betacam even in the age of analog ENG video cameras with formats, M format and its successor MII format, it could not match Betacam in terms of image quality and compatibility with existing Betacam ENG. However, with the digitization and shift to HD of broadcasts, the differences in performance are close and the importance of compatibility is also low, and the superiority of HDCAM cannot be explained only with product technology.

A significant factor for the continued support of broadcasters to Sony is the after-sales service system. Sony has established a 24-hour service system for broadcasters since the time of the U-matic BV series. Equipment failure is directly linked to the broadcast accidents, due to which "Broadcasters suffer immense damage". Since the 1970s, the broadcast equipment business of Sony has "Launched a system wherein all service personnel carry a pager and repair

⁴⁴Sony has also developed and commercialized the DVCAM format (for SD broadcasting) using the 1/4-inch tape. DVCAM is a format aimed mainly at professional use applications other than broadcasters, such as companies and universities.

⁴⁵Nikkei Sangyo Shimbun April 6, 1998, page 8 "Expansion of broadcast equipment exhibition in the US - Matsushita closing in on Sony"

⁴⁶ According to the materials provided by Sony Corporation. In addition, commercial TV companies have designated HDCAM as the common format for all companies to provide CM material to TV stations ("List of CM material that can be provided to commercial TV companies", The Japan Commercial Broadcasters Association, July 1, 2011 <http://www.nab.or.jp/index.php?%A5%C6%A5%EC%A5%D3>).

⁴⁷"Offensive by Sony Digital Broadcast Equipment", The Nikkei Sangyo Shimbun (Nikkei Industrial Journal), July 11, 2000, Page 9

kit in the car, and in the case of any failures, they will rush even if it is late at night, and carry out repairs by the next morning" (Sony, 1996).

Also, repair engineers are gathered from various countries including Japan, and an on-site Broadcast Support Center is set up to support urgent repair requests and give advice on operating equipment at international events such as the Olympic Games and the Soccer World Cup, where broadcasters from around the world gather.⁴⁸ At such events, the urgency and importance of repair requests are unusually high, and sometimes it may not be possible to go on-air if the video equipment that has been brought in is not repaired within a few hours. Such quick and accurate response is the know-how that Sony has learned through years of experience in the broadcast equipment business, and other companies cannot easily imitate it. At the Athens Olympics, many broadcast equipment owned by major US broadcasters were connected through networks, and remote monitoring was used to minimize problems and speed-up recovery.

The communication control technology SNMP standardized with Internet Engineering Task Force (IETF) is used as the protocol of the remote monitoring system, and also for the remote management and maintenance of broadcast equipment of broadcasters⁴⁹ and digital cinema⁵⁰ equipment of cinemas that are used every day. Even though the communication technology was standardized, the know-how to apply and use it for management and maintenance was acquired by learning through experience. Since broadcasters have also understood this point and built a relationship of mutual trust with Sony, they still select Sony even if they have to pay a high cost for installing the equipment.

To conclude, the value of the solution business in the case of Sony can be summarized as follows. The important points for broadcasters in business is to have cassettes that do not break easily, a repair system that can immediately repair the cassettes if they are damaged and emergency measures that can at least remove the recorded cassette even if repairs are not possible, rather than functions and performance such as image quality and compact cassettes. To ensure that such repairs can be carried out by any service engineer across the globe, nearly the same system as the initial Betamax continues to be used with almost no changes to the mechanical system of the video (Fig. 2). Although the adoption of new technologies and mechanisms increases the functional value, it is understood that service engineers across the globe will take time to master the repair skills for new technologies and not making changes to the existing technologies is improving the service value. Also, standard technology from outside

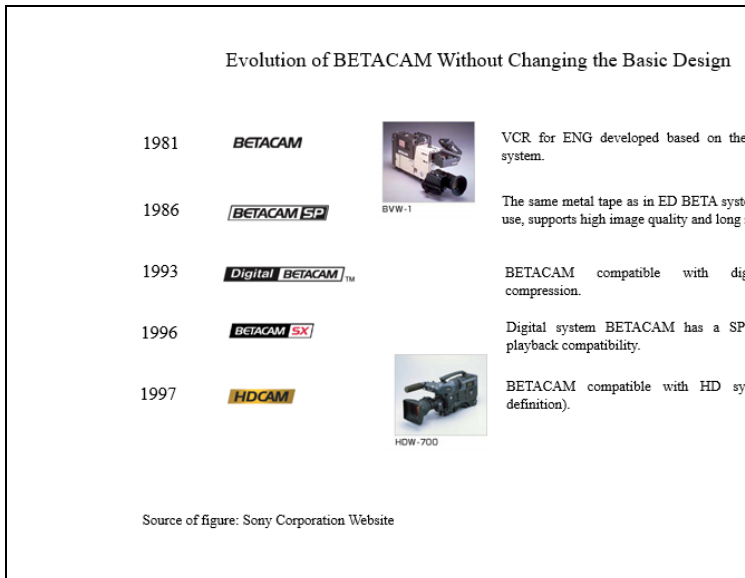
⁴⁸ Material provided by Sony Corporation and Sony Business Solutions Corporation press release "Establishment of the Sony Broadcast Support Center During the Korea/Japan Soccer Event" dated July 15, 2002 (<http://www.sony.jp/products/Professional/ProMedia/arc/020715.html>)

⁴⁹ "Our Company Center- Sony Systems Support Center", The Nikkei Sangyo Shimbun, March 26, 2004, Page 7

⁵⁰ Sony Marketing (Japan) Inc. press release "Starting a Digital Cinema Service to Support the Digitization of Cinemas in Japan" dated August 24, 2009 (<http://www.sony.jp/CorporateCruise/Press/200908/09-0824/>)

⁵¹ Sony Protechno Support Corporation Website (<http://www.sonyprotechnosupport.co.jp/service/support.html> Access date: July 25, 2011)

the company was used as the network technology for maintenance and management, and Sony did not have any technical differentiators in this technology. The source of value is the services implemented using network technology, and the technical differentiators do not matter. The value of services by the adoption of standard technology will be explained in detail in the following case of Komatsu.



4. The aftermarket business of komatsu

As a manufacturer of construction machinery, Komatsu is focusing their efforts on the aftermarket service business by the use of ICT while having manufacturing technology at the highest level. The only manufacturers with in-house manufacturing capability from engines to construction machinery

are Caterpillar Inc. from America and Komatsu, which are ranked first and second in the world, with Komatsu being the top manufacturer in the Japan market. Komatsu continues to perform well, while many Japanese manufacturing industries are reeling under the impact of the recession. From such facts, it can be inferred that Komatsu is not engaged in the aftermarket business because of the simple reason that it has "Shifted to services because manufacturing is not good".

An example of the use of ICT by Komatsu is KOMTRAX. KOMTRAX is a mechanism that sends information on the location, operating efficiency and status of consumable parts of construction machinery equipped with GPS and communication modem to the data servers of Komatsu. KOMTRAX is an application GPS technology and is just one function of the product. If Komatsu is limited to just equipping their construction machinery with GPS, then competing manufacturers are already developing similar features, the difference between Komatsu and other companies are the two points of standard equipment installation and existence of CSS-Net that makes the best use of the information obtained from the construction machinery. CSS-Net is a solution product (information system package) consisting of a database with information such as specifications and drawings of construction machinery that are necessary for repair and maintenance, management of various information obtained from KOMTRAX and inventory management of parts and ordering system for distributors.

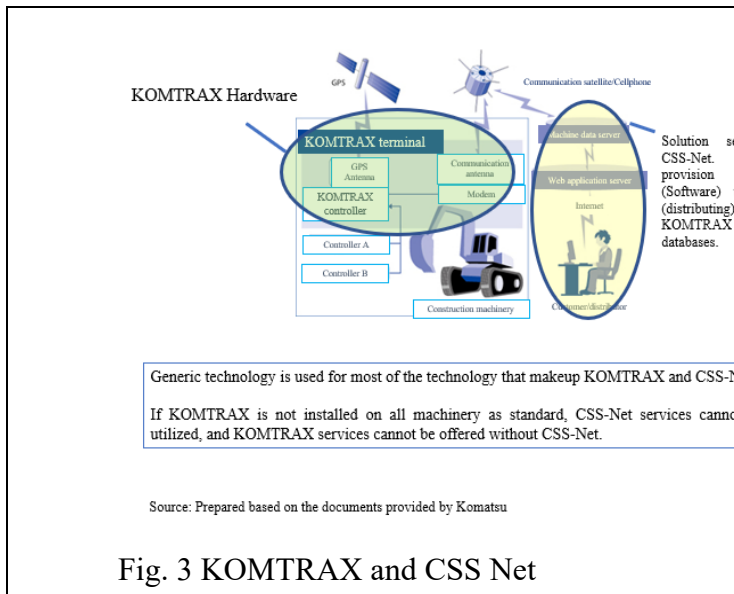


Fig. 3 KOMTRAX and CSS Net

Though many construction machinery manufacturers other than Komatsu also have GPS-enabled tracking systems, most of them are offered as paid options. On the other hand, Komatsu has equipped KOMTRAX as standard equipment on all of its construction machinery. One of the advantages of installing KOMTRAX as standard equipment are the features of location confirmation and anti-theft through remote control. Theft

of construction machinery is common in markets such as China, where construction work is continuing rapidly. All construction machinery products of Komatsu are equipped with GPS, and since it is generally known that their location can be instantly confirmed and the operations stopped, thieves of construction machinery can be made to think that "Komatsu construction machinery is difficult to steal". Construction machinery that is difficult to steal command a high price even in the second-hand markets of emerging countries and the high resale value also benefits new vehicle sales in developed countries. Though such added value creation is also a means to avoid commoditization, it is not easy to maintain the difficulty of imitation by rival companies in the long run with this alone.

