Journal of
FINANCE &
ACCOUNTING
RESEARCH

EDITORIAL OFFICE
No. 58 LE VAN HIEN
BAC TU LIEM DISTRICT - HA NOI

Phone: 024.32191967
Email: tapchinctckt@hvtc.edu.vn
Website: https:/tapchitckt@hvtc.edu.vn

MACRO FINANCE

STUDY EXCHANGE

CORPORATE FINANCE

Printed at Statistical Publishing House - Publishing Lisence: 487/GP-BTTTT date 28/10/2016
Prints and deposits completed in February, 2023.

Tạp chí Nghiên cứu

TÀI CHÍNH KẾ TOÁN

TÒA SOẠN
SỐ 58 LÊ VĂN HIẾN
QUẬN BẮC TỪ LIÊM - HÀ NỘI

Điện thoại: 024.32191967
E-mail: tapchinctckt@hvtc.edu.vn
Website: https:/tapchitckt@hvtc.edu.vn

TÀI CHÍNH VĨ MÔ

NGHIÊN CỨU TRAO ĐỔI

TÀI CHÍNH DOANH NGHIỆP

In tại Nhà xuất bản Thống kê - Giấy phép số: 487/GP-BTTTT ngày 28/10/2016
In xong và nộp lưu chiểu tháng 2 năm 2023.

OVERVIEW OF THE CURRENT SITUATION OF SPECIAL ECONOMIC ZONE DEVELOPMENT IN VIETNAM

Nguyen Duc Trung*

Abstract: ***During the economic development process, attracting foreign investment plays an extremely important role to fill the shortage of domestic investment resources. An open investment environment with preferential policies in line with international practices is indispensable to attract foreign investment. That's why free economic zones were developed to achieve this goal. Free economic zones establish a certain area in the national territory with many preferential policies for investors. It is vital to establish a separate economic area with an especially favorable business and investment environment and certain preferential policies for investors in addition to "Open Door" policies according to international practices. Built in many countries around the world, these special economic areas are collectively referred to as "Economic Zones".***

• Keywords: *special economic zones, Vietnam, economy, development.*

Date of receipt: 02nd November, 2022 *Date of receipt revision: 15th December, 2022*

Date of delivery revision: 08th November, 2022 *Date of approval: 01st February, 2023*

Tóm tắt: *Trong quá trình phát triển kinh tế, thu hút vốn đầu tư nước ngoài đóng vai trò vô cùng quan trọng nhằm lấp đầy sự thiếu hụt nguồn lực đầu tư trong nước. Môi trường đầu tư thông thoáng, chính sách thuận lợi, phù hợp với thông lệ quốc tế là điều tất yếu để thu hút đầu tư nước ngoài. Đó là lý do tại sao các khu kinh tế tự do được phát triển để đạt được mục tiêu này. Các khu kinh tế tự do hình thành một khu vực nhất định trên lãnh thổ quốc gia với nhiều chính sách thuận lợi cho các nhà đầu tư. Bên cạnh chính sách "Mở cửa" theo thông lệ quốc tế, việc hình thành một khu vực kinh tế riêng có môi trường đầu tư kinh doanh đặc biệt thuận lợi, có những chính sách thuận lợi nhất định cho nhà đầu tư là rất cần thiết. Được xây dựng ở nhiều quốc gia trên thế giới, các khu vực này được gọi chung là "đặc khu kinh tế".*

• Từ khóa: *đặc khu kinh tế, Việt Nam, kinh tế, phát triển.*

1. Introduction

There are more and more different models of free economic zones which are applied flexibly by each country to suit its own conditions and development goals. Among the current models of free economic zones in the world, the special economic zone is one of the models that is widely applied in many countries and brought positive results for their development. Special economic zones have their own legal framework with specific characteristics which are different from the domestic ones, such as tax exemption for commercial activities with foreign countries; easy transfer and mortgage of land use rights; allowing easy opening by foreigners of business branches and bank branches in special economic zones; and application of customs regime according to international practices. The current special economic zones (SEZs) are not economic zones established by individuals or organizations. Instead, their establishment must be carried out in accordance with the law and based on previously approved plans.

Special economic zones apply special mechanisms and policies compared to the rest of the country, remove restrictions on foreign investors and operate based on the international legal system to attract foreign investors.

2. Impacts of the new context on the formation and development of special economic zones in Vietnam

2.1. International context

Firstly, currently, globalization and international economic integration have been popular global trends. They have formed linkages and cooperation between countries in many fields and at different levels (regional, global, bilateral or multilateral

** Vietnam institute of India and Southwest Asian studies; Email: ndtrung2206@gmail.com*

relations). In the process of globalization, economic links are accelerated, deepening the interdependence between the world's economies, especially through bilateral and multilateral free trade agreements (FTAs). Regarding positive impacts, globalization accelerates the capital-technology flow on a global scale, creating opportunities to attract foreign investment (including investment in capital and technology, etc.) in special economic zones. In the process of integration and participation in FTAs, trade barriers between countries are gradually removed, thereby promoting the export of goods from the special economic zones to the outside, thus attracting foreign investors to set up production plants in special economic zones.

However, globalization also results in increasingly fierce competition between countries, thereby increasing competitive pressure on the development of special economic zones. By 2019, there were 5,383 free economic zones in 147 countries around the world, which tends to continue to increase. The integration makes the competition between economic zones increasingly fierce, including the competition between economic zones of countries in the region and the world, and competition between economic zones within the same country. On the other hand, many of the preferential policies that were once strategic keys for the development of traditional economic zones have now become outdated. The popularity of economic zones in the world is gradually making them less attractive. It is required that countries make full use of their potential and highlighting their competitive advantages. In the 1980s, many countries applied preferential policies to foreign investors to increase investment attraction which, in fact, has proved effective for their economies. However, those preferential policies are no longer attractive enough in the current context. Currently, the competitive advantage of the economy must come from superiority factors, including the superiority of human resource quality, institutions and governance.

Secondly, it is the development of the fourth Industrial Revolution. The industrial revolution in the world has fundamentally changed its economy. As the main growth engine of the traditional economy is human labor, the advantage of many traditional economic zone models is abundant and cheap local labor. However, in modern economic zone models, this advantage is gradually becoming less significant. Modern economic zones focus more on high-quality human resources as the world's scientific-industrial revolution transforms its economy into a knowledge-based economy and big data processing and digital artificial intelligence (AI) become one of the core competitive factors of businesses instead of resources and cheap labor as before.

Thirdly, it is necessary to mention the world economic and political situation. The world economy subjects to cyclical crisis, with slow recovery, many difficulties, challenges and unpredictable fluctuations. Besides, complicated developments in the South China Sea and islands have an impact on regional economic development, hindering the rapid growth and stable development of the global economy. As the world economy, especially economies of developed countries, may not have recovered stably and firmly, it is increasingly possible that international investors will seek for safety for their investment flows rather than development investment opportunities.

The recession or stagnation of some economic sectors and some instability in non-traditional security have a negative impact on the advantage of the North Van Phong area in attracting development investment capital such as the decline in sea transport (due to the stagnation of international trade) reducing the demand for developing international transshipment seaports; disease outbreaks and natural disasters affecting tourism potential.

Political tension in the world seriously affects its economic development. Political tension not only affects the relationship between the two countries, but also affects other countries in the "global cooperation" network of which the two countries are the link, thereby affecting investment capital flows in the world in general and investment in special economic zones in particular.

US-China trade tensions: The US and China are two important countries in the global diplomatic relations. The US-China trade war has reduced their import and export turnover, creating opportunities for other countries' entry into these two big markets. However, it also posed challenges as the US tightened regulations on the origin of goods for those where the input materials originate from or in relation to China.

Additionally, the Russia-Ukraine political tension in early 2022 has pushed up oil prices, thereby increasing the production costs of a variety of industries directly or indirectly related to oil. On

the other hand, it also affects sea freight, increases logistics costs and disrupts the supply chain of goods in many parts of the world.

Fourthly, the "green" economic development trend is important. In the context of increasingly serious climate change and environmental pollution, countries are gradually progressing on the "green" and sustainable economic development trend. This results in the elimination of some types of traditional economic zones that focus on economic development without paying attention to environmental protection. In fact, special economic zone models in many countries around the world still have some production and business types with negative environmental impacts. SEZs that are oriented to increase foreign investment attraction by application of many preferential policies for investors often blur or ignore environmental protection commitments to achieve their purposes. On the other hand, the production and business types of many SEZs in the world are based on traditional laws of production and consumption with little attention paid to environmental consequences, resulting in pressure on the society. After being reviewed and reshaped, SEZ organization according to the traditional model is no longer appropriate.

In addition, the "green" economic trend also tightens the management of economic activities in special economic zones toward ensuring environmental protection. Modern economic zones tend to change and transform development methods in order to improve their climate change adaptation capacity and move towards new development modes and models such as green growth.

Apart from the above trends, other factors such as requirements to ensure minimum working conditions, reform of the business environment, and rapid urbanization, etc., also force economic zones to solve problems of both fundamental and contemporary nature.

2.2. Domestic context

Firstly, Vietnam has extensively and intensively integrated into the globalization and international economic integration in recent years. From the early 1990s up to now, Vietnam has more and more extensively and intensively into the international economic integration process in most fields of its national economy (trade, services, investment, public production, agriculture, fishery, and intellectual property, etc.) with a wide range of forms (unilateral, bilateral, and multilateral). Vietnam has a good cooperative relationship with many countries around the world. It has been signing many bilateral and multilateral trade agreements with many countries and participating in many world economic organizations. Vietnam's deeper participation in the global economic chain creates more development opportunities for its economy, especially to attract foreign direct investment into the domestic economic development, receive advanced scientific and technological achievements from developed economies, attract managers, foreign experts, high-quality labor resources, etc. to Vietnam in general and its special economic zones in particular.

However, global economic integration also makes its economy more sensitive. Development opportunities always pose great challenges. Besides the challenge caused by the risk of importing foreign and unfamiliar cultures as Vietnam's economy has become a link in the global economic network, its economy will also be affected by changes in the world economy, especially fluctuations of some major economies in the world, which are also major partners of Vietnam including USA, China, and Japan, etc.

Secondly, Vietnam is actively implementing digital transformation. In recent years, catching up with the world's trends enables the industrial revolution to take place strongly in Vietnam which is reflected in the rapid and diversified improvement and application of technology in different industries. Even though high technology has not completely penetrated the industries in Vietnam, there are signs of its emergence in some industries. The Fourth Industrial Revolution has accelerated the process of economic restructuring in Vietnam, leading to fundamental change in the structure and production methods in its economic zones. This also requires the planning of key economic sectors in economic zones of Vietnam to select industries with a high content of "knowledge" and science and technology application ability.

Thirdly, Vietnam's economy develops in a stable political context and good diplomatic relations with countries around the world. Since Vietnam operated its economy under the socialist-oriented market mechanism and carried out the industrialization and modernization, its economy has continuously

developed with many achievements: continuous GDP increase in recent years, steadily improved per capita income, and enhanced application of science and technology in economic development, etc. Its developed economy creates more resources for Vietnam to implement new economic development strategies, invest in infrastructure development and improve the investment environment. Besides, in the context of more and more extensive and intensive international economic integration, its stable politic situation enables Vietnam to have good diplomatic relations with many countries and economic regions in the world, which builds trust and attracts foreign investors to invest in its economic zones.

Fourthly, it is necessary to mention the sustainable economic development strategy of Vietnam. Currently, like many other countries, Vietnam is also gradually following the "green" economic development trend due to its awareness of the effects of climate change and environmental issues. Environmental protection has become a priority in Vietnam's development strategies. Vietnam is also a party to international agreements related to the implementation of environmental protection actions. So far, it has joined and become a member of 28 multilateral international agreements related to the field of natural resources and environment. Improving the climate change "adaption" capacity, especially preparing resources to be ready to respond to emergencies and frequent natural disasters, will be a big challenge for Vietnam. This trend promotes the application of new development methods and models such as green growth, ecological economic development, circular economy, and sharing economy, etc., of its economy in general and its economic zones in particular.

3. Vietnam's perspective on the development of special economic zones

Along with global economic integration, the development of "economic zones" in various forms has always been an important economic tool used by many countries to create a driving force for the development of a region or economy. This economic tool has been also used by Vietnam in the past time. Therefore, the development of a number of special economic zones to create growth poles and institutional trial is the consistent policy of the Party and State of Vietnam.

The Fourth Conference of the 8th Central Committee of the Party, (December 1997) proposed the idea of building special economic zones. The resolution determined that is is necessary to "Research and build a few special economic zones and free economic zones in eligible coastal areas". Since the development of Chu Lai Open Economic Zone (Quang Nam Province) in 2002, so far there have been 15 open economic zones covering an area of about 54,000 ha (1). In 2010, the Prime Minister agreed to add 3 more coastal economic zones to the planning, increasing the total number of open economic zones in the planning until 2020 to 18 with a total land area and water surface of 730,533 ha.

Conclusion No. 60-KL/TW dated April 16th, 2013 of the Politburo on the preliminary results of the 5-year implementation of Resolution No. 09-NQ/TW (10th session) on Vietnam's maritime strategy up to 2020 determined the task of "Urgently build marine special economic zones of regional and international scale, etc., researching and formulation of advanced business management and organization models for marine economy development."

Conclusion No. 74-KL/TW dated October 17th, 2013 of the 8th Conference of the 11th Party Central Committee clearly stated that it is necessary to "Soon develop, approve and implement a number of projects on the establishment of special administrative-economic zones". Accordingly, three economic zones to upgrade and develop strategies and master plans on development of special administrative-economic units in Phu Quoc (Kien Giang province), Van Don (Quang Ninh province), and North Van Phong (Khanh Hoa province) were selected.

The problem is that, we not only build special economic zones but special administrative - economic zones. While economic zones only attract investment by their preferential economic policies, special administrative - economic zones have strong reforms in administrative institutions, especially the organizational model of the special zone government apparatus. Although a special administrative-economic zone in Vietnam is considered a special administrative zone under the leadership, management and enforcement of the sovereignty of the Party and State if Vietnam, it implements specific economic management policies and institutions. The implementation of new guidelines and policies on state management and economic management will be piloted here together with the proposal to give special administrative - economic zones special

incentives to enable them to compete with special economic zones of other countries in the region in attracting foreign investment.

Vietnam has researched and developed special administrative-economic unit (special zone) model in 03 locations including Van Don (Quang Ninh province), North Van Phong (Khanh Hoa province) and Phu Quoc (Kien Giang province) to continue the improvement of the business investment environment, promotion of deep integration with the world economy, international development cooperation, and to remove existing limitations of industrial parks, export processing zones, economic zones, and high-tech zones. The development of three special economic zones demonstrates the consistency and concern of the Party, National Assembly and Government of Vietnam in boldly building a new playing field with outstanding and competitive policy institutions to attract domestic and international investment right in the territory of Vietnam.