KOMTRAX demonstrates its true value as it can send daily feedback on the status of construction machinery to provide prompt and precise support through CSS-Net. Construction machinery products are used in harsh locations and assumed to have failures, similar to broadcast equipment. If the product cannot be used due to failures, the construction period increases proportionally, causing significant losses to the customer company, and the requirement of prompt repair response is also a point that is similar to broadcast equipment. KOMTRAX periodically sends feedback to the servers on the condition and failure points of the consumable parts of construction machinery, and Komatsu can forecast with high accuracy as to when and which construction machinery will fail, making it possible to supply the required parts. If service personnel of Komatsu can always carry the required parts, as is being done in the example of Sony for broadcast equipment, then it will be easy to provide prompt repair services. It is difficult for Komatsu to always maintain spare parts for repairs close to the work site due to the following two reasons. One is because of the size and cost of the spare parts. Most of the spare parts required for construction machinery are large and expensive, and stocking all the parts is difficult. Another reason is that all products of Komatsu are sold through distributors, and after-sales services such as repairs can be performed only through these

distributors. In other words, it is not possible to instruct distributors who have no capital ties to keep an inventory of the spare parts required for repairs.

CSS-Net compensates for this problem. CSS-Net is a platform for distributing repair manuals, parts and technical documents, catalogs, etc. over a network, and most of the technology used in CSS-Net has been diverted from standardized generic technologies. For example, DjVu is an image format with high compression that is used for document management, AT&T Labs originally developed this compression technology, and Komatsu only has the distribution rights for DjVu. Superficially, CSS-Net might not appear to be a source of competitive advantage that is difficult to imitate.

However, CSS-Net solution, which is a business mechanism that provides prompt after-sales service, utilizes various know-how from Komatsu. This can also be observed in the choice of generic technology. DjVu mentioned above has been selected as the technology to balance two conflicting conditions, one condition is that it should be possible to transmit over extreme narrowband lines such as analog lines and cellphones with poor communication quality, and the other is that it has the minimum image quality required to interpret repair manuals. Very high compression and high image quality are not necessary for the after-sales service for construction machinery, and it is unnecessary and meaningless to seek superiority using compression technology. If suitable technology is available, it is essential to adopt generic technology and make only the required improvements in-house.

If we summarize the above value creation process of Komatsu, the value of construction machinery of Komatsu is more than the functional value of just the construction machinery because of the prompt after-sales service provided by the solution business of KOMTRAX and CSS-Net as well as the sense of security offered by making it difficult to steal the machinery. Specifically, since failure or theft of construction machinery leads to a significant opportunity loss for work at the construction site, the following two can be said to be the value of Komatsu, 1. If the construction machinery is from Komatsu, it has a track record of providing prompt services for repairs during failures, and the future expected value and 2. If the construction machinery is from Komatsu, the expectation of recovering stolen machinery is high when stolen, or there is an expectation that thieves will not think of stealing the machinery. Almost all of the hardware and software technologies that are used for support are not developed in-house, but generic and standard technologies have been adopted. This indicates characteristics that are similar to the network technology of Sony's ENG business. In the next section, we will discuss the significance of the adoption of such existing and standard technologies by Sony and Komatsu.

5. Discussion

5-1 Integration of technology and customer value in solution business

In the example of Sony, at the broadcast sites, deployment of prompt repair measures across the globe to prevent broadcast incidents has been prioritized, to that end, the proven consumer use VCR format (technology) has been diverted for professional use, by its continuous use, the continuity of mechanical component architecture and the quality of repair services are maintained. In other words, it can be seen that the value of the service is improved by reusing existing technology. In the case of Komatsu, the communication function installed in all construction machinery of Komatsu is the source of value because it provides solution services as standard through the network. The differentiation is not achieved by the individual core technologies, but with the after-sales service offered by packaging the individual existing technologies and solutions that add value to the products of Komatsu.

The commonality between the examples of both companies is that the quality of manufacturing and the quality of service interact with each other increasing the value synergistically, and that the product technology is not necessarily being created for the current product business. For building the remote maintenance management system developed by Sony and Komatsu, it is necessary to add technical mechanisms to the products in advance, and technologies have to be developed for realizing the functions. However, these technologies are not the source for product differentiation that leads to additional value improvement. Technically, it can be easily developed even by competitors. It is inferred that the ability to create technology and product concepts at the product development stage is essential based on the services expected by the customers from the manufacturers and devices accompanying the technical specifications required to meet the request of customers. As mentioned in the example of Sony, it is not important whether technology comes first or needs comes first, but the point of value creation is whether the product concept is a viable story that truly integrates technology and customer value.

It should also be noted that the technology itself is not of value. In the creation of functional value, the results of technological development directly improved the functionality and performance and was linked to the improvement of functional value. However, the emotional value in the solution business is the confidence and sense of security that the customers directly have towards the company based on the services provided, and the source of product differentiation is not technology in this case. However, this does not mean that technology is not needed. For realizing the solution business of Sony and Komatsu, technical mechanisms are still required, and technological development is necessary. However, since the difference in technology is not the source of value, there is no need for companies to differentiate themselves from competitors based on the core technology. It is considered that the technology used is not necessary to be a proprietary technology belonging to the company.

In the example of both companies, this can be seen from the fact that technologies, which are existing or quite standard and open, have been adopted as technologies to realize the services. For the realization of services, technology should not be significantly inferior, but outstanding technology is not required either. Technology should not be used only to achieve functional performance that is product specific, but technology should be used to increase the performance of the entire product experience of customers, and though such technology appears to be similar to the product technology used to realize the functional value, it is not.

Instead, building a service infrastructure at low cost using standard technology will lead to an improved after-sales service experience for customers.

As mentioned in the example of Sony, customers of Komatsu were not required to attach GPS to construction machinery at the beginning, and customers of Sony also did not have the idea of using consumer use VCR for ENG coverage at the beginning. Particularly in the diversion example of U format, the business started with the technology push idea of "How can we use it for other purposes?" for a technology that was not successful as a consumer use product. What is important is not technology push or demand pull, but to increase the degree of integration between product development and customer value produced by the product, this can be achieved with product planning that seeks to optimize the combination of technology and customer needs. Nobeoka (2010) claimed that though the nature of non-functional value appears to differ between consumer and industrial equipment, the nature of non-functional value creation in the product development department may not change.

5-2 "Trojan horse" technology introduction hypothesis

In the case of "Technology push start," instead of just picking up existing customer needs, it is necessary to examine how the introduction of new technology can improve the quality of customer service and embed realization measures for new product value, which even the customers are not aware of, in the products. Since the embedded technology does not satisfy the tangible needs, so the technology is not recognized as a product value by the customer. Once customers start using the product, they discover new product value (perhaps implicitly) for the first time with the technology that has been embedded. This suggests the following. (1) Since the embedded technology is not a differentiation point, so technical originality is not required. (Rather, the efficient implementation of standardized technologies will not be considered a "Mystery cost increase" by the customers.) (2) Embedded technology will be useful in the creation of customer value, and like the "Trojan Horse", it will be difficult for competitors to adopt the technology and increase the difficulty in imitating the technology.

In the case of tangible needs, customers will not feel a sense of discomfort, even if the cost of investment for developing the technology to implement the need is passed on to the product price. Product differentiation is a premium strategy that forces customers to bear the cost of additional technology development. On the other hand, as in the examples described of

this paper, it is considered that incorporation of the additional cost in the price is difficult when the relationship between technology and customer value is not clear, and the customer has difficulty in understanding the value. In other words, if there is an idea to provide some service in a solution business, and certain technologies are required to implement the concept, the cost of technology development should not be high for differentiation, on the contrary, since differentiation of technology is not needed, it is considered better to minimize the investment. This may be an important point to create emotional value in B2B.

Also, the introduction of the "Trojan horse" technique has the problem of the time gap between the cost to customer and value recognition. When customers pay for a functional value, the value is explicit and can be compared, so it is possible to know the price of the value in advance, and the customers can be convinced to bear the cost. However, the emotional value of the solution business is a co-creation process of value between companies and customers, and it is difficult to determine the value size in advance. The value is noticed intuitively and emotionally while using the service over a long period and is a strategy to enhance the loyalty of customers by creating a long-term relationship of trust between the company and customers rather than just increasing short-term profits. At that time, the technical mechanism required to realize the service that requires a "Mystery cost" mentioned above is not an obvious technical sales point, but rather a mechanism that cannot be noticed in advance. For this reason, development using existing and generic technologies that do not add to the cost is required, and another advantage of the "Trojan horse" is despite the fact that technology is necessary for creating value, it is difficult for competitors to understand the technology which not noticeable, this increases the degree of difficulty in imitating the technology. In the case of Sony, Panasonic tried to compete with Sony products by appealing to customers with new technologies and functions, but the value of ENG from Sony was not just a functional value. Instead, it was an after-sales service network that had stabilized globally with technology that does not change. In the case of Komatsu, their competitors, Caterpillar Inc. was also able to provide GPS and communication functions similar to KOMTRAX in their construction machinery, but Caterpillar offered it as a paid option and was not installed in all the construction machinery. The service offering of CSS-Net improves the value of the service because it is installed in all Komatsu construction machinery, and it is not possible to provide the same services when the installation of the function device is left to the discretion of users as implemented by Caterpillar. In this way, because the technology necessary to implement the solution business is not noticeable, it is difficult for competitors to understand the meaning of the technology.

If the technical differentiation of products can later create a significant difference in services, it could be a specific means to create value that cannot be noticed by competitors, as shown by Kusunoki (2004). The introduction of a solution business through the introduction of low-cost technology based on existing and standard technologies presented in this paper is not

just differentiation in terms of service or marketing, but rather a specific means to reduce visibility of value to competitors.