Vietnam has legalized guidelines, viewpoints, strategies and socio-economic development plans regarding the construction and development of Special Economic Zones (SEZs) approved at the 8, 10, 11 and 12th Congresses of the Party. Particularly, the recent Resolution No. 11-NQ/TW dated June 3rd, 2017 on perfecting the socialist-oriented market economy institution of the 12th Party Central Committee required "*Building a number of special administrative-economic units with outstanding institutions to create growth poles and experiment with renovating and perfecting the organizational apparatus of the political system".*

Special zones are oriented for development with two main goals. Firstly, it is necessary to form three high economic growth areas with spillover effects on the region and the entire economy and attract high technology with competitive industries and fields suitable to the global development trend; making them a place worth living and working, where economic prosperity goes hand in hand with environmentally sustainable development, ensuring social justice and improving people's living standards. Secondly, it is required to proactively create a "new playing field" with particularly favorable, superior and internationally competitive institutions and policies for start-up development, innovation, and research and development (R&D); science and technology, new technology 4.0; high quality education and health care; high-class resort tourism services, cultural industry; development of seaport and airport logistics services; and international trade and finance associated with seaports.

The completion of the legal corridor is extremely important to build and attract investment in special zones. The Law on Special Administrative-Economic Units of Van Don, North Van Phong, and Phu Quoc (Law on Special Economic Zones) is drafted on the basis of ensuring the following principles: not contrary to the Constitution, not affecting security, national defense, national sovereignty, environment, and people's health while ensuring the preservation of traditional cultural values The law stipulates the freedom to do business activities not prohibited by law, associated with superior and competitive policies, which are not just tax and land incentives and demonstrates the Government's commitment to maintaining long-term stability for such policies. Special zones are expected to have synchronous and modern infrastructure and convenient connections with domestic and international markets, creating a favorable and transparent business environment associated with the local authorities' accountability.

4. The establishment of special economic zones in vietnam

4.1. Van Don special economic zone

Quang Ninh Province is also heavily focusing on completing Van Don Special Administrative and Economic Zone establish scheme.

Resolution No. 09-NQ/TW of the 10th Party Central Committee on the Vietnam Sea Strategy to 2020 clearly stated: "To build Hai Phong - Quang Ninh area into a strong economic center with the key fields of seaports, industry and marine tourism acting as the engine to promote the development of the whole region".

Resolution No. 54-NQ/TW of the Politburo socio-economic development and assurance of national defense and security in the Red River Delta requires: "To form major economic centers in Hanoi, Hai Phong and Quang Ninh; and to build Van Don General Economic Zone (Quang Ninh province) as the nucleus of the Southern Provinces Support Area".

Conclusion No. 47-KL/TW of the Politburo on the results after years of implementing the Resolution of the 10th National Party Congress, the Resolution of the 12th Quang Ninh Provincial Party Congress

and guidelines and solutions to develop Quang Ninh province to 2010 and vision to 2020 clearly stated "to strive to build Quang Ninh into a dynamic area, worthy of an important growth pole of the Northern Key Economic Region, and the Gulf of Tonkin Economic Belt, etc. To build Van Don economic zone into a high-quality island ecological center and a focal point for international trade."

Conclusion No. 13-KL/TW dated November 28th, 2011 "on continuing to implement Resolution No. 54 -NQ/TW" of Quang Ninh province required: To better promote the leading role of the Northern Key Economic Region, the role of spreading driving force of economic development in Hanoi - Hai Phong - Quang Ninh to accelerate the development of the regional economy.

Van Don Special Administrative and Economic Zone establish scheme aims to contribute to promoting Quang Ninh province's comprehensive, fast and sustainable development in the new period. Currently, Van Don is taking steps to prepare for this activity with a large number of international airport, seaport and tourism infrastructure projects to develop high-class marine tourism services with the formation of large-scale casinos; information technology and free communication at the highest level, and well-developed financial and banking services.

4.2. Van Phong special economic zone

Van Phong Economic Zone is located in Van Ninh District, Khanh Hoa Province. Van Phong Economic Zone was established under Decision No. 92/2006/QD-TTg dated April 25th, 2006 of the Prime Minister, covering an area of 150,000 hectares (about 70,000 hectares of land and 80,000 hectares of water surface). According to the Scheme, this is a general economic zone, in which the international transshipment port plays a key role and including one tariff zone and one non-tariff zone. The non-tariff zone includes an international transshipment port, a port logistics area and a financial trade center. Meanwhile, the tariff zone includes an oil transshipment port, a specialized port, a general port, a tourist area, an industrial park, an urban residential area and an administrative area.

On the basis of the comparison of advantages in terms of geographical location, natural resources, human resources, socio-cultural conditions, security and defense in addition to the strong political determination of Khanh Hoa province and the development requirements of the South Central Coast region and the whole country, the Politburo issued Conclusion No. 53-KL/TW dated December 24th, 2012 on construction and development of Khanh Hoa province to 2020 with a vision to 2030 and agreed to the policy of "building a special administrative and economic zone in North Van Phong area". On January 5th, 2013, the Prime Minister issued Official Letter No. 135/VPCP-V.III directing Khanh Hoa Provincial People's Committee to implement the conclusion of the Politburo. Khanh Hoa province stated that a special administrative-economic zone needs to meet the following specific objectives: reaching the level of a modern and world-class city; having a highly developed, modern and sustainable economy and a clear orientation on business lines; being the gateway for international trade; having a modern and highly autonomous economic and administrative institution, creating an attractive environment for international investors; having a high-quality socio-economic life, security and political stability; having a favorable living and business environment of international standards; and having a culture with both Vietnamese identity and international integration.

With the permission of the Politburo and the Prime Minister, Khanh Hoa province prepared and submitted the North Van Phong Special Economic Zone Development Scheme with two options: to build a special zone to mainly develop an international financial center or to develop it into an industrial and general service center.

The adoption of the 2013 Constitution and the constitution of an administrative-economic unit, especially one of the four types of territorial administrative units, has created a legal corridor to continue the reorganization of a particular type of territorial administrative unit. This aims to maximize the potential in territories with diverse development potentials, demonstrating Vietnam's integration into the development of the world economy. For successful fulfillment of this task, the leadership and direction of the Party through directional guidelines and policies play an extremely important role. Along with the management capacity and policy capacity of the State, the Government will work with localities to make Phu Quoc, Van Don, and North Van Phong become bright spots in the future in terms of economic and administrative development.

4.3. Phu Quoc special economic zone

The overall development direction of Phu Quoc Island until 2010, with a vision to 2020 has been planned by the Government since 2004 according to the Prime Minister's Decision No. 178/2004/QD-TTg dated October 5th, 2004. In 2010, the Prime Minister approved the adjustment of the general construction planning of Phu Quoc island district to 2030 according to Decision No. 633/QD-TTg dated May 11th, 2010. This Decision aims to promote Phu Quoc Island's sustainable development; harmony between economic development and preservation of historical and cultural relics and environmental protection; ensuring national and regional security and defense; step by step building an island city, a high-end tourist and service center; a science and technology center of Vietnam and Southeast Asia.

Phu Quoc Economic Zone was established under Decision No. 31/2013/QD-TTg of the Prime Minister on May 22nd, 2013. These were important foundations to help Phu Quoc gain outstanding socio-economic development achievements in recent years. In that context, it is really necessary and urgent to make a general planning for the development of Phu Quoc Economic Zone until 2040, with a vision to 2050, in order to promptly overcome inadequacies, propose strategies and solutions to ensure and improve the efficiency, quality and sustainability, etc., of the development of the whole economic zone. The organization, operation, mechanisms and policies for Phu Quoc Economic Zone are implemented in accordance with the Law on Investment, Decree No. 29/2008/ND-CP dated March 14th, 2008 of the Government providing for economic zones, industrial zones, export processing zones and economic zones and other relevant legal documents.

Decision No. 31/2013/QD-TTg dated December 27th, 2013 provides for the establishment of Phu Quoc Economic Zone, Kien Giang Province with the application of a number of policies on investment incentives and support for investors with investment projects in Phu Quoc; immigration, residence and travel policies; selection of planning consultants; investment and use of investment capital in key projects on Phu Quoc Island, etc.

Decision No.: 2996/QD-UBND dated December 6th, 2021 approving the 5-year socio-economic development plan for the 2021-2025 period of Phu Quoc City, Kien Giang Province setting the goal of achieving an average annual increase of 8.84% in production value (regions I and II); 10.76% in total social investment capital; 11.7% in budget revenue; 2.36% in budget expenditure, of which expenditure on investment and development increases by 9.24%/year on average. It also aims to create jobs for from 4,200 employees or more annually. The rate of trained laborers by 2025 will reach 70% with an average growth rate of 6.96%.

5. Conclusion

Special economic zones contribute to attracting foreign investment and making up for the shortage of domestic resources. However, it is not true that SEZs always bring positive effects. Incentives provided to attract investors also mean that the government has to accept tax revenue loss, at least in the short term. They are also increasingly vulnerable to being used for money laundering. Besides, financial incentives are not effective to maintain long-term attractiveness. Instead, human resources play an important role to develop special zones in the direction of knowledge and sustainability. In addition to a workforce capable of adapting to the knowledge-based economy in the country, Vietnam has a large number of intellectuals living, working and studying in developed countries. The development of a special zone with good infrastructure, environmentally friendly, towards sustainable development and a knowledge economy makes it possible to attract high-quality domestic and international workers and people of Vietnamese origin back to the country.

References:

Ban soạn thảo Luật đơn vị hành chính - kinh tế đặc biệt 2017. Báo cáo tổng hợp kinh nghiệm quốc tế về xây dựng, phát triển và quản lý mô hình đặc khu kinh tế, đặc khu kinh tế và các mô hình tương tự khác. Hà Nội.

Ban soạn thảo Luật đơn vị hành chính - kinh tế đặc biệt 2017. Báo cáo tổng kết hoạt động các mô hình khu công nghiệp, khu kinh tế và các mô hình tương tự khác. Hà Nội.

Cục Đầu tư nước ngoài, Bộ Kế hoạch và Đầu tư 2015. Xây dựng các khu kinh tế: Kinh nghiệm quốc tế và hàm ý cho Việt Nam.<https://fia.mpi.gov.vn/Detail/CatID/80a3a429-cc68-4621-94a8-9ebecf86aae6/NewsID/9e3a17fc-76ab-43da-8b65-5e0389411a2c> (07/04/2015)

Dự thảo Luật Đơn vị hành chính - kinh tế đặc biệt Vân Đồn, Bắc Vân Phong, Phú Quốc.

UBND huyện Phú Quốc 2018. Báo cáo số 512/BC-UBND Tình hình thực hiện kế hoạch phát triển kinh tế- xã hội năm 2018 và phương hướng, nhiệm vụ năm 2019. Phú Quốc.

UBTVQH 2020. Nghị quyết số 1109/NQ-UBTVQH14 Thành lập thành phố Phú Quốc và các phường thuộc thành phố Phú Quốc, tỉnh Kiên Giang.

FDI, FIRM PRODUCTIVITY AND FIRM EXPORT IN THE MANUFACTURING INDUSTRY

Nguyen Van Chien*

Abstract: ***The purpose of this research is to estimate the effects of foreign direct investment, firm productivity and firm export in the manufacturing industry in Vietnam. Using enterprise data published annually by the General Statistics Office, performing regression estimation, the research results confirm that foreign direct investment and firm productivity have a positive impact on the ability to export. In contrast, human capital has a negative impact on the exports of manufacturing firms.***

• Keywords: *FDI, firm, productivity, export.*

Date of receipt: 02nd November, 2022
Date of delivery revision: 08th November, 2022
Date of receipt revision: 15th December, 2022
Date of approval: 01st February, 2023

Tóm tắt: *Mục đích của nghiên cứu nhằm ước lượng ảnh hưởng của vốn đầu tư trực tiếp nước ngoài, năng suất doanh nghiệp và sự tham gia xuất khẩu của doanh nghiệp trong ngành sản xuất tại Việt Nam. Sử dụng dữ liệu doanh nghiệp công bố hàng năm của Tổng cục Thống kê, thực hiện hồi quy ước lượng, kết quả nghiên cứu khẳng định rằng vốn đầu tư trực tiếp nước ngoài và năng suất doanh nghiệp có tác động tích cực lên khả năng xuất khẩu của doanh nghiệp. Ngược lại, vốn nhân lực có tác động tiêu cực lên xuất khẩu của doanh nghiệp ngành sản xuất.*

• Từ khóa: *đầu tư trực tiếp nước ngoài, doanh nghiệp, năng suất, xuất khẩu.*

1. Literature review

Businesses play an important role in boosting national productivity and connecting foreign trade between the country and the rest of the world. Firms play a role in promoting the country's exports, as domestic firms often produce based on their comparative advantage and thus create products, as well as improve their ability to export goods and services to the global market (Tybout, 2000).

Previous studies also suggested that there is the effect of intra-industry and inter-industry spillovers from FDI inflows to firm productivity. It has been observed that the very presence of foreign investment positively impacts on domestic firms by enhancing the productivity of domestic firms and creating a competition between domestic and foreign firms. Presenting export participation, FDI significantly provides a great impetus for economic growth and export, international trade in the global market. The ability to export goods and services enhances the host country's economy to grow by trading in the international market.

There have been numerous studies that have focused on inward FDI, firm productivity and its effect on export participation. As previous studies indicate that the inward FDI to host countries and its spillover effects also diffuse technological innovations and knowledge, growth (Aitken, 1997; Blomstrom and Kokko, 1998; Tybout, 2000; Saggi, 2002; Wei and Liu, 2006; Javorcik (2004). It is evident that the inward FDI also brings much-needed capital, new technologies, marketing techniques and management skills as well as increasing firm productivity in the host countries. In addition, Fosfury and Motta (1999) identified that FDI inflows decided to invest abroad to acquire new technologies besides exploring the new market. MNEs also force local firms to study managerial skills, train workers and apply new technologies and know-how (Saggi, 2002; Wei at el., 2008).

** Thu Dau Mot University, Binh Duong; Email: chiennv@tdmu.edu.vn*

Research by Sahoo & Dash (2022) argued that the impact of FDI on exports depends on country-specific conditions, and the impact is greatest in low-middle-income countries, and smallest in low-middle income countries. low average income. It shows that businesses also have the ability to receive different benefits, depending on the characteristics of each country's economic development, and businesses operating in a country with a low level of development often do not have many benefits. Benefits from attracting FDI and promoting exports, the economy has smaller foreign trade activities. Sahoo & Dash (2022) believed that the quality of human capital, and trade policies also have an impact on the ability to export, which sets out for enterprises to constantly improve their human resources to improve their production capacity and competitive advantage.