Since the research in this paper presents low-cost technology leading to service success based on only two examples, the potential for generalization is not very high. However, by presenting the application methods and conditions of the technology to achieve emotional value, we may have been able to show one of the directions to select technology for the solution business.

6. Conclusion

In the examples of Sony and Komatsu, it was shown that the differentiation of service business was realized while using existing and generic technologies.

This in addition to showing the technical factors of the shift to service dominant logic, also indicates a means to avoid commoditization even if the product's function and performance competition hit a plateau. However, only one method of preventing commoditization has been discussed in this paper, and it does not mean that other methods for avoiding commoditization do not exist. Initially, the industrial characteristics of broadcast equipment and construction machinery may be a factor that has supported the success of the service business of both companies, and there is a limit to the generalization of discussions in this paper. Also, most of the ideas to avoid commoditization, including the analysis in this paper, are measures to delay the progress of commoditization and do not guarantee that commoditization can be avoided in the future forever. However, the implication of the discussions in this paper to Japanese manufacturing is that commoditization cannot be avoided with functional and performance competition ignoring customers, and it does not mean that technology will not help to avoid commoditization.

Results of technology can be used not only to improve function and performance, but it can also be possibly used to delay the development of commoditization by thinking about what technology can deliver throughout the product experience of the customers.

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PRODUCT DIFFERENTIATION TO EXPLOIT INTERNATIONAL MARKETS: THE CASE OF PRODUCTS FOR REPELLING INSECTS WITH NATURAL AROMAS

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Abstract

Currently, products of natural origin, safe for users and environmentally friendly are increasingly popular and consumers are increasingly aware of the choice of products that are beneficial for family health. Enterprises also aim for sustainable development when cutting emissions through each stage of production. The trend of using natural flavoring products is also applied in insect repellent products because the features of some plants can both produce scents and have the effect of repelling insects. However, the use of this natural flavoring insect repellent still makes consumers wonder about its true use as well as there are many rampant products without a clear origin. Therefore, the study of natural flavoring insect repellent devices is also of interest to many researchers and pharmacists at home and abroad. Other studies have also found that many factors affect the choice of natural flavoring products but are inconsistent, have not focused on the product factor, and do not reflect the level of consumer awareness. Based on theory, this study analyzes and evaluates the effect of product differentiation on exploiting the opportunity for international market integration of natural flavoring insect repellent products by combining qualitative and quantitative methods. Thereby, the study clarifies the impact of product differentiation on consumer perceptions of products. Results achieved, Perceived Environment; Perceived Usefulness; Perceived Difference and Social Influence have a positive effect on consumers' purchasing intentions. In contrast, Perceived Risk has a negative effect on consumers' purchasing intentions of natural flavoring insect repellent products. Finally, the article proposes how to enter the market, position products, develop the strengths of products in the domestic and international markets.

1. Introduction

The trend of using flavoring products, natural scents is increasingly popular with the useful features and uses that it brings, both creating natural scents and having the effect of repelling insects and helping to relax. Products carrying chemical, artificial flavorings are gradually being replaced because of their long-term harm.

The use of natural flavoring products has been quite popular in developed countries and there are initial advances in developing countries as personal income and consumer

consciousness increase. However, currently, natural flavoring products have not made many improvements in product differentiation, including quality, style, price, shelf life, convenience, and no specific instructions for consumers to use properly.

For that reason, the authors implement the topic: "*Product differentiation to exploit international markets: The case of products for repelling insects with natural aromas*" to determine how the factors of product differentiation impact the market exploitation opportunities of natural flavoring insect repellent products in the country and also international.

This article was structured into five parts: (1) Introduction; (2) Literature Review; (3) Research Methods; (4) Findings and (5) Discussion, Conclusion and Suggestions.

2. Literature Review

Product differentiation is a process of distinguishing one good and service from other products and services, making it more attractive to the product's target market. This involves distinguishing it from the product of the competitor as well as of the product itself in the company (Edward Chamberlin, 1993). Although a niche market can lead to changes in a product to improve velvet those changes are not different. The difference here is the uniqueness of the product which creates a sense of value. Any difference is valued by the buyer (the term Unique Selling Advantage refers to advertising to communicate the difference of the product).

Michael Porter (1980) stated that "Any product (tangible or intangible) is considered a unique product of a certain group of customers. Therefore, it depends on their perception of how different the product is." Miller (1986) proposed marketing and innovation as two differentiated strategies, supported by some scholars such as Lee and Miller (1999). Mintzberf (1988) proposes more specific but broader categories: quality, design, support, image, price, nice, and nondiscriminate products, supported by Kotha and Vadlamani (1995). IO Documents (Ethiraj & Zhu, 2008; Makadok, 2010, 2011) further analyzed the theory and explored the obvious difference between the widespread use of vertical and horizontal differences.

Several studies related to the effect of product differentiation on market exploitation. Research of Duong Anh Tung (2007) analyzes the competitive situation in the industry, assesses the strengths and weaknesses, causes of limitations, and proposes solutions to improve the competitiveness of the company's fruit and vegetable industry in the EU market, strategic findings, environmental awareness. Master Phan Thanh Xuan's (2011) study on the synthesis of liquid materials presented an overview of the literature on biofuels, catalyzed for the cracking process, an overview of waste cooking oil, and waste animal fat. Finding the usefulness of the product makes a difference.

Schmalensee, R. (1982). Product Differentiation Advantages of Pioneering Brands. *The American Economic Review*, 72(3), 349-365 presents and explores a relatively simple market

model in which buyer rational behavior in the face of imperfect information about product quality can bring long-term advantages to pioneering brands.

Shaked, A., & Sutton, J. (1987). Product Differentiation and Industrial Structure. *The Journal of Industrial Economics*, 36(2), 131-146 points to "vertical product differentiation" that developed the idea that if the nature of technology and tastes in certain industries have a certain form, then that industry must necessarily be "focused"; and must remain so, no matter how big the economy becomes.

Krugman, P. (1980). Scale Economies, Product Differentiation, and the Pattern of Trade. *The American Economic Review*, 70(5), 950-959 argues that the widespread trade among developed countries as well as the popularity in this two-way exchange trade of differentiated products shows much in terms of theoretical standards.

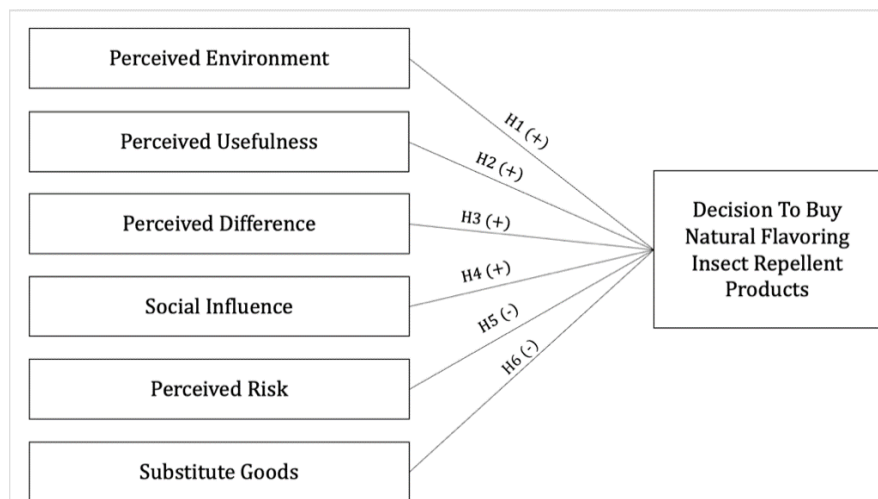
Beath, J., & Katsoulacos, Y. (1991). The economic theory of product differentiation. Cambridge University Press said: "Few industries in the modern market economy do not produce differentiated products." This book systematically analyzes the widespread popularity of this important type of product and focuses on models in which product selection is endogenous.

Berry, S. (1994). Estimating Discrete-Choice Models of Product Differentiation. *The RAND Journal of Economics*, 25(2), 242-262. Retrieved February 5, 2021, Research paper looks at the problem of analyzing "supply and demand" on a cross-section of exclusive markets with differentiated products. The basic methodology is to assume that the need is described by a discrete selection model and the price is determined endogenously by valuation companies.

Anderson, S. P., & De Palma, A. (1992). The logit as a model of product differentiation. *Oxford Economic Papers*, 44(1), 51-67. In the paper, the authors evaluate two alternative models of international trade in differentiated products. A growing pattern of profitability in which varieties are linked to companies predicts the housing market effect.

Through the above studies, each study has a variety of factors and discovered that new factors are uneven and uniform. Moreover, studies show a direct link between factors on the product but there is no analysis of the interaction of each factor. Therefore, to have a deep and complete research model, overcoming limitations, the authors propose a complete research model based on cognitive biases. The team inherited the research model that preceded the appropriate variables in the course of the study: Perceived Environment (Kim and Choi, 2005); Perceived Usefulness (Davis, 1985, Chutter, M.Y., 2009); Perceived Difference (Michael Porter); Social Influence (Morton Deutsch and Harold Gerard, 1958); Perceived Risk (Bauer, R.A., 1960); Substitute Goods (Stephen J. Durako et al., 2016).