Hayakawa et al. (2020) conducted a research in China and argued that the country's accession to the WTO in 2001 has changed many policies related to foreign trade and thereby directly affected the exports of this country's enterprises. Joining the WTO forces China to have a policy to reduce restrictions on the participation of foreign enterprises in the domestic market, and at the same time to reduce the restriction of domestic enterprises to participate in global trade. The authors argued that the process of facilitating enterprises to participate in trade helps enterprises to improve their exports, or more specifically, to reduce tariff barriers to increase export activities, and the business is the direct beneficiary.

Given the intensive interest in productivity and exports, numerous studies explore that the role of firm productivity could impact on exports in various ways. Tybout (1998), Aw at el. (2000) and Wagner (2007) confirmed that the firms must be burden by additional costs when selling goods in foreign markets, e.g., transportation costs, marketing costs, additionally managerial costs and other unexpected risk. Thus, it is easy to see that exporters must be more efficient to cover extra costs. Even, productivity increases exports but exporters enjoy a productivity premium over non-exporters with a premium as high as 85 percent in the case of Colombia (Casas at el., 2015). It can be seen that exporting enterprises often have advantages over non-exporting enterprises due to advantages in production, the ability to penetrate international markets and participate in global value chains. Moreover, FDI inflows can also be directed to industrial parks and export processing zones, and there is the ability to concentrate production and learn among FDI enterprises due to the geographical proximity of enterprises (Majumder et al, 2022) research in Bangladesh confirmed the role of FDI in the formation of export processing zones and thus has the potential to improve exports.

In the context of global economic integration, some firms are producing and serving only for the domestic market, many others have increasingly participated to export their products to the international market and through 'learning by doing', these exporting-firms also study technology, advanced skills and managerial capabilities in order to increase profit and productivity. In accordance with earlier literatures on international trade, firms that serve in the foreign market are more productively engaged in FDI (Girma at el., 2002), however, in labor-intensive sectors, the foreign markets are less competitive than the domestic firms due to a very large market as in the case of China and so these exporters are more profitable than in foreign markets (Arkolakis, 2008). Further investigation about exporters, it is evident that the exporting firms have a right to self-select into export markets (Wagner, 2007), conceivable to see that firm managers need to make conscious of firms becoming more productive in order to start exporting in the globe (Mulangu, 2015). In addition, Sun (2012) argued that the participation of FDI enterprises makes domestic enterprises more efficient because the interaction between foreign enterprises and domestic enterprises makes domestic enterprises more efficient. more fruitful. Therefore, the participation of foreign enterprises and the inflow of foreign direct investment have an impact on promoting the export of domestic enterprises.

As such, this research on the impact of inward FDI flows and its effect in addition to

firm productivity on export participation intends to clarify the major indicators and their impact on export participation and the indicators in the analysis are given in this analysis. Especially in the case of Vietnam, the manufacturing sector significantly contributes a large part of the economy's output and plays a larger role than the service sector, which is similar to the success story of developed economies such as Japan, Korea, China. The research in the case of Vietnam is also intended to help the Government and policy makers clearly see the reasons for the expansion of exports in recent times and provide policy implications.

In addition to the background of the research, the rest of this research has four parts. Section 2 discusses the methodology, part 3 deals with the data source, part 4 deals with the results of the research, and finally the conclusions of the research in section 5.

2. Research methodology

Based on the previous study of Wagner (2007), and the specific conditions of Vietnam, the study has the following regression equation:

$$\text{Export Participation}_{it} = C_0 + \beta_1 \text{Foreign Share}_{it} + \beta_2 \text{Productivity}_{it} + \beta_3 \text{Innovation}_{it} + \beta_4 \text{Human Capital}_{it} + \beta_5 \text{Capital Intensity}_{it} + \beta_6 \text{Firm Age}_{it} + \varepsilon$$

Where $\text{Export Participation}_{it}$ denotes for the probability of exporting at the firm-level and gets a value of the binary variable. In which, Export Participation gets a value of 1 if the firm is an exporter with the proportion of exports to sales > 0, and gets a value of 0 if the firm is a non-exporter. C_0 is an intercept. The explanatory variables include, e.g., foreign share, productivity, firm size, innovative activity, firm age, human capital, capital intensity. And, βi (i = 1, 2, 3, 4,..) are the parameters of the estimation; ε stands for error term.

In this study, we use the traditional estimation regression method. Specifically, the study used ordinary least squares, fixed effects and random effects methods. When performing regression, the authors evaluate the defects in the research model, in case the model has defects such as autocorrelation and heteroskedasticity, the feasible generalized least squares regression will be applied.

3. Data

Research conducted on enterprises is collected on the General Statistics Office. The study uses data for the period of high volatility in business operations under the newly implemented enterprise law. The data is processed for errors, cleaned data and then used to perform regression estimation.

4. Estimated results

The results of the regression are shown in Tables 1 and 2 below:

Table 1: Mean Comparisons of Manufacturing Exporters and Non-Exporters

Characteristics	Exporter		Non-Exporter		t-statistics (P-value)
	Mean	Standard Deviation (Freq.)	Mean	Standard Deviation (Freq.)	
Foreign Share, %	69.3%	0.057 (10.568)	68.3%	0.079 (6.022)	9.22* (0.00)
Productivity, VND million per an employee	25.85	12.14 (10.278)	22.94	12.69 (5.450)	14.08 (0.00)
Innovative Activity, %	0.034	0.05 (4.035)	0.042	0.05 (1.464)	-5.26* (0.00)
Human capital, VND million per an employee	17.24	0.08 (9.405)	19.28	0.14 (5.374)	-13.42* (0.00)
Capital Intensity, VND million per an employee	11.11	8.83 (10.283)	10.21	8.73 (5.479)	6.07* (0.00)
Firm Age, %	6.50	4.33 (5.401)	5.92	4.11 (3.614)	6.12* (0.00)

Source: Author's analysis
*Notes: In the last column the t-statistics and p-value (values in parentheses) of mean comparisons between two groups are presented; * significant at 1% level. In the 3rd and 5th column, Freq. (values in parentheses) is counted for the number of observations.*

Table 1 shows that there is a difference between Foreign Share, Innovative Activity, Human capital, Capital Intensity, and Firm Age between exporting and non-exporting firms. It reflects that enterprises participating in foreign trade often have different characteristics, and that characteristic makes enterprises able to have an advantage when participating in global trade.

Table 2. Estimated results

Dependent Variable: Export Participation Binary Variable: Exporter (1) and Non-Exporter (0)			
Independent Variable	**All period**		
	(1)	**(2)**	**(3)**
Foreign Share	1.46* (9.4)	1.41* (4.59)	1.26* (3.07)
Productivity	0.012* (14.25)	0.018* (7.56)	0.011* (2.77)
Innovation		-1.61* (-3.56)	-0.62 (-0.92)
Human Capital		-0.013* (-4.23)	-0.026* (-6.56)
Capital Intensity		-0.001 (-0.05)	-0.015* (-3.20)
Firm Age		-0.021* (-3.95)	0.005 (0.66)
Constant	-0.906* (-8.19)	-0.48* (-2.08)	0.641** (1.96)
n	15.696	3.529	2.731

*Source: Author's analysis, (z values in parentheses, * significant at 1% level, ** significant at 5% level).*
Note: The third case estimates using dummy variables as firm size, geography, economic situations

Table 2 presents the results of the regression, and the main results are as follows:

Enterprises with a higher percentage of foreign capital are more likely to promote exports. That is, enterprises have the contribution of foreign investment capital, enterprises have more advantages in foreign markets and therefore have the ability to promote foreign trade and exports. Normally, foreign capital often has many advantages because capital often carries technology, brings spillover effects to enterprises, and thereby promotes productivity in enterprises and improves production.

The study also found a positive effect of firm productivity on the ability to export. Firms with a higher labor productivity often have an advantage in exporting, and conversely, enterprises with a lower labor productivity often have less advantage in exporting. Indeed, labor productivity reflects the ability of a firm to have an advantage in production, and to have cheaper production costs and thus a comparative advantage in the global market. A low-cost enterprise has many advantages even in the international market, because cheap goods are often competitive in foreign markets. As Tybout (1998), Aw at el. (2000) and Wagner (2007) confirmed that the firms must be burdened by additional costs when selling goods in foreign markets. Therefore, it is easy to see that exporters must be more efficient to cover extra costs. The results of this study are similar to those of Casas et al. (2015) argues that productivity has the potential to promote exports, and that exporting firms are often more productive than non-exporting firms due to advantages in production.

The study also confirmed a negative relationship between human capital and productive capacity. That is, firms with a higher human capital often have a lower ability to export, and firms with a lower human capital tend to have a lower export capacity. The results of this study can be explained that enterprises with a higher human capital often have an advantage in doing business in the domestic market. In recent years, Vietnam is known to have a large domestic market due to its large population and rapidly increasing income levels. Many enterprises often exploit the domestic market, then they also exploit the foreign market. With the advantages of human capital, enterprises that have human resources capable of understanding the domestic market and businesses will try to maximize the potential of this market before orienting to foreign markets.This research result is in contrast to the study of Sahoo & Dash (2022) when confirming that human capital has a positive impact on the export of enterprises. It can be explained that Vietnam is an unique case when the Vietnamese economy seems to be improving only in the quantity of exports rather than in the quality of exports.

5. Conclusions

Firms with high productivity often have many business advantages in domestic and international markets. In the trend of

international economic integration, international capital flows are likely to come to domestic enterprises. In fact, domestic enterprises have the ability to learn, imitate and improve their productivity, and especially improve foreign trade activities, promote exports. Studying the relationship between foreign direct investment, enterprise productivity and exports in the manufacturing industry, the research results show that enterprises with foreign investment contributions have the ability to expand export markets and improve export value. Moreover, firms with a higher productivity often have many advantages in production and low production costs, so the ability to export is improved. On the other hand, human capital has a negative impact on the export ability of enterprises, because enterprises often prioritize the domestic market before exporting to foreign markets.

The research has several policy implications. First, Vietnam continues to improve its investment policy to continue to attract international investment flows and thereby improve the country's exports. Second, enterprises continue to improve production activities, management capabilities and improve human resources and labor productivity and thereby improve exports. Third, the country continues to reform trade liberalization policies, participate in global free trade agreements to create benefits for domestic enterprises when exporting goods and services.

References:

Aitken, B., Hanson, G.H., and Harrison, A.E. (1997). Spillovers, Foreign Direct Investment and Export Behavior. Journal of International Economics, 43(1-2), 103-132.

Arkolakis, C. (2008). Market Penetration Costs and the New Consumer Margin in International Trade. NBER Working Paper No. 14214, August 2008.

Aw, B., Chung, B. and Roberts, M. (2000). Productivity and Turnover in the Export Market: Micro-level Evidence from the Republic of Korea and Taiwan (China). World Bank Economic Review, 14, 65-90.

Blomstrom, M. and Kokko, A. (1998). Multinational Corporations and Spillovers. Journal of Economic Survey, 12(2), 1-31.

Casas, C., Diez, F.J., and González, A. (2015). Productivity and Export Market Participation: Evidence from Colombia. Working Paper No 876, Banco dela República.

Fosfury, A. and Motta, M. (1999). Multinationals without Advantages. Scandinavian Journal of Economics, 101 (4), 617-630.

Girma, S., Thompson, S. and Wright, P. (2002). Why are Productivity and Wages Higher in Foreign Firms. The Economic and Social Review, 33(1), 93-100.

Hayakawa, K., Mukunoki, H., & Yang, C. (2020). Liberalization for services FDI and export quality: Evidence from China. Journal of the Japanese and International Economies, 55, 101060. https://doi.org/https://doi.org/10.1016/j.jjie.2019.101060

Javorcik, B.S. (2004). Does Foreign Direct Investment Increase the Productivity of Domestic Firms? In Search of Spillovers Through Backward Linkages. The American Economic Review, 94(3), 605-627.

Majumder, S. C., Rahman, M. H., & Martial, A. A. A. (2022). The effects of foreign direct investment on export processing zones in Bangladesh using Generalized Method of Moments Approach. Social Sciences & Humanities Open, 6(1), 100277. https://doi.org/https://doi.org/10.1016/j.ssaho.2022.100277

Mulangu, F.M. (2015). Do Firms Self-Select to Export or Learn - By - Exporting? Evidence from Ghanaian Manufacturing Firms. African Center for Economic Transformation.

Saggi, K. 2002). Trade, Foreign Direct Investment, and International Technology Transfer: A Survey. World Bank Research Observer, 17(2), 191-235.

Sahoo, P., & Dash, R. K. (2022). Does FDI have differential impacts on exports? Evidence from developing countries. International Economics, 172, 227-237. https://doi.org/https://doi.org/10.1016/j.inteco.2022.10.002

Sun, S. (2012). The role of FDI in domestic exporting: Evidence from China. Journal of Asian Economics, 23(4), 434-441. https://doi.org/https://doi.org/10.1016/j.asieco.2012.03.004

Tybout, J.R. (2000). Manufacturing Firms in Developing Countries: How Well Do They Do, and Why? Journal of Economic Literature, XXXVIII, 11-44.

Wagner, J. (2007). Productivity and Size of the Export Market - Evidence from West and East German Plants, 2004. Jena Economic Research Papers, No. 2007-028.

Wei, Y. and Liu, X. (2006). Productivity Spillovers from R&D, Exports and FDI in China's Manufacturing Sector. Journal of International Business Studies, 37, 544-557.

Wei, Y., Liu, X. and Wang, C. (2008). Mutual Productivity Spillovers between Foreign and Local firms in China. Cambridge Journal of Economics, 32, 609-631.