Figure 1: Proposed research model



Source: Aggregated author group

The research hypotheses are as follows:

Environmental concerns denote an individual's orientation toward the environment and their level of interest in environmental issues (Kim and Choi, 2005). In response to market demands, eco-products are designed to help save energy, reduce emissions, and subsequent waste disposal needs. Eco-products are also designed to ensure the recyclability, reuse and recovery that people care about. The proposed research hypothesis:

H1: Perceived Environment has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

Perceived Usefulness (PU) is the level at which individuals believe that using a particular system will enhance their performance (Davis, 1985, quoted in Chuttur, M.Y., 2009, p.5). Perceived usefulness is a factor that motivates consumers to buy products that repel natural flavored insects. On that basis, the proposed research hypothesis:

H2: Perceived Usefulness has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

According to Michael Porter's 5-force competitiveness model, buyer power is one of those five factors, which includes the company's product differentiation from competitors and price sensitivity. On that basis, the study proposal:

H3: Perceived Difference has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

Morton Deutsch and Harold Gerard 1958 described two psychological needs that make people conform to the expectations of others. These include our need to be right (information society influence) and our need to be preferred by others (ordinary social influence). Standard

influence is an influence to match the positive expectations of others. On that basis, the study proposal:

(H4): Social Influence has a positive effect on the behavior of purchasing natural flavoring insect repellent products.

Bauer, R.A. (1960) mentions that belief in risk perception as a major factor in consumer behavior can be a major factor influencing the transition from web browser to the rue shopper. Perceived risk is debated to be highly correlated with consumer perceptions of adverse and uncertain risks (Dowling & Staelin, 1994). From there, the study *proposes*:

(H5): Perceived Risk has a negative effect on the behavior of purchasing natural flavoring insect repellent products.

Stephen J. Durako et al. of Westat "Assessing the status of compliance with international law on the marketing of breast milk substitutes by companies that make breast milk substitutes" (2016) argue that breast milk substitutes have the same value of public benefits, elements of compliance with international law and marketing in the media help let this replacement commodity become superior. So, when the price of the substituted goods goes down, the demand for the goods we are analyzing will decrease and its demand line will shift to the left. From there, the study *proposes*:

(H6): Substitute Goods has a negative effect on the behavior of purchasing natural flavoring insect repellent products.

3. Research Methods

In terms of qualitative research, the authors conducted face-to-face interviews with 10 individuals living and working in Hanoi, who have demand and experience in purchasing insect repellent products. The subjects of the interview were of different ages, different cultural levels. At the same time, consult with 5 experts at the forefront of product development research.

The results of the qualitative study showed that all six factors that influenced the purchase behavior of natural flavoring insect repellent products were accepted and no new factors were proposed. The factors included in the quantitative study are: (1) Perceived Environment (5 variables); (2) Perceived Usefulness (4 variables); (3) Perceived Difference (4 variables); (4) Social Influence (7 variables); (5) Perceived Risk (5 variables); (6) Substitute Goods (3 variables). A total of 28 observational variables of 6 factors influencing the decision to buy natural flavoring insect repellent products were included in quantitative research.

In terms of preliminary quantitative studies with a direct survey slip with a small sample (20 people). The majority of subjects accepted the survey slip but needed to adjust some words accordingly and design the question more rationally.

The author built the originally planned sample of 280 surveys. This number of observations both met the sample size requirements of Hair et al. (2014) with 145 observations and Green's study with 109 observations. The expected number of observation slips of the group is greater than the minimum sample size. The more valuable research is done.

Of the 243 consumers who responded to the survey, 62.8% were female and 37.2% were male. The survey age ranged from 18 to 60 years old, with the highest proportion of 18-25 years old (58.8%), the second was the group of customers aged 26-30 (22.6%), followed by the group of 31-35 years old (11.5%), from 35-40 years old (5.4%) and the over-40 group accounting for only 1.7% of the overall study.

The data is processed using SPSS 20 software. Data from independent variables are analyzed through steps: Cronbach Alpha scale reliability testing, EFA discovery factor analysis, correlation analysis, and linear regression analysis.

4. Findings

Factors influencing the behavior of purchasing natural flavoring insect repellent products.

Analysis of Cronbach's Alpha reliability factor showed that there were 5 scales used in the study with Cronbach's Alpha coefficient greater than 0.7 satisfying reliability and a total variable correlation coefficient greater than 0.4; The Replacement Goods scale has a Cronbach's Alpha reliability factor of $0.27 < 0.6$. As such, remove the Replacement Goods scale. So it can be determined that the scale ensures reliability and is suitable for use for further analysis.

Table 1: Cronbach's Alpha Reliability Test Results Table

Scale	Number of Variables	Cronbach's Alpha	Smallest Corrected Item-Total Correlation
Social Influence	7	0,866	0,587
Perceived Environment	5	0,917	0,692
Perceived Usefulness	4	0,824	0,442
Perceived Difference	4	0,768	0,533
Perceived Risk	5	0,828	0,443
Substitute Goods	3	0,270	-0,530
Purchasing Decision	4	0,796	0,553

Source: Aggregated author group

The scale consists of 25 observation variables, after testing the scale reliability using Cronbach's Alpha, which is included in the EFA factor analysis.

The EFA factor analysis showed that there were 5 factors extracted at the Eigenvalue value of 1,574 and the total variance of 66.063% indicating that the model was appropriate. The KMO coefficient = 0.803 > 0.5 so the EFA factor is consistent with the study. In addition, the actor loading factor is > 0.5, so the observation variables have good statistical significance and are important in the elements, have practical meaning. Sig. (Bartlett's Test) = 0.000 < 0.05 shows that observed variables are correlated with each other overall.

Table 2: KMO and Bartlett Test Results for Independent Variables

	Result	Compare
KMO Measure of Sampling Adequacy	0,803	0,5 < 0,803 < 1
Sig.	0,000	0,000 < 0,05
Average Variance Extracted	66,063%	66,063% > 50%
Eigenvalue	1,574	1,574 > 1

Source: Aggregated author group

EFA factor analysis showed that the four variables all converged on one fact statistical significance and are important in the factor, all have practical significance. Sig. (Bartlett's Test) = 0.000 < 0.05 shows that the observed variables are correlated with each other overall.

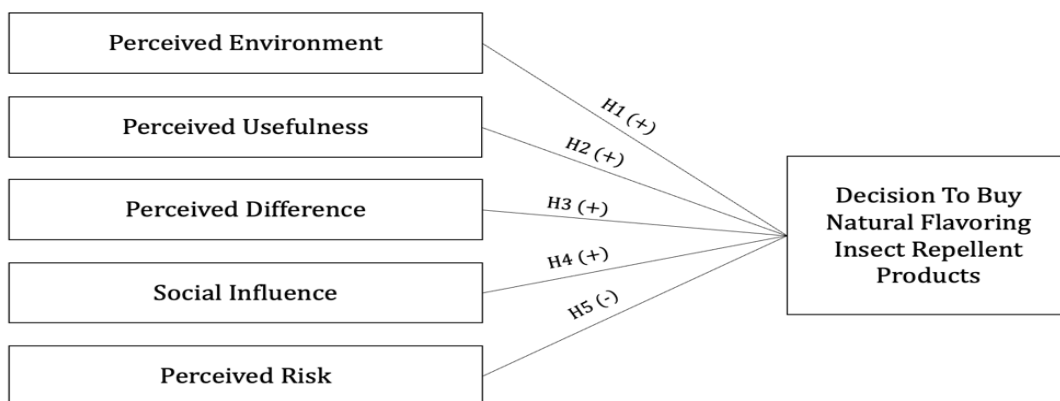
Table 3: KMO and Bartlett Test Results Dependent Variables

	Result	Compare
KMO Measure of Sampling Adequacy	0,702	0,5 < 0,702 < 1
Sig.	0,000	0,000 < 0,05

Source: Aggregated author group

Based on the results of quantitative research, the authors decided to modify the research model.

Figure 2: Modified research model



Source: Aggregated author group

The authors used the Pearson coefficient to analyze the correlation between quantitative variables. Pearson correlation coefficients between variables run from -0.133 to 0.471. That demonstrates the distinguishing value achieved, suggesting that the relationship between dependent variables (Procurement Decisions) and independent variables is statistically significant (Sig. <0.05). It can be seen that the dependent variable Purchasing Decision is positively correlated with the variables Social Influence, Perceived Environment, Perceived Usefulness, Perceived Difference and has a negative correlation with the variable Perceived Risk. So other statistics can be used to find a link between independent variables and dependent variables.

The linear regression equation with the dependent variable is Purchasing Decision (QD):

$$QD = 0.106MT + 0.271HI + 0.100KB + 0.233XH - 0.037RR$$

MT: Perceived Environment

HI: Perceived Usefulness

KB: Perceived Difference

XH: Social Influence

RR: Perceived Risk

QD: Purchasing Decision

The model consists of 5 independent variables XH, MT, HI, KB, RR, and one dependent variable QD (Purchasing Decision). Based on the standardized Beta coefficient, the authors found that the factor Perceived Usefulness had the strongest impact on the consumer's decision to buy natural flavored insect repellent products (Beta = 0.281). In contrast, the factor Perceived Difference has the weakest impact (Beta = 0.111), the factor Perceived Risk negatively impacts Purchasing Decision (Beta < 0). At the same time the Sig. value of the factors is less than 0.05, all hypotheses are accepted.

Table 4: Analysis of factors influencing purchasing decision

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	0,863	0,391		2,205	0,028		
MT	0,106	0,051	0,119	2,065	0,040	0,897	1,114
HI	0,271	0,064	0,281	4,203	0,000	0,663	1,508
KB	0,100	0,055	0,111	1,826	0,000	0,801	1,248
XH	0,233	0,071	0,216	3,303	0,001	0,692	1,446
RR	-0,037	0,79	-0,026	-4,466	0,041	0,960	1,042

Source: Aggregated author group

The results of the study showed that 5 factors influenced consumers' decisions to buy natural flavored insect repellent products, of which Perceived Usefulness had the strongest impact.