UPGRADING VIETNAMESE STOCK MARKET USING MSCI CRITERIA

PhD. Cao Minh Tien*

Abstract: ***After 22 years of establishment and development, Vietnamese stock market has proved its functions to the economy. However, the limitations that hinder the development of the market still exist. Market upgrading is not only a way to build an image for the national financial market, but it also has a direct impact on the ability to attract foreign capital flows. Not only Vietnam but many other frontier markets are also trying to be upgraded to Emerging market. Currently, Vietnamese stock market is rated as a frontier market by MSCI (Morgan Stanley Capital International). In terms of MSCI's quantitative criteria, Vietnamese stock market has reached the emerging market level, but there are still many qualitative criteria that Vietnamese stock market has not yet satisfied.***

• Keywords: *market upgrade, MSCI, stock market.*

Date of receipt: 10th December, 2022
Date of receipt revision: 15th January, 2023
Date of delivery revision: 15th December, 2022
Date of approval: 30th January, 2023

Tóm tắt: *Thị trường chứng khoán Việt Nam từ khi thành lập đến nay sau 22 năm hình thành và phát triển đã phát huy được chức năng của mình đối với nền kinh tế. Tuy nhiên, bên cạnh đó vẫn còn tồn tại những hạn chế gây kiềm hãm sự phát triển của thị trường. Nâng hạng thị trường không chỉ là cách xây dựng hình ảnh cho thị trường tài chính quốc gia mà nó còn tác động trực tiếp lên khả năng thu hút dòng vốn nước ngoài. Không chỉ riêng Việt Nam mà nhiều thị trường cận biên (Frontier market) khác cũng đang nỗ lực để được nâng hạng lên thành thị trường mới nổi (Emerging market). Hiện tại, TTCK Việt Nam đang được MSCI (Morgan Stanley Capital International) xếp hạng là thị trường cận biên. Xét về tiêu chí định lượng của MSCI, TTCK Việt Nam đã đạt được mức thị trường mới nổi, tuy nhiên vẫn còn nhiều tiêu chí định tính mà TTCK Việt Nam vẫn chưa đáp ứng được.*

• Từ khóa: *nâng hạng thị trường, MSCI, thị trường chứng khoán.*

1. Introduction

MSCI has just announced the results of periodic market classification for 84 stock markets in the world, in which Vietnam continues to be absent from the list of consideration to be upgraded from a frontier market to an emerging market. Previously, MSCI gave new but less positive assessments about Vietnamese market. Specifically, MSCI believed that foreign room issues were affecting more than 10% of stocks in Vietnamese stock market.

At the same time, MSCI also labeled "-" with 9 quantitative criteria including: foreign ownership limit; the remaining foreign room; equal rights of foreign investors; degree of freedom in the foreign exchange market; investment registration and account opening; market regulations; information flow; Clearing; transferability. Previously, in 2021, when the above 9 criteria did not have enough information to evaluate, MSCI assigned the level "-/?". But now, this agency has officially labeled "-", which means not meeting the requirements.

2. Literature review

There are many research papers on stock market upgrading in the world and Vietnam such as:

Research: "Are investors interested in upgrading the stock market? Evidence from the multivariate analysis" by BanaAbuzayed and Nedal Al-Fayoumi (2016) tested the profitability and volatility of the stock market against the announcements of market upgrade. It measures the direct effects of MSCI's upgrade of the Qatar, Dubai and Abu Dhabi from FM to EM by studying the non-traditional marginal events,

* *Academy of Finance; email:caominhtien@hvtc.edu.vn*

through the multivariate model BEKK and DCC OARCH. Its results clearly contradict the free information hypothesis and supports the price hypothesis. Initially, MSCI's upgrade led to positive investors' feedback, which will attract foreign investors who play a key role in improving market performance. In Vietnam: At present, the goal of "Upgrading Vietnamese stock market" is the central task that the Government has assigned to state management agencies to focus on in the coming years. So far, there is only one scientific research topic at the committee level by Nguyen Quang Long from the Department of Fund Management and Investment Company under the State Securities Commission with the topic "Stock market rating and solutions to upgrade Vietnam stock market" completed in 2015 which has the same subject of research with this topic. Therefore, this is the only master thesis up to now studying the topic "Upgrading Vietnamese stock market".

In his research, Nguyen Quang Long analyzed the upgrading criteria of all 3 stock market rating agencies in the world (MSCI, FTSE RUSELL, S&P Down Jones) instead of focusing on analyzing MSCI's upgrade criteria for Vietnam's stock market only like in this topic. Therefore, this topic goes deeper into the unsatisfactory criteria of the Vietnamese stock market, thereby offering highly feasible solutions. Besides, Nguyen Quang Long's research project completed in 2015, since then Vietnamese stock market has changed both intensively and extensively leading to changes in MSCI's evaluation report about Vietnam's stock market. This is the research gap that this study focuses on for in-depth analysis and evaluation. Therefore, this topic is more contemporary due to the latest update of the Vietnamese stock market rating from MSCI.

3. Research results

Stock market upgrade is the process by which a national stock market is upgraded by stock market rating organization from an independent market to a marginal market or from a marginal market to an emerging market or from an emerging market to a developed market based on its set of criteria for ranking the stock market.

3.1. The need to upgrade the stock market

Market upgrading is not only a way to build an image for the national financial market, but it also has a direct impact on the ability to attract capital flows from abroad. Not only Vietnam but many other frontier markets are also making efforts to be upgraded to emerging markets for the following reasons:

Firstly, emerging markets are larger in size and of better quality than marginal markets, while the growth potential is higher than marginal markets. The capital flows attracted by emerging markets are more stable, compared to those that invest in frontier markets. Passive funds, such as exchange-traded funds (ETFs), that currently focus on investing in emerging markets, will also automatically allocate a portion of their capital to newly upgraded emerging markets.

Secondly, in order to meet the standards of upgrading to an emerging market, in addition to increasing the size, liquidity or accessibility of foreign investors, national stock markets also have pressure to improve trading conditions such as operating system, institutional framework, information transparency. During the review process, ranking agencies also proactively assist countries in understanding the current situation and the standards to be met so that they can make appropriate changes. This process is the main driver that helps marginal markets benefit from the upgrade, while the decision to upgrade serves only as confirmation of the above conditions.

3.2. Stock market rating agencies and criteria

Credit rating organizations provide information to individuals and institutional investors to assist them in determining the solvency of issuers for debt obligations and fixed income securities. Credit rating agencies also provide objective analysis and independent reviews of companies and countries that issue securities. The globalization of the investment market together with the diversification of types and quantities of issued securities poses a challenge to individuals and investment institutions. They must analyze the risks associated with both domestic and foreign investments. The historical information and analysis of the three companies below

will facilitate the reader to better understand the function and development of credit rating agencies.

3.2.1. Introduction to MSCI and MSCI ranking criteria

a. About MSCI

MSCI is a company based in New York (USA) specializing in providing tools to support institutional investors in making investment decisions, mainly pension funds and hedging funds. MSCI designs different types of indexes to serve the needs of each customer group. To date, MSCI has had a wide range of index products, however, MSCI's most prominent products are the sets of indexes such as the MSCI Developed Markets Index, the MSCI Emerging Markets Index and the MSCI Frontier Markets Index. MSCI focuses on reflecting the views and experiences of the international investment community based on a set of principles that seek to find a balance between a country's economic development and its market access. The MSCI Market Classification Framework (MSCI Market Classification Framework) consists of 15 principles focusing on the following major criteria:

1) The economic development of a country;

2) Size and liquidity of stock market and representative shares;

3) Criteria on market accessibility of foreign investors.

The rating criteria also include macroeconomic conditions, political stability, property rights and procedures, and transaction and payment conditions and procedures. MSCI also reflects the views and experiences of institutional investors in deciding whether to rate a market as developed, emerging or marginal.

b. MSCI's stock market rating criteria

MSCI uses two types of standards to classify stock markets. One is a quantitative standard that includes the levels of economic development, size and liquidity of the stock market. The second is qualitative criteria which is to consider market accessibility. Based on how well these standards are met, MSCI classifies the stock market into four categories, in order from highest to lowest: developed, emerging, frontier, and unclassified.

Quantitative standards

+ The level of economic development.

According to the market classification framework of MSCI, this criterion only applies to developed markets, while there is no difference for the other two types of markets. For a stock market to be classified as a developed market, the gross national income (GNI) must be 25% higher than the World Bank high-income benchmark for three consecutive years.

+ Size and liquidity.

This criterion requires that the minimum number of shares in the stock market must satisfy requirements as below:

• For developed markets: at least 5 stocks that meet the market capitalization requirement of USD 3,187 million, of which free capitalization is USD 1,594 million. Regarding liquidity, the annual traded value to market capitalization ratio (ATVR) of that stock must be at least 20%.

• For emerging markets: at least 3 stocks that meet the market capitalization requirement of USD 1,594 million, of which free market capitalization is USD 797 million and ATVR must reach 15%.

• For the marginal market: at least 2 stocks that meet the market capitalization requirement of 797 million USD, of which free market capitalization is 71 million USD and ATVR must be from 2.5%.

Table 1.1. Quantitative criteria for market rating

Criteria	Frontier market	Emerging market	Developed market
A. Economic Development A.1. The sustainability of economic development	No requirement	No requirement	Country GNI per capita 25% above the World Bank high income threshold (*) for 3 consecutive years
B. Size and Liquidity Requirements			
B.1. Number of companies meeting the following Standard Index criteria	2	3	5

Criteria		Frontier market	Emerging market	Developed market
Company size (full market cap (**)		USD 797 mm	USD 1,594 mm	USD 3,187 mm
Security size (float market cap (**)		USD 71 mm	USD 797 mm	USD 1,594 mm
Security liquidity		2.5% ATVR	15% ATVR	20% ATVR
C. Market Accessibility Criteria				
C.1	Openness to foreign ownership	At least some	Significant	Very high
C.2	Ease of capital inflows / outflows	At least partial	Significant	Very high
C.3	Efficiency of operational framework	Modest	Good and tested	Very high
C.4	Competitive landscape	High	High	Unrestricted
C.5	Stability of the institutional framework	Modest	Modest	Very high

(*): High income threshold for 2017: GNI per capita of USD 12,235 (World Bank, Atlas method)

(**): Minimum in use for the May 2018 Semi-Annual Index Review, updated on a semi-annual basis

Source: MSCI Global Market Accessibility Review-June 2018,

Qualitative standards

This standard reflects the experience of foreign investors on their probability to invest in a market, which consists of five sub-criteria: i) openness to foreign investors, ii) the ability to navigate capital flow into/out of the market, iii) efficiency of the operating system, iv) competitiveness of the business environment, v) stability of the institutional framework. These five benchmarks show that foreign investors focus on investor equality, free flow of capital, investment potential, competitiveness, and country risks. MSCI uses 18 criteria to evaluate these five standards. The evaluation is mainly based on the feedback of many types of investors across all markets, including financial managers, brokers, market monitors, operators. Results are announced in June each year.

1. Openness to foreign investors:

One of the most attractive features to foreign investors about a market is when they do not perceive any distinction between domestic and international investors. To assess this degree of discrimination, MSCI analyzed four criteria:

a. Standard requirements for foreign investors

The Qualified Foreign Institutional Investor (QFII) system poses great difficulty because it makes a distinction not only between domestic investors and foreign investors, but also among different foreign investors. Markets that require QFII will receive a low rating from investors.

b. Ownership limit for foreign investors

International investors expect no discrimination in the opportunities presented to them and to domestic investors. Restrictions on foreign ownership in all industries or within a specific group of industries can cause a significant bias, leading to a negative market assessment.

c. Room left for foreign investors

When a market has a limit on ownership for foreign investors, the criterion of remaining room for foreign investors is taken into consideration. Ownership limit reaching the specified threshold will result in injustice to the investors who bought and other investors who want to buy. In some cases, investors who have just bought in will be forced to sell.

d. Equality for foreign investors

Foreigner restrictions can take the form of a classified stock that reduces the voting rights of foreign investors. International investors want to be treated equally in terms of economic rights and voting rights, they need access to information in English. Restrictions on ownership limits, discriminatory voting rights, and limited access to information will lead to a low rating for this criterion.

2. The ability to navigate capital flow into/ out of the market

This is about whether the capital flow can go into and out of a market easily, uninterruptedly, and cost-effectively. MSCI evaluates this standard through two criteria:

a. The degree of capital flow restriction

A country is rated badly if there are controls on the capital inflow into/outflow from its stock market.

b. Degree of liberalization in the foreign exchange market

If a country does not have an overseas foreign exchange market, foreign investors are forced to conduct transactions in the domestic market at high costs and often have little choice of intermediaries, thus being poorly rated. Lack of foreign currency is also an important issue.

3. Efficiency of the operating system

This standard is designed to reflect the views of foreign investors as they want to ensure their ownership is accurately recorded and closely protected; operational risks are minimized and the transaction, settlement, clearing and custody of those operations are carried out smoothly and economically. MSCI evaluates this standard based on nine criteria:

a. Registration and account opening for foreign investors

The number and type of documents required, along with the time it takes to complete the application, are considered for this criterion. Documentation preparation time is also included in the registration completion time.

b. Market regulations

Easy market access (including information in English), clear policies, strict law enforcement and regulations are highly appreciated. Inconsistencies and unexpected changes, especially when targeting foreign investors, are poorly rated.

c. Information flow

Good information flow is essential for protecting shareholder interests. Quality, time, English-language information, and affordable access fees are all considered. In addition, investors also take into account the quality of the domestic accounting system, for example, if the international accounting standards IFRS is applied, it will be highly regarded.

d. Payment and clearing system

A well-functioning clearing and settlement system is evaluated based on the framework prescribed by the Bank for International Settlements, including: the securities payment principles DVP - Delivery Versus Payment, no advance payment required for transactions, the ability to use overdrafts and the availability of overarching structures.

e. Depository system

An efficient market needs a mechanism that prevents brokers from having unlimited access to an investor's account and ensures the safety of an investor's assets. The degree of competition among depository banks in each market is measured by the number of custodial banks present as well as the presence of global depository banks.

f. Registration system

Central registries or independent registries and central depository are important characteristics for evaluating a registration system. A depository center acting as a registry is also considered a standard feature.

g. Transaction

An important desirable feature is the ability of a fund manager to do group trades at the same price for different accounts. The level of competition among brokers is also measured by the number of active brokers.

h. Ability to convert

The ability to trade foreign exchange and make wire transfers in kind creates significant cost savings and increased operational efficiency. These are important in the case of management transitions, mergers of funds, and in the creation and redemption of ETFs shares.

i. Securities lending and short selling

Securities lending and short selling are recognized as important components in an efficient market, as they allow arbitrage between different instruments. But the presence of these activities is not enough to assess the market, they need to be implemented effectively and reviewed.

4. Competitiveness of the business environment

When non-compete clauses in the provision of stock market data are imposed, legal or natural

monopolies would be underestimated. These non-compete provisions limit investors' access to information, data, and investment products. The imposition of non-compete practices leads to a negative rating.

5. The stability of the institutional framework.

Government intervention and restrictions on foreign investors are used to gauge the stability of the free market mechanism. This criterion considers past cases to assess the potential risk that foreign investors may be exposed to by discriminatory measures during crises.