5. Discussion, Conclusion and Suggestions

In accepted hypotheses, the factors influencing product differentiation on consumers' purchasing decisions vary to varying degrees with the strongest impact from the perception of usefulness. The article also removes the perception of alternatives that affect consumers' purchasing decisions. It can be seen that the conclusion also explains the views on the effect of product differentiation such as Michael Porter (1980) when it is suggested that the product is different from a particular group of customers and when there is enough awareness of that difference that in turn impacts buying behavior. Or as Lee and Miller view (1999), product differentiation is a marketing strategy, further confirming the perception of usefulness is in a favorable relationship with product shopping behavior. This study has conjured up implications for corporate governance under a differentiated strategy, forecasting market exploitation opportunities for products. From there, orienting and forecasting market demand for businesses to take advantage of opportunities, improve product quality and have appropriate customer outreach plans, constantly improve marketing to raise awareness for consumers about natural flavoring insect repellent products.

5.1 Orient and forecast opportunities to exploit the market from product differentiation

The trend of using green and environmentally friendly products is increasingly popular not only in Vietnam but also around the world especially after the Covid-19, pandemic. Keeping up with the trend for enterprises producing natural flavoring insect repellent equipment not only creates opportunities for rapid development, expanding market share but also enlists large investments from investors and the Government's support for businesses.

The results of the survey from Vietnam's No. 1 R&D Company – Nielsen, announced at the seminar "Brand strategy associated with green development": "Vietnamese consumers are willing to pay more for brands with a commitment to "green" and "clean". Specifically, up to 80% of consumers are concerned about the long-term harm of artificial ingredients and 79% are willing to pay more to buy natural ingredients that do not contain toxic substances that they do not want."

Therefore, to improve the efficiency of trade and production activities, enterprises need to learn how to build trust through commitments to social and environmental responsibility, putting consumer health at the heart of product development, linking product development with a commitment to sustainability. On the other hand, enterprises will build an image of the brand and comply with Vietnamese laws, especially environmental and labor laws.

5.2 Solutions to promote product differentiation

5.2.1 Technical Solution

Production techniques are the most important factor for product differentiation, the application of technology needs to be studied and applied more in the coming time.

The status of the product to repel insects carrying natural flavoring product is still in a manual shape, the shape is still large and raw, so it is necessary to apply automation technology, adjust the temperature automatically so that the fuel burning time takes place faster; replace some bulky parts on the machine by integrating two of the machine's functions; set the timer mode as well as improve the design so that the product is both compact, easy to carry, suitable for both in narrow places or offices. Promote R&D activities, research and improve products by developing features and characteristics for products.

5.2.2 Market Solutions

For the domestic market, expanding the market not only in urban areas but also in rural areas, construction sites, farms, households living especially in places where many fields and hills, provides local distribution convenient for transportation and installation.

For international market expansion, analyze international business opportunities, assess the level of readiness and ability to participate in international business. Analyze the status quo and opportunities based on the SWOT chart, analyzing the suitability of business opportunities with strategies, resources and competencies to differentiate products that facilitate international market integration.

The mixed export marketing strategy needs to be implemented by the resources of the business. Develop a sales strategy, types of gifts, or a combination of ancillary items to encourage purchases from customers.

5.2.3 Financial Solutions

For the product to be improved in terms of use, design, techniques, it is necessary to have investment capital for long-term development towards the goal of sustainable development for insect repellent equipment carrying natural flavorings. In the short term, the project should be called on investors who are paying attention to green, clean and natural energy products. The funds are funded, the technology equipment is supported to improve and differentiate products to exploit market opportunities.

Policies on accounting, administration and auditing of loans, revenues and expenditures should be carefully considered in terms of local and foreign currencies. The source of capital that determines the choice of accounting method and how to report to the funder all need details.

5.2.4 Human Resource Management Solutions

There are policies to attract high-quality human resources, ensure good skills, professional skills to produce and improve products, create differences in terms of features and uses for products.

Policies on human resource management and international human resource management should be taken care of, first training a team of skilled, conscious and passionate human resources to develop products bearing natural flavorings to gradually replace toxic chemicals. Policies to develop a network of production receiving units, suppliers, transport and distribution units,... Reasonable calculations are needed to increase the competition.

Human resource management not only domestically but also in the international market is also a challenge that requires understanding the culture of each region, institutions, political, economic, cultural and social situation,... to send personnel to management or policies to bring personnel to the international market to develop products and branches.

5.3 Recommendations

For investors, it is necessary to pay more attention to products bearing natural flavorings, ensuring the safety of consumers' families. Investors provide certain sources of capital with returns as a percentage of the company. At the same time, supporting both relationships, production, technology, advertising and brand identity, brand development, supporting procedural and legal issues.

For the Government, set out a legal framework for enterprises doing business across the country and for the import and export of enterprises oriented to international market integration. The government has policies to help protect businesses towards "green consumption" in the country, encouraging consumers to use for health benefits. Establish "specialized" government units to promote export activities. This activity is especially useful for small and medium-sized enterprises with limited financial resources in finding contracts with customers in other countries...

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SOLUTIONS TO OVERCOME THE CURRENT INSURANCE CRISIS IN VIETNAM

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Abstract:

The year 2023 is considered a difficult and challenging period for the insurance market in general and the life insurance market in particular, as well as the entire economic sector in general, in the face of fluctuations in the financial market in and foreign. However, Life Insurance continues to show its role in protecting health and finances against risks, through the total amount of insurance benefits paid in the first 3 months of 2023 reaching VND 11,534 billion, an increase of 29. 2%. Therefore, the shortcomings and limitations arising in the life insurance market have gone against the humane nature of life insurance, reducing the confidence of the insured. The life insurance market needs to be overhauled.

Keywords: *Insurance, risk, crisis, life insurance, banking.*

1. Introduction

The insurance industry has made positive contributions to socio-economic development, with an average growth rate of 20%/year. However, the quality of development still has shortcomings and limitations that are not commensurate with the growth rate. The insurance market has had certain problems in terms of the quality of consulting activities, the quality of care, and the settlement of benefits for customers. In the development process, many new insurance distribution channels have appeared besides the traditional distribution channel, which is the distribution channel through banks. The insurance market in general, and the life industry in particular, is being greatly affected after a series of controversies related to the insurance distribution channel via banks (bancassurance), especially after the incident of a live-streaming actress on Facebook. personal facebook complains about his insurance policy. As a celebrity, this information spreads at a dizzying speed and makes many insurance participants panic and worry, in which many cases are not patient enough to find out more information but hastily cancel the contract. insurance, causing great damage to yourself. After this event, the insurance industry suffered incalculable losses.

2. Literature review

- Insurance concept

Insurance is a type of activity where the participants are entitled to receive insurance benefits thanks to their previous self-contributions or to a third person in the event of an unexpected accident or incident. desires in life.

The insurance subsidy will be paid by a public or private organization, which pays the responsibility for all risks and compensates the insured for losses based on the policy. contracts signed previously or in accordance with the provisions of law.

Current insurance is classified according to many different criteria, but basically there are 2 main types: compulsory insurance and voluntary insurance. It will include many different types of insurance such as social insurance, health insurance and business insurance, life insurance and non-life insurance, property insurance and civil liability insurance...

- The benefits of insurance

Insurance will basically bring many benefits to participants, both financially and in terms of health. However, it will also depend on the type of insurance of the participant. Here are some key benefits:

+ Financial protection for the family: When the policyholder encounters risks such as death, injury, or serious illness, the insurance will pay the beneficiary a sum of compensation or insurance benefits to help his family. family overcome difficulties and maintain life.

+ Invest and increase assets safely: Life insurance is not only a form of protection but also a form of accumulation and effective financial investment. Policyholders can choose products that fit their goals and plans, such as taking care of their children's educational future, buying a house, buying a car or enjoying life in retirement.

+ Diversified forms of insurance suitable for each life stage: Insurance has many different types, suitable to the needs and conditions of each object, such as life insurance, health insurance, social insurance, travel insurance, auto insurance... Participants can design their own insurance plan according to each life stage.

+ Better health care conditions: Health insurance helps participants get medical examination and treatment at the best health care services without having to bear a lot of financial pressure. In addition, health insurance also has many other benefits such as free vaccinations, periodic health checks and discounts on medicines.

+ Contributing to the development of society: By participating in insurance, participants not only help themselves and their families but also contribute to the development of society. Insurance helps promote credit, mobilize capital for profitable investment in medium and long-term projects, create jobs for a large number of workers, reduce the burden of the state budget in taking care of people. elderly and dependents.

- Types of popular insurance

There are many popular types of insurance in Vietnam, depending on the object, purpose and method of participation of the policyholder. Some of the most common types of insurance you should know about are:

+ Health insurance: A type of insurance in the field of health care, covering expenses for medical treatment.

The insurance company or organization will pay part or all of the cost of medical examination and treatment and the cost of medicines. State health insurance is not for profit but a social security policy. The State organizes health insurance with related individuals and organizations. People and employees can participate in compulsory health insurance or voluntary health insurance according to their households, depending on the case.

+ Social insurance: A type of insurance organized by the State to protect the interests of employees when facing risks about labor, health and income. There are two forms of participation in social insurance: compulsory or voluntary.

Social insurance includes the following regimes: occupational accident and occupational disease insurance, maternity insurance, sickness insurance, retirement insurance, death insurance and monthly allowance.

+ Unemployment insurance: Is a type of social insurance, supporting workers when unemployed. Unemployment insurance participants will enjoy benefits such as unemployment allowance, counseling support, job placement, vocational training support, training support to maintain jobs.

+ Life insurance: A type of insurance provided by commercial insurance companies to protect the interests of participants and beneficiaries when there is a risk to life or health.

- Life insurance can be classified by scope as:
- Term life insurance (paid only while the participant is still alive);
- Term insurance (paid only when the participant dies);
- Lifetime insurance (paid until the participant's death);
- Mixed insurance (combination of term and death term);
- Periodic payment insurance (paid to participants after a certain period of time).