3.2.2. Vietnam's choices

Although the stock market rating criteria of the 3 international rating organizations above (MSCI, FTSE, S&P Dow Jones) have differences in a few small criteria, these criteria are basically all evaluate the economic and stock market development of that country. Therefore, Vietnam getting upgraded by one of these three organizations to the emerging market is a great success for the securities industry in particular and Vietnamese economy in general. However, when making more thorough analysis of specific criteria of all 3 rating agencies, the writer finds that there are criteria directly related to the stock market but also many other criteria mainly related to macroeconomics and the economic development. Of the three organizations above, the ranking criteria of S&P Dow Jones are mainly related to the economy, not many criteria are directly related to the stock market. Therefore, the writer believes that it is necessary to further analyze the other two major rating agencies, MSCI and FTSE. Comparing the ranking criteria of MSCI and FTSE, the criteria of MSCI are more quantitative and directly related to the stock market than those of FTSE. At the same time, the number of asset investment funds using MSCI's rating classification is much higher than that of FTSE, therefore the amount of capital poured into Vietnam if the stock market is upgraded to emerging status of MSCI will also be higher. Specifically, according to estimates of Bao Viet Securities Joint Stock Company (BVSC), capital inflows into Vietnamese stock market when upgraded by FTSE will increase from $709.46 million to $1.16 billion. Meanwhile, if Vietnam's stock market is upgraded to emerging market by MSCI, it will attract a total of 991.44 million USD - 1.68 billion USD from investment funds using the results of MSCI's ratings.

Table 1.2. Capital inflows when Vietnamese stock market gets upgraded

FTSE	ETFs	Active funds	Total
Number of funds using the FTSE Emerging Markets index as a reference	25	22	47
Total capital under management	81,58 billion USD	368,22 billion USD	449,81 billion USD
Capital inflow into Vietnam (estimated)	347,91 - 566.73 million USD	361,55 - 588,94 million USD	709,46 million USD - 1,16 billion USD
MSCI			
Number of funds using the MSCI Emerging Markets index as a reference	104	301	404
Total capital under management	175,32 billion USD	124,23 billion USD	299,71 billion USD
Capital inflow into Vietnam (estimated)	571,41 - 966,31 million USD	420,03 - 710,30 million USD	991,44 million USD - 1,68 billion USD
Source: BVSC			

Therefore, from the writer's opinion, Vietnam should aim to be upgraded by MSCI to an emerging market and this topic only focuses on studying the MSCI's rating criteria for Vietnam's stock market.

4. The evaluation of MSCI on Vietnamese stock market

Evaluating Vietnamese stock market, MSCI reports are as follows:

Regarding foreign ownership limit: Companies in some sensitive industries and sectors are still limited in foreign ownership from 0% to 51%. These limits still affect more than 10% of stocks on the Vietnamese stock market.

The remaining foreign room for foreign investors: The stock market is heavily influenced by the foreign room. More than 1% of the MSCI

Vietnam IMI index is affected by low foreign room.

Equality for foreign investors: Some business information is still not available in English. In addition, the interests of foreign investors are limited due to strict foreign ownership limits applied to the total foreign ownership ratio in general and each investor's ownership in particular.

Degree of liberalization in the foreign exchange market: Currently, there is no foreign currency trading market and the domestic market is still limited (foreign currency transactions must be related to securities transactions). Investment registration and account opening: Trading registration is required and the account opening needs to be approved by VSD. Market regulations: Market regulations are not fully available in English. Information flow: Information about the stock market is often not available in English or is not detailed enough. Payment and clearing: There is no overdraft facility and the transaction requires an advance. Transferability: Some off-exchange transactions and in-kind transfers need to be approved by the SSC.

According to the MSCI Frontier Market Index report on May 31, 2022, Vietnam still ranked top at the frontier market basket with a point of 28.45%. Currently, MSCI has initiated consultations on the proposal to move the MSCI Nigeria Index from the frontier market to the independent market. If this happens, Vietnamese point may be raised to 34.3% but the number of Vietnamese shares will remain unchanged at 28 shares. Recently, the issue of upgrading the market has also attracted the attention of the Government. Currently, the Government has also made efforts to promote this upgrade process.

In some ways Vietnamese stock market is like a heavyweight boxer competing in lightweight, the scale of lightweight is currently about 95 billion USD. And in that basket, funds are recommended by MSCI to allocate about 30% to the Vietnamese market, of course the funds will not allocate all of that 30% because the market is still lightweight. If Vietnam competes in the emerging middle class, the size of this class is 6.8 trillion USD and only 1% of the allocation is enough to have 68 billion USD into the market. Usually, cash flows into the market before the upgrade is announced, as has happened in Pakistan, in Saudi Arabia or Kuwait.

It can be seen that over the past few years, the role of fund management companies in Vietnam has matured rapidly and achieved many important milestones to contribute to the sustainable development of Vietnam's stock market in many ways.

5. Conclusion

In the process of establishment and development, Vietnamese stock market has experienced the inevitable ups and downs of a newly integrated economy. This is a natural and self-screening process in accordance with the rules of a free market. State management agencies have contributed greatly in orienting and creating a legal corridor for the market to develop dramatically as it is now. The efforts of regulators, market participants and investors are objectively recognized by international investors. So far, Vietnamese stock market has been joined by experienced investors, securities trading organizations competent enough to overcome shocks, the listed companies willing to change to adapt to international standards and meet the expectations of domestic and foreign investors. This is the collective achievement of the whole market.

References:

Dr. Vu Bang (2015), A look back at the foundation and development of Vietnam's stock market, State Securities Commission, Hanoi.

Assoc. Prof. Dr. Hoang Van Quynh - Textbook of financial markets- Academy of Finance, Financial Publishing House

Dr. Nguyen Thi Hoai Le (2013), Financial Investment monograph - Academy of Finance, Financial Publishing House

Assoc. Prof. Dr. Hoang Van Quynh and Dr. Cao Minh Tien - Portfolio Management Textbook

MSCI (2016), Global Market Accessibility Review June - 2016 Final

MSCI (2017), Global Market Accessibility Review June - 2017 Final

MSCI (2018), Global Market Accessibility Review June - 2018 Final

MSCI (2019), Global Market Accessibility Review June - 2019 Final

MSCI (2020), Global Market Accessibility Review June - 2020 Final

MSCI (2021), Global Market Accessibility Review June - 2021 Final

THE APPLICATION OF FAIR VALUE IN MEASURING FINANCIAL STATEMENT'S ELEMENTS

PhD. Nguyen Thi Hong Van*

Abstract: ***This paper consider the theme of Fair value in measuring elements, including in initial and subsequent measurement. This paper shows the cases of IASB and FASB in the concern, also the implication for Vietnam regulation. There are still significant challenges that need to be overcome in order to implement Fair value in Vietnam and there are still substantial comparability problems for cross-border users.***

• Keywords: *fair value; IFRS; measurement; Vietnam.*

Date of receipt: 10th December, 2022
Date of receipt revision: 15th Jannuary, 2023
Date of delivery revision: 15th December, 2022
Date of approval: 30th Jannuary, 2023

Tóm tắt: *Bài báo đề cập đến áp dụng giá trị hợp lý trong đo lường các yếu tố Báo cáo tài chính, đo lường giá trị ban đầu và sau ban đầu đối với yếu tố tài sản/ nợ phải trả. Minh họa quy định của IASB và FASB về nội dung này. Áp dụng giá trị hợp lý ở Việt Nam còn tồn tại nhiều thách thức, ảnh hưởng đến yêu cầu so sánh thông tin trên Báo cáo tài chính của đối tượng sử dụng thông tin.*

• Từ khóa: *giá trị hợp lý, IFRS, xác định giá trị, Việt Nam.*

Introduction

Along with the economic renovation, Vietnamese accounting system has been drastically reforming in the direction of conformity with the market economy and international integration. Among the outstanding successes in the reform process are the promulgation of the 2003 Accounting Law and 26 Vietnamese accounting standards in 2001-2005 period. Most recently, the Law on Accounting No. 88 was promulgated in 2015 and effective from January 1, 2017. One of the important changes of this Law is to allow the application of the fair value model in accounting in addition to the historical cost model that has been applied for a long time. According to Article 6, Clause 1 of Accounting Law No. 88: "The value of assets and liabilities is initially recognized at cost. After initial recognition, certain types of assets or liabilities, whose values are subject to frequent fluctuations in market prices and can be reliably measured, are recognized at fair value at the end of the reporting period". Article 28 of the Law provides for a list of applicable assets at fair value with different types of assets and liabilities.

It is an important step forward in perfecting the system of Vietnamese accounting standards to ensure a higher degree of compatibility with other countries' accounting practices and international accounting standardswhen the Accounting Law permits the application of a fair value model to the measurement of the value of assets and liabilities. However, the application of fair value in Vietnamese accounting system also poses many challenges both in terms of developing guiding regulations as well as in practical application in enterprises.

The application of fair value to initial recognition of financial statement's elements

Previously, accounting models including historical cost and current price were based on the point of view of initial recognition of assets/ liabilities at cost (entry price). The difference between these models is the measurement subsequent to initial recognition for presentation in the financial statements.

When an asset is acquired or a liability arises, the price of the transaction that forms the asset

** Academy of Finance; email: nguyenhongvan@hvtc.edu.vn*

or gives rise to the liability is the entry price. In some cases, the entry and exitprice of assets/ liabilities in the same market at the same time are the same, however, conceptually, the entry and exit price are separated. The problem for the reporting entity is that, when entry price and exit price (fair value) are different, some accounting standards require or allow fair value to be applied for initialrecognition for these assets/liabilities. There are two cases when dealing with this problem:

Case 1 - Transaction price accurately reflects fair value:

When the transaction price accurately reflects the fair value, the transaction price will be used to initially recognize the assets/liabilities and there is gain or loss on initial recognition of assets/ liabilities.

Case 2 - Transaction price does not reflect fair value:

When the actual transaction prices that form the assets or the incurence of liabilities do not reflect fair value. Under some specific accounting standards, an entity must determine the fair value of the asset/liability for initial recognition. In this case, gains/losses in day one may arise. IFRS13 and FAS157 allow these amounts to be recognized in the profit/loss statement unless specific accounting standards require otherwise.

When considering whether the actual transaction prices differ from the fair values of the assets and liabilities, the reporting entity should consider the following aspects:

- Transactions with related parties. In many cases, the prices in a related party transaction do not reflect the fair value of the asset/liability unless the entity can demonstrate that the transaction was performed under fully market-appropriate conditions.

- Transactions that take place under unusual conditions, in which the buyer or seller is forced to buy or sell the financial. For example, the seller may be forced to sell the property due to financial difficulties.

- The case where the purchase of an asset or incurrence of a liability takes place in a market other than the primary market for determining the fair value of the asset/liability. For example, the reporting entity is primarily engaged in wholesale business but engages in asset purchases with customers in the retail market. The market in which the actual transaction occurs is then different from the primary market in which the asset is traded (the wholesale market).

- The case where the object of assets/liabilities in the transaction is different from the object of assets/liabilities in the primary market to determine fair value. This is often the case when the reporting entity purchases a group of assets or complex assets that are not traded in the market for a similar unit.

The application of fair value after initial recognition of financial statement's elements

Measurement subsequent to initial recognition at fair value

Under the fair value model, fair value is used for measurement subsequent to initial recognition of items in the financial statements. IFRS 13 and FAS 157 do not specifically address this issue. However, in the specific accounting standards of the US accounting system and the IASB, the use of fair value after initial recognition has been mentioned quite abundantly.

Recognition of changes in fair value subsequent to initial recognition

A particularly important issue in applying the fair value model is the accounting treatment of changes in fair value after initial recognition. This issue needs to be considered in relation to each asset/liability class and there are differences between regulations.

However, from a theoretical perspective, the handling of fluctuations due to changes in fair value of assets and liabilities can be carried out according to the following options:

+ Recognize fair value fluctuations in profit/ lossstatement

The recognition of a change in fair value in the profit/loss for the current period represents an economic approach to determining performance. This approach was proposed in the 1960s and

1970s by scholars who advocated current price and exit price accounting. However, recognizing changes in fair value in the profit and loss statement is inconsistent with the principle of practice and lacks prudence.Thus, this method is mainly applied to assets whose fair value fluctuates frequentlyand duration of the fluctuation is short.

+ Recognize fair value changes in the statement of comprehensive income

The concept of comprehensive income is one of the concrete manifestations of the application of an economic point of view within the framework of accounting regulations in the last years of the 20th century and the beginning of the 21st century. Accordingly, comprehensive income include not only realized profits from ordinary and other activities of the enterprise, but also differences in revaluation of assets/liabilities in some cases.

When fair value is used to measure an asset/ liability after initial recognition, the movements in the fair value of certain assets and liabilities are recognized in the comprehensive income. Usually these differences should be presented separately and on a net basis. It should be noted thatif movements in fair value (gains or losses) have been included in the comprehensive income, when such movements are realized (on sale of assets or settlement of liabilities), the entity does not restate the related income/losses in the profit/ loss statement.

+ Recognize fair value changes directly to equity.

A number of scholars argue that differences in the fair value of assets/liabilities currently held by enterprises are not directly related to the performance of the business. Therefore, it is not appropriate to recognize changes in fair value in the profit/loss statement or the comprehensive income statement. It is recommended that fair value changes be recognized directly in equity until these changes are realized, and adjusted to be recognized in the profit/loss statement.

Thus, from a theoretical perspective, there are different research perspectives on the method of recording fair value changes after the initial recognition of assets/liabilities. However, the regulatory framework of accounting regulation bodies is often not biased towards a specific point of view, but rather applies a combination of these views to each specific group of assets/liabilities.

The application of fair valueunder the IASB and FASB

To obtain a comprehensive assessment of the application of fair value within the framework of US Accounting Principles (US GAAP) and the applicable International Financial Reporting Standards System (IFRS), the authors below systematize the use of fair value in specific standards in the accounting standards systems of these two regulatory bodies:

(1) Concepts and techniques for determining fair value

As shown, the IASB and FASB have quite agreed in their views on fair value and the specific approaches and techniques on fair value are presented in FAS 157 (ASC 820) and IFRS 13.

(2) Long-term assets held for sale (FASB: ASC 360; IASB: IFRS 05)

According to ASC 360 and IFRS 05, long-term assets held for sale are measured at the lower of book value and fair value less costs to sell. Loss due to a decrease in fair value less initial or subsequent sale costs are recognized in profit/ loss unless the increase in value was previously recognized in equity. Changes in fair value less costs to sell are recognized in income but must not exceed recognized accumulated losses.

(3) Property, plant and equipment (FASB: ASC 360, 410, 835, ARB 43, 6 and 29, SFAS 34, 62, 143 and 144; IASB: IAS 16)

- Regarding measurement of initial recognition of property, plant and equipment in exchange transactions, IASB and FASB both agreed to record received assets at fair value. In cases where the fair value cannot be determined, such assets will be recorded at the carrying amount of the exchanged assets.