+ Non-life insurance: A type of insurance provided by commercial insurance companies to protect the interests of participants when there is a risk of property or civil liability. Non-life insurance has many different types, such as: auto insurance; home insurance; travel insurance; aviation insurance and professional liability insurance....

+ Health insurance: A type of insurance provided by commercial insurance companies to protect the interests of participants when there are health risks not related to accidents or occupational diseases. Health insurance can cover the cost of medical examination and treatment, surgery, outpatient treatment, inpatient care, postpartum care...

+ Travel insurance: A type of insurance provided by commercial insurance companies, to protect the interests of participants when traveling domestically or abroad. Travel insurance can cover the risks of accidents, health, luggage, passports, airline tickets, civil liability...

+ Aviation insurance: A type of insurance provided by commercial insurance companies to protect the interests of participants when traveling by plane. Aviation insurance can cover the risks of accident, death, injury, loss of baggage, civil liability....

+ Auto insurance: A type of insurance provided by commercial insurance companies, to protect the interests of participants when there is a risk on the car. Auto insurance can cover the risks of accident, damage, theft or civil liability....

Thus, depending on the actual conditions and needs, people can choose for themselves a form of insurance to participate in a suitable way. For voluntary insurance, people need to carefully read the terms of the contract and the eligibility conditions to avoid affecting their benefits in the future.

3. Research results on the impact of the insurance market after the shocks of 2023

In fact, each year this industry has paid out tens of thousands of billion dong for its customers. According to official figures of the Ministry of Finance, in 2021, life insurance businesses have paid more than 30,000 billion VND and in 2022 it will be more than 40,000 billion VND. In the first 4 months of 2023, insurance benefits payments in the whole market were estimated at VND 23,521 billion, up 20.71% over the same period last year. In which, the non-life sector is estimated at 7,417 billion dong and the life sector is estimated at 16,104 billion dong. Without insurance businesses, individuals and organizations will have to pay this amount themselves for the unfortunate risks and losses that occur in life. The large and timely payment has helped individuals and businesses overcome difficulties, stabilize production and business activities as well as the economy.

However, in the early period of 2023, the insurance industry suffered incalculable losses from two cases of actor Ngoc Lan and SCB. The latest report from YouNet Media - a social network data analysis platform and service shows that the 16 previous crises of the insurance industry taking place from 2020 to 2022 also attracted just over 410,000 discussions, less than half of this crisis when according to statistics, there are more than 846,000 discussions on social networking platforms related to the above actress' case. Previously, talking to the press, the leader of the Vietnam Insurance Association also admitted that the whole industry is going through the biggest crisis ever. According to statistics of the Ministry of Finance, total insurance premium revenue in the first 4 months of 2023 is estimated at 75,338 billion VND, up only 1.12% over the same period last year. In which, non-life insurance premium revenue was estimated at 23,289 billion dong, up 2.55% and life in life was estimated at 52,049 billion dong, almost unchanged compared to the same period last year (up just 0 percent). ,5%). Preliminary statistics of life insurers showed that new insurance premiums in April 2023 also grew negative

by double digits. It can be seen that this crisis is leaving many consequences that take a lot of time and effort for life businesses to overcome the consequences, especially in regaining customer trust. However, on the positive side, this event also helps to increase people's awareness of life insurance significantly, and is also an opportunity for insurance companies to review the quality of products, services, and processes. customer care consultant...

In addition, the situation of commercial banks running after the benefits of cross-selling insurance should have assigned targets (KPIs) to employees, bank staffs run according to KPIs, so there is a behavior of enticing and forcing customers to buy new insurance. disbursed loans, equivocal advice made many customers mistakenly believe that insurance is a high-profit investment and savings product... This situation has been reflected by many people, National Assembly deputies, the Ministry of Finance has many reminders, warnings. But it was not until a number of "controversies" happened in insurance contracts that the story of the insurance market's inadequacies was thoroughly "disturbed". Most recently, at a regular press conference providing information on the socio-economic situation of Ho Chi Minh City on the afternoon of May 4, Senior Lieutenant Colonel Le Manh Ha, Deputy Head of the Ho Chi Minh City Public Security Advisory Department said: , the unit is receiving and processing information for denunciations of Tam An Dau Tu product, a joint product between Manulife Life Insurance Company and SCB. Previously, the press reported that the Ho Chi Minh City Police had received hundreds of dossiers from customers accusing SCB of saving money but being "transformed" to buy Manulife insurance. The denunciations reflect that the bank staff advised the insurance package as a savings product, so many people were deceived...

It can be said that the insurance distribution channel through the bank, if done correctly and correctly, will bring great benefits to the parties involved, because it will save a lot of costs for people who want to join the full financial package. package in one place. But in fact, in the process of implementation, the quality control of consulting through banking channels still has many complicated and not strict problems. . There is information that the bank staff has the phenomenon of offering, enticing, inadequate advice, even forcing customers to buy new insurance products for loans, while the act of forcing customers has failed. prohibited. This comes from three causes of the above limitations. First, the insurance contract. Insurance contracts are long-term financial contracts, relatively specific and highly specialized. In order to protect the interests of insurance buyers in accessing correct information about insurance products, before entering into contracts, there are many provisions of the law. Secondly, the law stipulates the obligations of insurance enterprises as well as the obligations of insurance agents in providing information, fully and clearly explaining the terms of insurance products to customers. But in the past time, there are still some agents with low quality of operation, inadequate and objective advice, especially investment-linked insurance products, affecting the quality of market development in general. This is the main reason leading to the frustration that public opinion has reflected in the past time, which has greatly reduced the humanity of

insurance. Third, insurance products are sold through credit institutions as a target of insurance sales for employees, putting pressure on credit institution employees to intentionally give false or misleading advice. when not knowing exactly about the product. The bank's consultants run after sales targets, so they will find ways to make the first year's premium as much as possible. Therefore, they will advise, explain will focus more on the rights, and do not mention the exclusions, the responsibilities of the customer. Not only that, the knowledge training on insurance products is shortened by banks and insurance enterprises, as long as they have an agent code to legalize the conclusion of the contract. Fourth, because of the pursuit of sales targets, many life insurance businesses promote recruitment of insurance agents and invest heavily in bancassurance channels. Recruiting new agents is a top priority, to replace the number of agents who quit after the first 1-2 years because the retention rate of agents is very low in the Vietnamese market. There are agents who come to the insurance industry because they do not have a job, or their qualifications are very limited. But life insurance businesses will find ways for these agents to pass the exam of the Ministry of Finance to get an agent code soon. Many businesses only focus on new exploitation and pay little attention to the retention rate of the policy, even though they know that the cancellation of the policy in the early years is the loss that the policyholder has to bear. Enterprises spend heavily on new mining contracts, commission and bonus rates focus on premiums of the first year, so the return value of insurance policies in the early years is very low.

Facing this situation, on the part of the supervisory management agency, the Ministry of Finance has proposed to supplement the guiding document of the Law on Insurance Business 2022, specifically the draft decree and circular to concretize the private investment activities. Insurance agents' advice, especially regulations on selling insurance through banks - need separate regulations. Along with that, concretize the responsibilities of enterprises in inspecting and supervising agents; transparency of contract information; Develop an insurance policy summary, specifying premium payment deadlines, and other important information. The Ministry of Finance also proposes to control the level of spending for insurance agents and is reviewing and submitting to the Government a decree on additional administrative sanctions in the insurance business to be more consistent with reality.

Regarding the inspection and examination in the past time, together with the issued official documents, the Ministry of Finance has worked with each business and the insurance market on each issue. Since 2022, the Ministry of Finance has inspected and examined 10 enterprises, currently concluding that the inspection of 4 enterprises has been completed, is being completed and will be announced in accordance with regulations. However, the aftermath of the recent shock of the insurance industry has been a warning bell for the regulator. It puts higher requirements in policy management for the insurance market in general and the life insurance market in particular.

4. Solution

- On the management side

The regulatory agency promulgates decrees guiding the Law on Insurance Business in 2022 and related guiding documents, in which to study and supplement regulations to strengthen the responsibility of insurers in insurance business. improve the quality of insurance agents, supervise the agency's consulting activities, ensure information transparency with customers.

At the same time, the Government leaders requested to study the amendment and supplementation of the Decree on sanctioning of administrative violations in the field of insurance business to be consistent with current regulations and thoroughly overcome shortcomings. in the implementation of life insurance in recent years.

In addition, it is necessary to continue to require insurance businesses to urgently review the overall business process, ensure the correct implementation of regulations, receive and promptly handle people's complaints about the contract. co-insurance, strictly handle violations.

The management agency will continue to improve mechanisms and policies related to insurance products, publicize and transparent information about products and insurers. People can easily access information when researching and choosing suitable insurance products.

On the other hand, the management agency needs to review and strengthen the inspection and supervision of the activities of insurance enterprises and take strict action if detecting cases of insurance agents violating regulations. legislation.

At the same time, the association needs to develop and implement a coordination mechanism between insurance businesses to promptly handle violating insurance agents, contributing to ensuring the discipline and discipline of the insurance and insurance market. professional agent protection; develop regulations and professional ethical standards for insurance agency and consulting activities...

- On the side of insurance businesses

The regulatory agency has requested to review insurance products, simplify rules and terms, strengthen the publicity and transparency of information about insurance products and operations of insurers, to people have enough comprehensive, objective information and correct understanding of insurance products and activities of insurance enterprises.

Along with that, businesses must also review and improve the quality of customer care services, improve business processes, internal regulations, policies on risk management, and ensure compliance with regulations of the company. law. On the other hand, it is necessary to regularly train, re-train and improve the quality of agent training to increase the quality of consulting and customer service.