- Regarding the revaluation model: IAS 16 allows the application of the revaluation model

as an alternative to the historical cost model. Accordingly, assets are valued at fair value less impairment losses. However, FASB does not allow the application of the revaluation model to this class of assets.

(4) Investment properties (FASB: ASC 360, 845, 970, 976; IASB: IAS 40)

It should be noted that under the US GAAP, investment property is not separately regulated but presented in the regulations relating to property, plant and equipment... As a result, the FASB does not permit the application of a revaluation model or a fair value model to this class of assets.

Meanwhile, IAS 40 allows the application of a fair value model to measure investment properties. Accordingly, investment properties are valued after initial recognition at fair value. Changes in fair value are recognized in the profit/loss statement for the period.

(5) Intangible assets (FASB: ASC 340, 350, 360, 720, 730, 805, 985; IASB: IAS 38)

- Intangible assets recognized in a business combination are those that can be separately identified and meet the recognition criteria. These assets are both recognized at fair value under FASB and IASB.

- IAS 38 allows entities to apply the revaluation model to intangible assets in case of operating assets. Under the revaluation model, intangible assets are measured at fair value less impairment losses. However, regulations under the US accounting framework do not allow this model to be applied.

(6) Impairment loss (FASB: ASC 350, 360, 820; IASB: IAS 36)

Impairment loss is recognized when the carrying amount of an asset is greater than its fair value. The US accounting regulations and the IAS both refer to a two-step impairment review process. In addition, impairment recognition is also considered applicable to goodwill formed in business combinations and indefinite useful life assets.

(7) Lease (FASB: ASC 840; IASB: IFRS 16)

The fair value used in the initial recognition of a finance lease is essentially the same as required by the FASB and the IASB. Accordingly, fair value is used to determine the cost of a finance lease asset if it is less than the present value of the minimum lease payments. In addition, fair value is also used in accounting for sale and leaseback transactions in some cases.

(8) Obligations related to liquidation of assets (FASB: ASC 410; IASB: IAS 37)

Liabilities arising on the basis of obligations related to the liquidation of assets or the restoration of production premises are recognized at fair value. Usually, the fair value of this obligation is determined using the discounted cash flow method.

(9) Employee benefits (FASB: ASC 420, 450, 710, 712, 715 and 820; IASB: IAS 19)

Assets arising in connection with the settlement of employee obligations and benefits are measured and recognized at fair value at the date of incurrence.

(10) Share-based payment transaction (FASB: ASC 718; IASB: IFRS 02)

The rules for measuring the amount of share-based payment transactions under the IAS and ASC are essentially harmonized. Whereby :

- For transactions with employees, the fair value of services received from the employee will be determined on the basis of an estimate of the fair value of the share-based instruments. The fair value of these services is not directly estimated.

- For payment transactions with entities other than employees, the value of goods and services received will be measured at the fair value of the respective liabilities. Until the liability is settled, fair value is reviewed at the end of each reporting period.

(11) Financial Instruments (FASB: ASC 310, 320, 815 and 860; IASB: IAS 32, 39, IFRS 09)

Under IAS and ASC, financial assets are initially recognized at fair value. After initial

recognition, the application of pricing models depends on the type of financial instrument. Under the IASB, financial assets are recognized at fair value or at cost with amortization. Movements in the fair value of financial assets are recognized through the profit/loss statement or included in the statement of comprehensive income. The FASB's current regulations from the perspective of applying fair value are similar to those of the IASB.

For financial liabilities and equity instruments, the FASB and the IASB both require initial recognition at fair value. However, ASC 718 specifies that the fair value of liabilities and equity can be determined indirectly through the fair value of assets, goods and services received. After initial recognition, changes in the fair value of some financial liabilities are recognized in the profit/loss statement.

For derivatives, the US accounting framework and the IASB both require initial recognition at fair value. After initial recognition, changes in fair value are recognized in the profit/loss statement, except under certain circumstances.

(12) Business combinations (FASB: ASC 805; IASB: IFRS 03)

These standards all prescribe that the accounting method for business combinations is the acquisition method. Therefore, fair value is used to determine the cost of a business combination. At the same time, the cost of the business combination must be allocated to the fair value of the acquiree's assets and liabilities.

(13) Government Grants (IASB: IAS 20)

IAS 20 regulates government grants, including non-monetary assets, to be recognized at fair value where it can be assured that the entity will comply with the conditions relating to these grants. The US accounting framework does not have corresponding regulations on accounting for government grants.

Conclusion

For Vietnamese enterprises and users of financial statements, the concept of fair value and the application of fair value in accounting is completely new. Therefore, it is necessary to have evaluation in using of fair value, in measuring of elements. Recomendations and roadmap for applying fair value are essential.

References:

Antonio Parbonetti Springer (2014) Fair value accounting: information or confusion for financial markets? https://link.springer.com/article/10.1007/s11142-014-9306-7

Christian Laux, Christian Leuz (2009) The crisis of fair value accounting: Making sense of the recent debatehttp://www.sciencedirect.com/science/article/pii/S0361368209000439

FASB, The financial accounting standards

IASB, The international financial reporting standards

Jonas da Silva Oliveira, Graça Maria do Carmo Azevedo, Cláudia da Silva Amaral Santos, Sandra Cristina Santos Vasconcelos, (2015) Fair value: model proposal for the dairy sector. Agricultural Finance Review, https://doi.org/10.1108/AFR-04-2014-0008

Joshua Ronen (2008) Fair Value or Not to Fair Value: A Broader Perspective http://onlinelibrary.wiley.com/doi/10.1111/j.1467- 6281.2008.00257.x/full

Noriaki Okamoto (2014 Fair value accounting from a distributed cognition perspective http://www.sciencedirect.com/science/article/pii/S0155998214000283

Stephen H. Penman (2007) Financial reporting quality: is fair value a plus or a minus? http://www.tandfonline.com/doi/abs/10.1080/00014788.2007.9730083?journal Code=rabr20

Wayne R. Landsman (2007) Is fair value accounting information relevant and reliable? Evidence from capital market research. Business

Proceedings of the workshop: IFRS – Opportunities and challenges when applying in Vietnam.

National Assembly (2015), Law on Accounting 88/2015/QH13, promulgated on November 20, 2015.

The Ministry of Finance. Content and guidance of 26 Vietnamese accounting standards

Decision 480/QD-TTg dated 18/3/2013 of the Prime Minister approving the Strategy of Accounting - Auditing to 2020, vision to 2030

Resolution 35/NQ-CP dated May 16, 2016 of the Government on supporting and developing businesses until 2020

Tran Quoc Thinh (2014). Orientation to develop Vietnamese financial reporting standards to meet the trend of international accounting convergence. PhD thesis. City University of Economics. HCM.

Le Hoang Phuc (2014). Applying international accounting standards to improve the corporate financial reporting system in Vietnam.

http://www.ifrs.org

http://duthaoonline.quochoi.vn

www.mof.gov.vn

www.sbv.com.vn

http://m.tapchitaichinh.vn/nghien-cuu--trao-doi/trao-doi-binh-luan/cac-nhan-to-tac-dong-den-qua-trinh-van-dung-gia-tri-hop-ly-trong-ke-toan-tai-viet-nam-96529.html

http://m.tapchitaichinh.vn/nghien-cuu--trao-doi/trao-doi-binh- luan/cac-nhan-to-tac-dong-den-qua-trinh-van-dung-gia-tri-hop-ly-trong-ke-toan-tai-viet-nam-96529.html

ACCOUNTING INFORMATION SYSTEM AT VIETNAM POSTS AND TELECOMMUNICATIONS GROUP

MA. Nguyen Thi Phuong Tuyen*

Abstract: ***The accounting information system plays an important role in management in enterprises, especially those operating under the corporate model. Enterprises with a good accounting information system will bring a quality accounting report system, provide effective information for business decision-making, support the operation of the internal control system and provide accounting information for internal and external users. The article points out the differences between the accounting information systems at economic groups and single enterprises. Meanwhile, the article explores the current status of the accounting information system at Vietnam Posts and Telecommunications Group, thereby evaluating and offering some solutions to improve the accounting information system at the Group.***

• Keywords: *accounting information system, Vietnam Posts and Telecommunications Group.*

Date of receipt: 02nd November, 2022

Date of delivery revision: 08th November, 2022

Date of receipt revision: 15th December, 2022

Date of approval: 01st February, 2023

Tóm tắt: *Hệ thống thông tin kế toán đóng vai trò quan trọng trong công tác quản lý tại các doanh nghiệp, đặc biệt là các doanh nghiệp hoạt động theo mô hình tập đoàn. Doanh nghiệp có hệ thống thông tin kế toán tốt sẽ mang lại hệ thống báo cáo kế toán chất lượng, cung cấp thông tin hữu hiệu cho việc ra quyết định kinh doanh, hỗ trợ hoạt động của hệ thống kiểm soát nội bộ và cung cấp thông tin kế toán cho các đối tượng sử dụng nội bộ và bên ngoài. Bài viết chỉ ra những điểm khác biệt giữa hệ thống thông tin kế toán tại tập đoàn kinh tế và doanh nghiệp đơn lẻ. Trong khi đó, bài viết tìm hiểu thực trạng hệ thống thông tin kế toán tại Tập đoàn Bưu chính Viễn thông Việt Nam, từ đó đánh giá và đưa ra một số giải pháp nhằm hoàn thiện hệ thống thông tin kế toán tại Tập đoàn.*

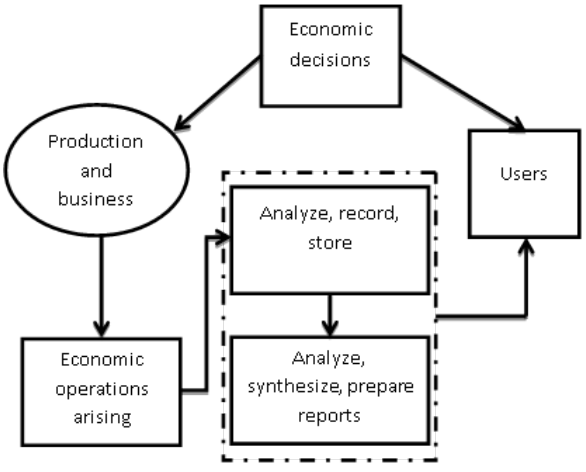
• Từ khóa: *hệ thống thông tin kế toán, Tập đoàn Bưu chính Viễn thông Việt Nam.*

1. Theoretical basis

1.1. Overview of accounting information systems

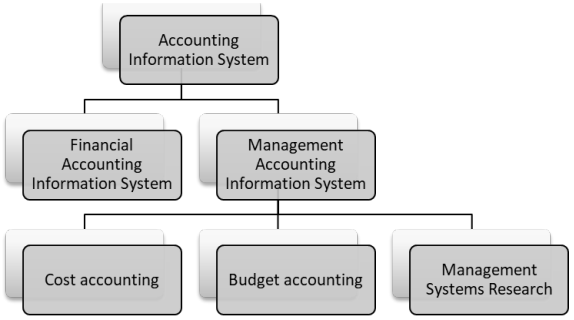
The accounting information system is a channel of the management information system. It collects, processes financial transactions, analyzes, and provides financial information for users to use to make their business decisions. Every day, when economic transactions occur, they are classified, recorded, and stored by the accounting information system. When requested by users, the accounting information system will analyze, synthesize and make appropriate reports from the stored records to provide information to users. Therefore, the accounting information system is the intersection of accounting work and information systems, established to collect, process, store, and provide accounting information to people who need to use it.

Diagram 1: General accounting information system



* *Academy of Finance; email: nguyenphuongtuyen@hvtc.edu.vn*

Diagram 2: Structure of accounting information systems



Accounting information system includes: System of accounting vouchers, system of accounting books, system of accounts and accounting reports. The accounting information system has a central role in connecting other systems (For example, to provide information about the purchase, the accounting department must coordinate with the purchasing planning department to provide information of consumption; to provide the salary information, the accounting department must coordinate with the human resources department, etc.). The delay and inaccuracy of the accounting information system will affect the operation and reputation of the business.

For example, if the accountant delays in the processing of documents, this will affect the supplier's delivery, thereby affecting the production and business process of the enterprise; or providing incorrect information to investors that makes the business lose reputation...

It is necessary to establish a process for making and circulating accounting documents. Vouchers are the input elements of the accounting information system. The output of the accounting information system is financial information presented in accounting books, reports and other non-financial information including data on salary calculation for employees in the company, accounting for receivables, payables, inventory, revenue, recording revenue and expenditure; preparing financial accounting reports, management reports, strategic planning... Structure of accounting information system is shown in Diagram 2. Financial accounting means collecting, processing, investigating, analyzing and providing economic and financial information in financial statements. Users are mainly outsiders such as investors, banks, tax authorities, financial authorities, statistical agencies, even competitors...

Table 1. Distinguishing economic groups from single enterprises

Criteria	Economic groups	Single enterprise
Legal status	The Group has no legal status while the parent company and its subsidiaries have legal status and equality to the law.	Having independent legal status, responsible to the law. for all of its business activities
Organizational structure	The parent company acts as the nucleus with its subsidiaries as satellites around the nucleus. The link between the parent company and the subsidiary is different because of the operation characteristics of the subsidiary. There is compliance between superiors and subordinates.	There is compliance between superiors and subordinates
Scale	Large scale in terms of capital, labor, technology, revenue and operating scope in many area.	Usually small in terms of capital, labor, operating in the same area
Related relationship	A group of companies linked together financially through capital investment. Links on production, trade and technology	The link between superiors and subordinates in the performance of production and business tasks; The relationship between departments in performing their functions.
Industry and business field	Diversifying in business lines to reduce risks; often choosing a main industry as the core for the development strategy.	Usually focus on producing a specialized item.
Ownership	Multiple ownership	A type of ownership

Management accounting information system is an operational information system to collect, process, analyze and provide economic and financial information according to the requirements of management for internal financial decisions at the accounting unit. Because the information is created according to administrative requirements, the users are inside the enterprise. Management accounting information system includes: cost accounting, budget accounting and management system research, which is responsible for supporting managers in functions related to purchasing activities, processing, distribution and sales in the enterprise. The purpose of an accounting information system is to identify, collect, classify, record and report an organization's economic and financial transactions,

to satisfy the information and control functions of accounting activities. An effective accounting system must ensure detailed control objectives: Authenticity (do not record unreal transactions in the accounting books); approval (ensure all transactions are properly approved); completeness (ensure the complete reflection of arising economic transactions); evaluation (ensure there are no errors in the calculation and evaluation); classification (ensure the correct recording of accounts and books according to the regime); timely calculation (recording arising economic transactions on the accrual basis); The process of transferring books and summarizing must be accurate (data recorded in the books must be added with the arising numbers, drawn the ending balance, accurately transferred, summed up and presented in the financial statements accurately). Currently, accounting software and developed network systems have supported the development of accounting information systems.

Table 2. Distinguishing information systems of economic groups from single enterprises

Criteria	Economic groups	Single enterprise
Structure of accounting information system	Design the accounting information system at the parent company down to the member companies according to the relationship of capital, technology and market. At the parent company, design the parent company's own accounting information system, and at the same time establish a consolidated accounting information system for the whole group. At the subsidiaries, a separate and unified accounting information system is formed between the subsidiaries in the group and the parent company	Designing a unified accounting information system in a specific unit ensures the process efficiently receive, process and provide information.
Functions and duties of each position	At the parent company and its member companies, the functions and duties of each position in the accounting information system will be detailed. The parent company does not stipulate in detail the functions and duties of each position at the member companies	The functions and duties of each position in the enterprise's information system must be described in detail.
System control policies and procedures	Specifically developed at the parent company and its member companies. The parent company does not develop detailed procedures for member companies. Specifically built at the parent company and member companies. The parent company does not develop detailed procedures for member companies.	Control policies and procedures are developed specifically and detailed in the established cycle
Objectives of the accounting information system	Ensure the individual goals of each member company and the whole group	Ensure the objectives of the enterprise
Operating an accounting information system	When operating an accounting information system, it is necessary to pay attention to the difference between a corporation and a single enterprise	Operating in accordance with a unified design in an enterprise

1.2. Distinguishing accounting information systems at economic groups from single enterprises

Setting up accounting information systems must be associated with a specific unit. Each unit has its own characteristics that require managers to recognize in order to design an appropriate accounting information system. Each economic group has its own differences from a single enterprise (Table 1). Therefore, the design and operation of the accounting information system in each model also have fundamental differences (Table 2).

2. Actual situation of accounting information system at Vietnam Posts and Telecommunications Group

Vietnam Posts and Telecommunications Group (VNPT) was established on April 30, 1995. In 2006, VNPT officially changed into a corporation model, replacing the old corporation model according to the Prime Minister's Decision No. 06/2006/QD-TTg. On June 24, 2010, the parent company - Vietnam Posts and Telecommunications Group transformed its operations into a one-member limited liability company owned by the State under Decision No. 955/QD-TTg of the Prime Minister. VNPT specializes in the following areas:

- Telecommunications products and services, information technology and multimedia communication;

- Surveying, consulting, designing, installing, exploiting, maintaining, repairing and leasing telecommunications and information technology works;

- Research, develop, manufacture and manufacture telecommunications and information technology equipment and products;

- Trading and distributing telecommunications equipment and information technology products;

- Advertising services, market research, organizing conferences, seminars and exhibitions related to the field of telecommunications and information technology;

- Real estate business, office leasing;

- Financial services in the field of telecommunications, information technology and multimedia communication.

On June 10, 2014, the Prime Minister signed Decision No. 888/QD-TTg, approving the Restructuring Project of Vietnam Posts and Telecommunications Group for the period 2014 - 2015. VNPT transferred the Corporation. Mobile Communications VMS-Mobifone and Vietnam Post and Telecommunications Institute of Technology on the Ministry of Information and Communications and established 3 corporations including: Telecommunications services (VNPT-VinaPhone), Network infrastructure (VNPT-Net), Communications (VNPT-Media).

VNPT is an enterprise with strong network infrastructure with international telecommunications segment. Mobile communication network (over 75,000 2G, 3G, 4G transceiver stations, covering 63/63 provinces and cities across the country), Vinasat satellite system: VNPT is the only telecommunications enterprise in Vietnam approved by the State. and the Government entrusted the investment and management of Vietnam's telecommunications satellite system.

On December 29, 2017, according to Decision No. 2129/QD-TTg approving the plan to restructure the Vietnam Posts and Telecommunications Group (VNPT) in the 2018-2020 period into a strong state economic group; becoming a leading digital service provider in Vietnam and a digital transaction center in Southeast Asia and Asia.

The equitization of the parent company - VNPT ensures the completion of the equitization of the Group in 2019 in accordance with the provisions of Official Letter No. 991/TTg-DMDN dated July 10, 2017 of the Prime Minister.

Parent company - VNPT is responsible for the whole Group's production and business activities. Annually, planning and directing production and business activities for subordinate units, arranging personnel and organizing financial - accounting work of the whole Group. Promulgating and implementing specific standards on emulation, commendation and discipline of the industry. Currently, to serve strategic management based on measurement and evaluation results, VNPT uses a balanced scorecard system (Balance Scored Card-BSC). Work efficiency is assessed through KPI (Key Performance Indicator) which is a tool used to reflect the performance of organizations and departments through the system targets, data, rates... are the most accurate. The 3Ps salary method is based on (1) job position (Position), (2) individual capacity (Person) and (3) work results (Performance). Every year, the Group assigns plans and tasks: output, number of subscribers/ services, subscriber development, exploitation traffic... for 63 VNPT provinces and cities. The Group's production and business plan assigned to dependent units is based on the proposed plan for implementation of business results of VNPT province and city, which is prepared annually and submitted to the Group, then the Group considers and assigns the plan. Official plan for VNPTs in provinces and cities.

The group includes the following members:

- The dependent accounting units include: 63 members (63 VNPT provinces/cities), Network Infrastructure Corporation (VNPT - Net), Research and Development Center (VNPT - RD) and High School of Posts and Telecommunications & ICT2, Group office. At this unit, there is a seal, an account and a certificate of operation registration.

- Non-business units include: Postal Hospital, Nursing and Rehabilitation Hospital Post Office I...

- Subsidiaries with 100% charter capital owned by VNPT include: General Communications Corporation (VNPT - Media), Corporation Telecommunications Services (VNPT - Vinaphone). Post and Postal Finance Company Limited, Optical Cable One Member Limited Liability Company. Subsidiaries are joint stock companies and limited liability companies with 2 or more members.

- Joint ventures, affiliated companies.

At the parent company, according to the results of surveys, interviews and documents, the most important requirement for the organization of accounting work is the consolidation of financial indicators. To do this, it is necessary to have a clear division of work, to establish an accounting relationship between the member units to provide

all necessary information for the consolidation of financial statements. The system of vouchers, accounts, and accounting books are implemented in accordance with Circular 200/2014/TT-BTC; Standard 25 "Consolidated financial statements and investments in subsidiaries"; Standard No. 07 "Accounting of investments in associates"; Standard No. 08 "Financial information on contributions to joint ventures; Standard No. 11 "Business Combinations". The account system is built uniformly at the parent company and member companies. Consolidation-related accounts are specified and detailed such as: Internal liabilities, internal revenue, financial investment, and additional level 2 and 3 accounts. In addition to reporting, separate financial statements of the parent company, the parent company must also prepare consolidated financial statements, including: Consolidated balance sheet; Consolidated business results report; Consolidated cash flow statement; Notes to the consolidated financial statements. In general, the accounting information system at the parent company performs well and meets the requirements of those who need accounting information.

At the member companies, the survey results on the accounting information system are shown in Table 3. According to the survey and interview results at the member companies, most companies apply the accounting system according to Circular 200/2014/TT-BTC issued by the Minister of Finance on December 22, 2014. Therefore, the application of the system of vouchers, accounts, accounting books and accounting reports at enterprises must comply with this Circular.

Document system: The system of documents at the parent company and its subsidiaries is implemented in accordance with Circular 200/2014/TT-BTC. In addition to the mandatory documents specified in the decision, the parent company and member companies of the Group also use guiding documents designed by enterprises, ensuring sufficient information on the vouchers to reflect and demonstrate transactions occurring at the enterprise. Checking and processing of documents are not only done in the accounting department but also in different departments. The content of the document inspection includes: Checking all 5 basic elements on the voucher (name of the document, date of issue, number and signature, seal, content of the document, measurement unit); Checking the legitimacy, rationality and validity of vouchers when reflecting arising transactions; Check the management, rotation and approval of documents. All documents at the company have regulations on where to store and guide the use of documents. Most companies have to check documents before they are recorded in accounting books.

Table 3. Survey results on accounting information system

Question	Content of accounting information system	Yes	No	Not applied
1	Is your company currently applying Circular 200			
2	Is the document approval procedure at the company done on a computer?			
3	Does the company clearly specify in writing the order of making and circulating documents?			
4	Does the company stipulate the decentralization of signing of written accounting vouchers to ensure the requirements of strict management, control and safety of assets?			
5	Does the company guide the use of vouchers and forms?			
6	Does the company regulate the storage of accounting vouchers and documents?			
7	Does the company's accounting account system open details to level 2 and 3 accounts to match the characteristics of the unit and meet management requirements?			
8	Is the company applying General Journal done by accounting software?			
9	Is the accounting software decentralized to handle accounting tasks?			
10	Is the financial reporting system according to the accounting regime that the company is applying suitable for providing information to fulfill obligations to the State?			
11	Does the company print accounting books every month?			
12	Does the company have a management accounting system?			
13	Does the company in the group use e-invoices?			
14	Is there an automatic check reconciliation?			
15	Are electronic signatures used?			
16	Is the system of lists of accounting objects (customers, departments, cases...) consistent throughout the group?			
17	Is the detailed account system set up consistently throughout the group?			

Question	Content of accounting information system	Yes	No	Not applied
18	Is the same type of software used throughout the corporation?			
19	Is the computer system networked throughout the corporation?			
20	Is financial accounting and management accounting in the same system? (Are there lists, vouchers and tables in the software used to serve the purposes of both financial accounting and management accounting?)			

Source: Author

Most companies have clearly defined in writing regulation the order of making and circulating accounting vouchers, as well as signing documents. There are still some types of documents that have not been specified in the order of circulation. As a result, the probability of errors is still high. Some enterprises (17% of enterprises surveyed) do not stipulate in writing the decentralization of signing of accounting vouchers (so it is difficult to clearly define responsibilities and powers); failing to issue a document assigning responsibilities to each department or individual in drafting documents; does not provide specific instructions on the use of forms and vouchers in the unit. Some documents have not fully promoted the control function, such as the warehouse receipt, which lacks the following elements: Contract number, order number, invoice number. Most companies do not have a computerized document approval process.

Account system: The account system of the Group's companies is opened in detail to track information suitable to the characteristics of each unit and meet management requirements. Some accounts reflecting liabilities and expenses are opened in detail to each customer and expense object in order to collect, classify, record and report information about accounting objects. Currently, most of the Group's companies use accounting software for accounting, and decentralized accounting software to handle tasks. The parent company also does not regulate the accounts used at the subsidiary. Most companies open detailed accounts to manage and track assets, capital, revenue, and expenses.

In addition, the process of building a detailed account system at most companies in the Group has focused on collecting management accounting information for production and business decision-making; collect information for the analysis of the implementation of the business plan; Gather information for the preparation of the cash flow statement and the consolidated financial statements of the parent company

Besides, when building a detailed account system, most of the companies in the Group have focused on collecting management accounting information for making production and business decisions; collecting information for the analysis of the implementation of production and business plans; collecting information for the preparation of cash flow statements and consolidated financial statements at the parent company.

Accounting book system: The form of bookkeeping applied in most companies of the Vietnam Posts and Telecommunications Group is the general journal form in accounting software. The advantage of this form is that it is convenient to apply accounting software to accounting work, simple, easy to do and easy to compare.

Currently, most businesses have successfully applied accounting software to administration, setting up reports, books and vouchers very quickly. The accounting book system is designed and used in detail in the software at the companies in the Group to synthesize management accounting data for production decision making. To ensure the accuracy of data on general and detailed accounting books, companies have also developed procedures to check the accuracy of data entered into the software. In order to prevent unauthorized interference with the database of the software, the companies have developed control procedures for accessing the software such as: user registration and password system. In addition, companies also use a network connection system between computers in the accounting department, and use and review the computer operation log in the room to detect unauthorized access to the database.

System of reports: According to the State's regulations, accounting reports include: balance sheet, statement of business results, statement of cash flows, notes to the financial statements. In addition, the parent company must also prepare a consolidated report in accordance with the provisions of the current accounting regime and relevant accounting standards. In general, the Group's companies make reports in accordance

with the regulations of the State and the regulations of the Parent Company.

However, reports for management accounting purposes need to be set up and implemented more thoroughly. Most of the surveyed companies have set up management accounting at the enterprise on the basis of exploiting the provided financial accounting data. When deciding on management, managers require the accounting department in affiliated units and independent subsidiaries to report quickly, once a month, with very important reports: Report on the performance of output, production and consumption of products, report on the implementation of production costs. The current software not only supports the preparation of financial statements in the company, but also supports many management reports

To synthesize quick reports for management decisions, accountants are currently doing it manually on Excel, giving specific details to summarize decision-making reports. However, the figures are also partially derived from the financial accounting system.

3. Solutions to improve the efficiency of the accounting information system at Vietnam Posts and Telecommunications Group

The accounting information system at VNPT Group plays a key role in providing useful, timely and highly reliable accounting information, meeting the information needs of managers at all levels. It has basically complied with the current Accounting Standards, Principles, and Regulations as well as specific regulations of VNPT Group. The accounting work at companies has basically provided information to meet the requirements of management and control of the assets, liabilities, sales, capital, revenue and expenses. However, there are some limitations that need to be improved.

Firstly, it is necessary to be aware of the importance of accounting work. All activities of an enterprise related to finance must be recorded for management purpose. The requirements for the quality of financial accounting information of the Group must be under the strict management, inspection and supervision of the State, because the capital of the Group is mainly the capital of the State.

Secondly, design accounting voucher system and accounting voucher procedures. Companies must officially issue regulations on forms and procedures for documents of each specific transaction in accordance with the requirements of the audit. Regulations on document procedures need to be formalized so that individuals and departments involved in such transactions understand their responsibilities and jobs in preparing, receiving, processing, checking vouchers; arrange and categorize documents, then make entries and record in accounting books.

Thirdly, it is necessary to consistently use the general journal form and apply accounting software to process accounting data more effectively.

Fourthly, upgrade the accounting reporting system. Enterprises in the Group need to research, design and apply a management reporting system, for example, a reporting system that provides information for strategic planning by senior managers, including detailed revenue and profit reports by type of product, report on output, sales revenue by geographical area, report on implementation of production and business plans such as reports of differences between actual and planned numbers on consumption, production in different stages…

Finally, perfecting the organizational model of management accounting at member companies of the Vietnam Posts and Telecommunications Group. The organizational model of financial accounting combined with management accounting has the advantage of being easy to apply effectively, taking advantage of the relationship between financial accounting and management accounting. The combined model of financial accounting and management accounting needs to be organized consistently at businesses in the Group.