Insurers need to actively implement cooperation activities with businesses in the industry to take advantage of each other, and at the same time expand networks with social organizations and businesses outside the industry to increase revenue. . In particular, it is necessary to approach and cooperate with banks to deploy Bancassurance activities to take advantage of their customer base and distribution network, especially in the life insurance segment with several groups of solutions. As follows:

(i) Banks need to develop a strategy to distribute Bancassurance products on the basis of researching and assessing market trends, classifying customers to provide insurance services to suit their needs and preferences. environment and their habits, creating favorable conditions for customers to have both access to banking products and access to insurance products.

(ii) Make the most of the available customer database, combine externally collected information, use modern techniques to analyze customer needs and find suitable customers for Bancassurance; Insurance product design is associated with the trend of personalizing financial products and it is necessary to take appropriate steps to move towards digitization of Bancassurance activities.

(iii) Completing and supplementing regulations on data protection, especially customer data, on information security.

- On the side of customers participating in insurance

For customers participating in insurance, it is necessary to carefully understand the rights and obligations when participating in an insurance contract to protect themselves, and at the same time to minimize disputes arising later. On the side of the Vietnam Insurance Association, it is necessary to coordinate with the management agency to further strengthen propaganda and raise people's awareness about insurance, as well as develop and implement an overall propaganda program of the insurance sector. insurance sector.

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SOLUTIONS TO STABILIZE THE CORPORATE BOND MARKET AFTER THE FLUCTUATIONS OF 2022

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Abstract:

Raising capital through the bond market has become difficult for businesses, in the context that rising bank interest rates have increased pressure on investment capital, maintaining production and business, liquidity of many enterprises, especially enterprises in the field of real estate, Enterprises with a large volume of maturing bonds seriously declined, along with a sharp decrease in business revenue and profit, causing more difficulties for businesses.

Keywords: Market, bonds, enterprises, capital...

1. Introduction

Vietnam's corporate bond market has achieved a rapid growth rate of 45% per year for nearly 5 years, but the size of the market in general has only reached 20% of GDP, far lower than other countries in the region. The size of Vietnam's bond market, including corporate bonds, is only 20% of GDP. This ratio is very small compared to most developed countries in ASEAN or compared to South Korea and China, with the size of local currency bond markets largely reaching from 50% of GDP (such as the Philippines) to nearly 150% of GDP (such as South Korea) (charting the size of bond markets of countries). From the experience of previous countries, the development of the domestic bond market is an indispensable need and requirement for Vietnam to complete the financial market structure to ensure the creation of three important capital channels, including: equity (shares), Long-term debt capital (bonds) and bank credit capital (usually short-term working capital) to help the financial market best promote the function of conducting capital to promote the effective development of the economy.

2. Current situation of corporate bond market over the past time

According to Vietnam Bond Market Association (VBMA) data, in 2022, the volume of corporate bond issuance will reach more than VND 255 trillion, government bonds will reach more than VND 214 trillion. In which, there were 420 individual corporate bond issuances, with a value of nearly VND 244,565 billion, accounting for nearly 96% of the total bond issuance value, down 66% over the same period in 2021.

The issuance value mostly decreased compared to 2021, in which bonds in the real estate industry group issued decreased by 80.8% compared to 2021, in the context of many negative macro and micro information, as well as information shocks about the criminal handling of

wrongdoings of organizations, individuals related to businesses in this area. Despite a sharp decrease compared to the same period in 2021, the banking industry group has risen to the top in terms of corporate bond issuance value, accounting for about 54% of the total issuance value for the whole year 2022.

As for 2023, enterprises have repurchased VND 8,068 billion of bonds, up 56% over the same period in 2022, but the number of corporate bonds issued by the end of January 2023 is very small over the same period.

The size of the corporate bond market in our country is currently quite modest with outstanding loans reaching about 15% of GDP (Data from HNX and GSO until the end of December 2022), and somewhat small compared to countries in Southeast Asia such as Malaysia (54.3% of GDP), Singapore (34.3% of GDP), Thailand (25.5% of GDP), while the financial strategy approved by Deputy Prime Minister Le Minh Concept in Decision No. 368/QD-TTG is that the size of the corporate bond market will reach at least 20% of GDP, the outstanding debt of the bond market will reach 47% by 2025.

In 2022, the number of first-time issuers reached 78 enterprises with the issuance value accounting for 20%. More than 50% of them are Real Estate and Construction businesses, 60% lower than in 2021. Along with the downward trend of issuances, the number of new issuers also decreased to only 32% of new issuers in 2021. In addition, the proportion of corporate bonds issued by listed enterprises (including banks) in 2022 increased from 51.7% to 64.8% because the Banking group accounted for the majority of the issuance value and most of these groups were listed enterprises. The proportion of corporate bonds issued by listed enterprises (excluding banks) remained around 30%, equivalent to 2021.

Summarizing the year-by-year assessment of corporate issuances, the bond market is facing many challenges and risks, especially in the quality of collateral committed by issuers. The collateral of issuers for bond issuances will partly help protect investors from losses in case the enterprise is unable to pay interest or principal.

However, according to the aggregate, about 38% of the volume of real estate bonds issued in 2022 has no collateral or is only secured by poor quality assets. This figure shows an alarming signal that the share of bonds issued without collateral or secured by shares is increasing significantly from 29% in 2021, despite unfavorable real estate stock price movements for mortgages.

In addition, among real estate enterprises issuing bonds in 2022, non-listed enterprises accounted for 71.6%. This gives another warning signal about the rapid growth of unlisted real estate businesses, thereby reinforcing caution in risk assessment and quality management of issuances.

In order to promptly stabilize the market, the Ministry of Finance has reported to the Government and leaders of the Government and the Prime Minister to have given drastic instructions to ensure that the market operates healthily, transparently and safely, contributing to removing difficulties for production and business and promoting growth. The Prime Minister has established working groups to remove difficulties for the real estate market, stock market and corporate bond market.

The Ministry of Finance and ministries and sectors have also implemented many solutions to remove difficulties for the market.

Accordingly, the Ministry of Finance has proactively and coordinated with ministries and sectors to continue propagating and disseminating policies on corporate bonds for the market, training financial knowledge for investors and updating information on the market situation. From 2019 to the end of the first quarter of 2023, the Ministry of Finance has conducted 11 press releases, over 38 interviews, 106 articles, 13 radio articles, 10 presentations at conferences and seminars and held 01 thematic press conference on corporate bonds.

In addition, the Ministry of Finance has sent many documents to bond issuers and bond registration and depository organizations requesting to be responsible to the end in paying bond obligations, in case there are difficulties in balancing payment sources, enterprises must actively work with investors to have appropriate bond payment plans. At the same time, it is recommended that issuers actively use auditing, credit rating, asset valuation services to assess the operation of enterprises and disclose information for investors to be assured of continuing to invest in bonds with good situation.

The Ministry of Finance has also worked with nearly 40 enterprises, and directed the State Securities Commission and the Stock Exchange to work with enterprises with large bond balances maturing in 2022 and 2023 to request enterprises to arrange principal payment capital, Bond interest is due, ensuring the credibility of enterprises in the market.

The Minister of Finance has instructed authorities in the financial sector to strengthen inspection, inspection and supervision in order to correct and strictly handle violations in the issuance and provision of corporate bond services. Accordingly, in 2022, the State Securities Commission and functional units in the Ministry of Finance have inspected and inspected 12 issuers, 27 securities companies, 7 accounting service providers, 16 auditing enterprises and 15 valuation enterprises.

On March 5, 2023, the Government issued Decree No. 08/2023/ND-CP amending and supplementing Decrees regulating individual corporate bonds, which allow issuers to negotiate with investors to change conditions and terms, extend bonds for no more than 02 years and relax some issuance conditions to help enterprises have more processing time immediate difficulties in bonds, reducing liquidity pressure and gradually restoring confidence to the market.

Along with that, the State Bank of Vietnam administers monetary policy, flexible growth in the context of the corporate bond market still facing difficulties and is collecting public opinions to review amendments to Circular No. 16/2021/TT-NHNN of the State Bank regulating the purchase of credit institutions, sale of corporate bonds. At the same time, the State Bank of Vietnam is also actively implementing a credit package of VND 120,000 billion for social housing, worker housing, renovation and reconstruction of old apartments under the Government's policy.

The Ministry of Construction coordinates with ministries, sectors and localities to drastically implement the Government's Resolution No. 33/NQ-CP dated March 11, 2023 on a number of solutions to remove and promote the safe, healthy and sustainable development of the real estate market, including proactively solving legal problems for real estate projects so that enterprises can soon complete the project Sentence, bring products to the market, restore cash flow and production and business situation of enterprises to ensure the payment of principal and interest on bonds to investors.

In the context that the situation of domestic and foreign financial and monetary markets is still difficult, directly affecting liquidity in the bond market, enterprises must actively arrange resources, restructure financial situation, production and business activities to fulfill obligations to investors. The Ministry of Finance will continue to coordinate with ministries and sectors to synchronously implement solutions to stabilize the market.

- *Existence and limitations*

Although the corporate bond market is developing positively in terms of scale (accounting for 15% of GDP) and product diversity, however, according to a report of Vietinbank Securities, the corporate bond market still has some shortcomings and limitations in the issuance and distribution process.

First, the "publicization" of bonds brings many risks to individual investors who do not have enough knowledge, and are not sufficiently aware of risks and legal corridors to protect in bond investment; even some cases for the purpose of buying individual bonds at all costs cause investors to commit fraud to become professional securities investors; Along with that is the situation that some enterprises/issuers have limited financial position; Some enterprises have capital use purposes that are not in accordance with the published information. As follows:

There exists a rampant issuance of private bonds to the outside, "publicizing" privately issued bonds in order to bypass barriers in public bond issuance. "Publicization" here is understood in the sense of the process of issuing and distributing individual bonds to all investors, not just for professional investors. According to Fingroup's statistics, more than 33% of corporate bonds are held by individuals, the rest are held by professional investors, securities companies, commercial banks. However, after buying bonds, there is a phenomenon of a small number of securities companies, commercial banks again invite and resell to individual

investors... or legalized in the form of "strategic cooperation contracts" or "flexible savings" contracts, intangible corporate bonds are in the hands of individual investors (non-professional investors). Thus, the process has in fact transformed from private placement of bonds into public bonds.

Secondly, the quality of bonds goes down both in terms of the quality of the issuer, the quality of cash flow and the quality of collateral.

The quality of bond issuers went down. This is reflected in many fluctuations in issuance activity, a decrease in confidence and changes in the regulatory framework. In particular, many enterprises and management agencies handle due to violations, along with some enterprises violate debt obligations. Especially in 2021, many capital-thirsty businesses have pushed up bond yields to raise capital despite their weak financial situation. Part of the reason comes from the fact that these businesses face difficulties in obtaining bank loans due to new regulations on credit safety. Businesses use this method to solve capital problems and avoid debt payment pressure. However, this pushes up the cost of capital of enterprises and affects business results, besides creating risks for investors when there is no guarantee from banks or credit institutions.

The sharp decline in the quality of issuer cash flows is sending worrying signals during the period of tightening the global money supply. Recent events in Vietnam's financial market, tightening macro policy conditions have created certain insecurities, causing a sell-off of bonds, including bonds issued by enterprises of good and very good quality. In addition, there is a case of inviting people to buy corporate bonds as a form of saving money with support to circumvent the law to become professional investors. This is the biggest risk in the market because individual investors who lack the ability to analyze and assess bond risks still participate in buying corporate bonds. The risks faced by this investor include: (1) no guarantees from banks or regulators; (2) There is no transparent information about the issuer and the funded project; (3) Difficulties in liquidating and transferring bonds. The provision of such services is not in compliance with legal regulations, legalizing offering documents or offering the wrong investors for individual corporate bonds.

The quality of collateral deteriorates and is not enough to ensure the payment obligations of the issuer. The share of bonds issued without collateral or secured by shares increased to 38% in 2022 from 29% in 2021. This shows that ensuring the ability to pay interest and principal for bonds decreases, which is a risk to consider when the financial economy situation is difficult. When the quality of collateral goes down, investors will face higher risks when buying corporate bonds. If the enterprise fails to pay interest and principal to investors, or encounters difficulties in business and production activities, it will be difficult for investors to recover capital when issuing collaterals.

Third, limitations on the size and capacity of professional investors. Although there has been a Decree 65/2022/ND-CP on professional investor regulations, the reality shows that there

are many individual investors who are not capable of analyzing the business situation but still deliberately circumvent the law to become professional investors to participate in the bond channel. In Decree 08/2023/ND-CP amended from Decree 65, it has also been decided to suspend the enforcement of regulations on determining the status of professional securities investors as individuals until the end of 2023, this is considered a quite positive solution of the Government to open up corporate capital in difficult times when capital sources are congested. Now, it is easier for businesses to access capital in society, but in the long run, to help the healthy and sustainable development of the capital market, it is still necessary to solve the root of the problem that individual bonds are only for really knowledgeable investors, have good knowledge of finance.

Fourth, transparency of the financial situation of enterprises is still limited, individual bond issuers have not been examined and questioned about financial issues by a third party when issuing bonds. In fact, there are businesses that push up interest rates, along with commissions for brokers up to 1%, while the average only fluctuates up to 0.2% to raise capital as quickly as possible despite the weak financial situation. Unaudited financial statements of enterprises have large errors compared to audited financial statements. The report on the purpose of using the mobilized capital has not been fully disclosed, or is ambiguous, the purpose of use is different from that registered with management agencies, making it difficult for bondholders and management agencies to supervise the use of capital of the company.

Fifth, the legal corridor has not fully covered reality, it is necessary to follow more closely according to international trends and practices, specifically:

There is no distinction between corporate bonds issued individually by financial institutions and other types of enterprises (the newly promulgated Decree 08 or Decree 65 amended from Decree 153 are both providing for these two types) leading to the individual bond market being issued by quality financial institutions such as banks Commercial, securities companies are more or less affected.

International practices prohibit all acts of misconducting, enticing, inciting, soliciting, publicizing, offering for sale over the phone, taking advantage of ignorance, hitting the greed of people and inexperienced investors to buy/sell financial products. In EU countries or the United Kingdom, these acts are strictly prohibited and criminalized, even imprisoned under two laws, FCA (Financial Conduct Authority's rules and regulation) and FSMA (Financial Services and Market Act 2000). Meanwhile, in our country, there are currently no strict sanctions for the above acts. On the other hand, although international practice also has minimum regulations on professional investors when buying privately issued bonds, in cases of deliberately circumventing the law to become professional investors, they are prohibited from participating in capital market activities, fines or imprisonment. The Ministry of Finance has also repeatedly announced that it will carry out inspections to handle acts of circumventing regulations, but the

problem of non-compliance with investors' regulations is still widespread, leading to investors not being aware of their behavior.

Sixth, the use of credit rating agencies in bond issuance is still not popular and the number of credit rating agencies is limited.

Up to now, Vietnam has only 2 credit rating companies licensed to provide credit rating services: FiinRatings and Saigon Phat Thinh Rating Joint Stock Company (Saigon Rating). Meanwhile, the scale of private bond issuance is VND 244,565 billion in 2022 and peaked at VND 712,259 billion in 2021. This causes inadequacies such as lack of transparency and objectivity in assessing the financial capacity of bond issuers as well as lack of competition and diversification in providing credit rating services to investors. The large number of issuances also causes an overload on credit rating agencies.

Seventh, the issuance of bonds to the public is still difficult, making enterprises prioritize finding private bond issuance channels.

The higher cost of issuing bonds to the public is a barrier for many businesses today, when public issuance requires incurring many costs such as legal consulting costs, bond issuance consulting costs, credit rating and listing costs, etc strict listing conditions. In addition, the approval process for the issuance of listed bonds is quite complicated and takes a long time. This also directly affects access to capital to serve the needs of businesses. Another objective factor is that the level of interest in the bond channel to the public of investors is quite limited, mainly financial institutions issued in this channel, making businesses less interested in calling for capital mobilization through bond listing.

3. Solutions to overcome limitations

Firstly, the Ministry of Finance continues to improve the legal framework for the bond market to ensure compliance with the development of the market and specific international practices as follows:

(i) For corporate bonds: Evaluate the implementation of Decree No. 90/2011/ND-CP on corporate bond issuance. On that basis, the Ministry of Finance will submit to the Government a Decree replacing Decree No. 90/2011/ND-CP with additional amendments to ensure conformity with the development of the corporate bond market. In addition, the Ministry of Finance continues to implement Decree No. 88/2014/ND-CP on credit rating services to promote the development of the corporate bond market.

(ii) For Government bonds: Continue to research and issue new products to diversify products in the market. Continue to study liquidity support mechanisms to establish a market maker system from the system of members bidding for Government bonds.

(iii) Continue to study and submit to the Government for promulgation the Decree on Voluntary Pension Funds to promote the demand for long-term investment in the bond market.

The second is to coordinate with the SBV in managing the fiscal market and money market, ensuring that bond issuance interest rates and monetary interest rates are stable and have few major fluctuations.

The third is to develop the investor system: Encourage the development of long-term investor systems in the market such as pension funds, insurance companies,... gradually reduce dependence on the system of commercial banks. Continue to develop a roadmap to attract foreign investors with basic solutions (i) Stabilizing the macroeconomy; (ii) Building and developing derivative bond products such as contracts and maturities,... to hedge risks in the bond market; (iii) Enhance openness and transparency in the market by building a specialized website for the bond market with full market information.

The fourth is to develop a market maker system on the basis of the system of members bidding for Government bonds with solutions such as (i) promulgating a legal framework on the rights and obligations of market makers, thereby enhancing the responsibilities of bidding members in the primary market; (ii) Accelerate the process of registration, depository, listing of transactions, repo operations, provision of pricing information to support the participation of market makers in the secondary market; (iii) continue to study and promulgate mechanisms and policies on liquidity support mechanisms in the market to move towards further stipulating obligations for market makers in the secondary market to offer 2-way commitment prices; (iv) Enhance periodic dialogues with members to understand the needs and obstacles in the implementation of the bidding member system.

The fifth is the development of information technology systems: Continue to modernize information technology systems in the market to ensure smooth bond issuance and trading; shorten the time from issuance to listing of bonds to create liquidity in the market.

The sixth is to build a data information system of the corporate bond market to enhance transparency and promote the development of the corporate bond market.

Seventh, with regard to inspection and supervision activities, the Ministry of Finance continues to direct the State Securities Commission and functional units to organize focused and key inspections and inspections at issuers and service-providing companies to improve the issuance quality of issuers, quality of service provision in the corporate bond market, strengthening investor confidence. After the inspection, there will be public disclosure to the market about violations, if any.

In addition, the Ministry of Finance will continue to strengthen communication to stabilize psychology, rebuild investor confidence, help businesses and investors feel secure to participate in mobilizing and investing in the capital market, and strengthen the participation of institutions, Professional investors, giving priority to developing long-term investors such as investment funds, voluntary pension funds, insurance enterprises.

Eighth, the Ministry of Finance continues to monitor and require enterprises to allocate all resources to pay principal and interest on bonds due in accordance with the provisions of law, protecting the interests of investors.

Require enterprises, if there are difficulties in payment, to work and negotiate with investors to agree on a plan to restructure bonds.

At the same time, the Ministry of Finance directed stock exchanges to urgently build and put into operation individual corporate bond trading systems in order to develop a transparent and safe secondary market, strengthen the ability to manage, supervise and minimize risks.

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