References:

Huynh Thi Hong Hanh, Nguyen Manh Toan,2013, "Evaluating the effectiveness of the accounting information system", Journal of Accounting and Auditing - 6/2013.

Pham Duc Dung, Thieu Thi Tam, Nguyen Viet Hung, Pham Quang Huy (2008), "Accounting information system", Statistical Publishing House

Nguyen The Hung 2008, "Accounting information system", Statistical Publishing House.

Adel M Quatawneh,"The role of human resource accounting information on the accounting information system" European Journal of Business and Management, Vol,5, No13, pp137-140,2013.

FACTORS INFLUENCING TO GREEN CUSTOMER BEHAVIOR OF GEN Z: A STUDY IN HAI PHONG

MA. Le Hong Nhung*

Abstract: ***Adopting Theory of Planned Behavior (TPB), this paper indicates relationships and their effect of factors influencing to green consumer behavior in Haiphong. It also aims mostly to Gen Z, who were born from 1997 to 2002, are potential customers in future. Conducted in a period of time from 2021 to 2022, the questionnaire survey approached 120 respondents. By using Exploratory Factor Analysis (EFA) and linear regression analysis, the study shows that that there are three groups of factors influencing on green buying, including attitudes towards the behavior, subjective norms and perceived behavioral control. Specifically, attitudes towards the behaviors are the most influential factors triggered on the intention of buying green products while subjective norms are the weakest factors. In addition, the young people living inner areas in Haiphong tends to care and purchase green products more than those in other areas. They are also affected by their families and acquaintances before making green decisions. Thus, the author suggests that organizations and retailers have to develop marketing strategies about green purchasing in Haiphong's remote areas, by the way focusing much more on Gen Z customers.***

• Keywords: *green customer behavior, TPB, gen Z.*

Date of receipt: 02nd November, 2022
Date of delivery revision: 08th November, 2022
Date of receipt revision: 15th December, 2022
Date of approval: 01st February, 2023

Tóm tắt: *Thông qua Lý thuyết hành vi có kế hoạch (TPB), bài báo này chỉ ra mối quan hệ và ảnh hưởng của các yếu tố ảnh hưởng đến hành vi tiêu dùng xanh tại Hải Phòng. Nó cũng chủ yếu nhắm đến Gen Z, những người sinh từ 1997 đến 2002, là những khách hàng tiềm năng trong tương lai. Được thực hiện trong khoảng thời gian từ 2021 đến 2022, khảo sát bằng bảng câu hỏi đã tiếp cận 120 đáp viên. Bằng việc sử dụng phương pháp Phân tích nhân tố khám phá (EFA) và phân tích hồi quy tuyến tính, nghiên cứu cho thấy có 3 nhóm nhân tố ảnh hưởng đến hành vi mua xanh bao gồm thái độ đối với hành vi, chuẩn mực chủ quan và nhận thức kiểm soát hành vi. Cụ thể, thái độ đối với hành vi là yếu tố tác động mạnh nhất đến ý định mua sản phẩm xanh trong khi chuẩn mực chủ quan là yếu tố yếu nhất. Bên cạnh đó, giới trẻ sống nội thành Hải Phòng có xu hướng quan tâm và mua sắm các sản phẩm xanh hơn so với các khu vực khác. Họ cũng bị gia đình và người quen tác động trước khi đưa ra những quyết định xanh. Do đó, tác giả gợi ý rằng các tổ chức và nhà bán lẻ phải phát triển các chiến lược tiếp thị về mua hàng xanh ở vùng sâu, vùng xa của Hải Phòng, bằng cách tập trung nhiều hơn vào khách hàng Gen Z.*

• Từ khóa: *hành vi tiêu dùng xanh, TPB, Gen Z.*

1. Introduction

Lately, it is clear that environmental concerns have become increasingly crucial topics. There are many of studies that research about relationship in green purchasing, green consumer's awareness and their effect to industrial firms. The rise of green consumption changes in both consumers and business. Besides, eco-friendly product perceptions can lead to a potential increase of these products' market in future (Brécard, D., Hlaimi, B., Lucas, S., Perraudeau, Y., &Salladarré, F. 2009).It seems to consider that consumer's green purchasing decisions are influenced by their environmental consciousness, especially their attitudes (Bodo B. Schlegelmilch, Greg M. Bohlen and Adamantios Diamantopoulos). In business perspective, Linghong Zhang, Jingguo Wang, Jianxin You (2014) notedthat both manufactures and retailers could improve their profit thanks to consumer environmental awareness. In detain, green purchasing activities are not only researched in business-to-consumer contexts but also in business-to business ones. There is a strongly positive relationship between top-management commitments and collaboration with suppliers. In detail, green purchasing can be boosted by logistical and technical integration with suppliers (Yu-Xiang Yen, Shang-Yung Yen 2011). In Vietnam, the government (2012) affirmed its opinion

** Vietnam Maritime University; email: nhunglh@vimaru.edu.vn*

about environmental issues in green and sustainable development by raising public's environmental consciousness and encouraging green purchasing in the whole country. More Vietnamese people tends toconcern and buy eco-friendly products, particularly in urban areas such as Ho Chi Minh city, Hanoi, Haiphong... However, higher price is regarded as the main barrier that makes green purchasing habit reluctant.

In research perspectives, there are plenty of domestic and foreign articles relating to these topics. J.A Roberts and D.R Bacon (1997) focused on the relationship between Environmental Concern and Ecologically Conscious Consumer Behavior (ECCB) by designing 12-item the New Environmental Paradigm (NEP) scale. Dorothée Brécarda, Boubaker Hlaimi, Sterenn Lucas, Yves Perraudeaua, Frédéric Salladarré (2009) mentioned about the willingness of eco-labeling and determinants affecting to European consumers about ecological issues. Moreover, the study also demonstrated the definition of "green-fish consumer". They are young female who have a good education and concern about the sustainability of marine eco systems. By interviewing 6,010 teenagers in Hong Kong, Kaman Lee (2009) indicated that teen-boys' reported grades were considerably lower than those of teen-girls in 5 out of 6 factors, except for self-identity in environmental protection.

Otherwise, many Vietnamese authors studied about green purchasing and research models to grasp well the understanding of friendly - environment issues and recommend social-economic solutions. Hoang, T. T. B. (2016) explored gender differences affected to levels and influences of green purchasing intention throughout Hanoi and Ho Chi Minh City. The paper also emphasized lower income and street marketing shopping are obstacles to green intention and purchasing behaviors. Nguyen, V. T. T et al. (2017) were pioneers who used Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM) to explore green food purchasing intention in Vietnam. They also adopted Structural Equation Modelling (SEM) as the main conceptual model in their study. Ho, T.,H,., et al. (2018) suggested two new determinants (perceived risks and trusts) which were developed from Theory of Planned Behavior (TPB) affected positively togreen consumer behavior. Tran., Y,., T., B., et al (2020) explained young people's intention to using eco-friendly straws in Mekong Delta River by testing Exploratory Factor Analysis (EFA) and linear regression analysis. They indicated that the organization rules and culture were main reasons that impacted to these young consumers.

However, general limitations of these above studies are that they often focused on specific types of customer segmentation or environmentally-friendly products or services like green food, straws… or business insights. Secondly, the relationship between customer behavior and other biological and marine field such as eco-labelling fishing were explored. In addition, there are a lack of professional articles about the green purchasing of Generation Z in customer behavior and intention perspectives. Frank and Chong (2002) proved the purchasing power of young people because of their capability of disposal income. Finally, most Vietnamese authors selected Hanoi and Ho Chi Minh City to survey green purchasing issues.Other big cities like Haiphong, Danang… in Vietnam have not yet been studied.

2. Theoretical background and prosed research model

2.1. Theoretical background

Consumer behavior

According to Kotler and Keller (2012), consumer behavior is "the study of how individuals, groups, and organizations select, buy, use, and dispose of goods, services, ideas, or experiences to satisfy their needs and wants".

Peter D.Bennet (1988) said consumer behavior refers to action and decision process of people who purchase goods or services for personal consumption.

Green purchasing

Carter et al., 1998 defined that green and environmental purchasing is the involvement of purchasing function in supply chain management activities such as life-cycle analysis and environment design that facilitates recycling, reuse, and resource reduction. In addition, green purchasing is regards as green purchase intention as consumers' willingness to purchase green products (Ramayah, Lee, and Mohamad 2010).

Green purchasing behavior

Lee (2009) said green purchasing behavior is the consumption of products that are benevolent and beneficial to the environment, recyclable and conservable, or sensitive and responsive to ecological concerns.

Generation Z

The Pew Research Center defined Generation Z as people born from 1997 onward, choosing this

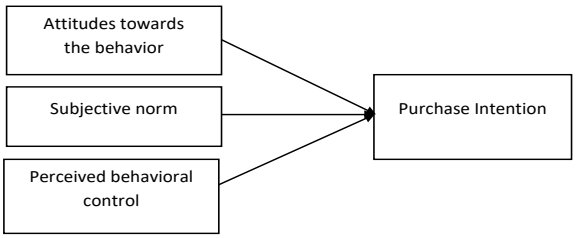
date for "different formative experiences," such as new technological developments and socioeconomic trends, including the widespread availability of wireless internet access and high-bandwidth cellular service, and key world events. The American Psychological Association also started Generation Z at 1997.

2.2. Proposed research model

Theory of Planned Behavior (TPB)

Generally, theory of Planned Behavior (TPB) (Ajen, 1985) are often approached to develop many studies about purchasing behavior issues. The study mentioned three factors, including attitudes towards the behavior, subjective norm and perceived behavioral control.The theory proved that that peopleperceivepositively about behaviors and theirpeer groups constitute expect them to perform these behaviors can boost them to make more desire it. As a result, they tend to do it more than usual.

Figure 1. Theory of Planned



Behavior (TPB) (based on Ajzen, 1985, 1991)

Attitude

According to Ajen (2001), attitudes are general evaluations of objects, people or topics, characterized by a clear tendency toward one direction. Clearly, many authors showed that there are many relationships between motivational variables and different types of behavior (Black, J. S., Stern, P. C., &Elworth, J. T. 1985). In addition, several studies showed there is a positive correlation between attitude and consumer behavior like Andrea K. Moser (2015), Nguyen, V. T. T et al. (2017), Kaman Lee (2009). Particularly, Andrea K. Moser (2015) thought that environmental attitudes related to consumer's green concerns. Nguyen, V. T. T et al. (2017) also agreed the same above opinion. Kaman Lee (2009) analyzed the gender difference towards environmental issues and proved that teen girls's grades about environmental attitude were higher than these of teen boys. Therefore, it is posited that:

H1: Attitudes towards the behavior has a positive influence on green purchasing intention

Subjective norms

Ajen and Madden (1986) mentioned that subjective norm issocial factor and it refers to the perceived social pressure to perform or not to perform the behavior.Andrea K.Moser (2015) analyzed a personal norm, especially willingness to pay affected heavily to green purchasing behavior more than other factors. Nguyen, V. T. T et al. (2017) also agreed the same above opinion after testing the hypothesis (Cronbach's Alpha 0.834; KMO 0.785, Eigen - value 1.525). Referencing from existingliteraturesonsubjective norms, it is hypothesized that:

H2: Subjective norm has a positive influence on green purchasing intention

Perceived behavioral control

Alexander Grob (1995)thought that the perceived control component involves beliefs about the efficacy of science and technology and beliefs about self-efficacy. Similarly, Ajen and Madden (1986) regarded it as the person's capability of performing behavior. Therefore:

H3: Perceived behavioral control has a positive influence on green purchasing intention

Perceived risks

Raymond Bauers (1960) identified that it was in a purchase situation, there seems to be some reasonable evidence that subsequent consumer behavior can be determined in accordance with such risk. Thus:

H4: Perceived risks has a positive influence on green purchasing intention

Past experience

Pipitvanichtham, P. (2013)proposed a new factor - past experience to build the theoretical model in Thailand.Ho, Tr., L., Th., and Phan., Th., Th., Ph., (2018) proved that pas experience was the most influential factor in their paper. Specially, the study showed that tourists who have experienced environmental memories will tend to go green in further experienced travels. Thus, it is posited that:

H5: Past experience has a positive influence on green purchasing intention

Based on TPB and above researches, the author suggests the research model with hypotheses as below:

H1: Attitudes towards the behavior has a positive influence on green purchasing intention

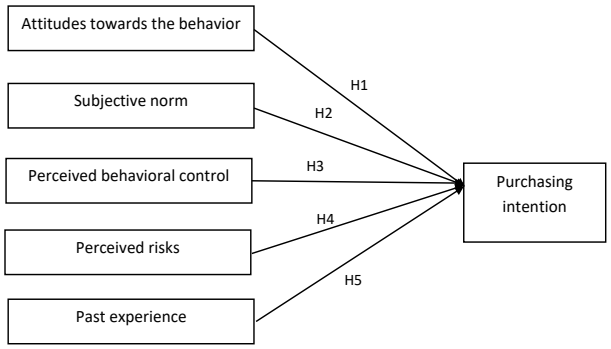
H2: Subjective norm has a positive influence on green purchasing intention

H3: Perceived behavioral control has a positive influence on green purchasing intention

H4: Perceived risks has a positive influence on green purchasing intention

H5: Past experience has a positive influence on green purchasing intention

Figure 2. Research model



3. Research methodology

The respondent

According to Chau and Ngai (2010), there are significant differences between young generation and others like material consumption, personal success samples. Suhr (2006) showed the number of o,the number of observations in the Exploratory Factor Analysis method must be at least 5 times the number of observed variables in the factor analysis. Thus, being conducted in Haiphong, the survey approached 120 respondents who are Gen Z and live in Haiphong. They are often well-educated and approach many types of media about environment protection, green products as well. Personal interviews were selected in order to collect necessary primary data. Besides, convenience sampling was adopted in the study. Before interviewing respondents, researchers conducted to take 10 respondents' advice to ensure the reliability and suitability of the questionnaire survey. Researchers would provide and explain involved questions, collect data in selected survey areas like online classrooms, Haiphong students and young people groups or clubs, by email… The survey took place from 2021 to 2022.

Data collection method

According to Suhr (2006), the number of observations in the Exploratory Factor Analysis method must be at least 5 times the number of observed variables in the factor analysis.With 23 observed variables and 5 components, the minimum sample size must be N = 23 × 5 = 115 observations. Thus, 120 observations can meet the conditions.

Data analysis methods

The study used SPSS software to analyze collected data. The Exploratory Factor Analysis (EFA) and linear regression analysis were adopted to group influencing factors in green purchasing intention. To remove the inappropriate variables in the research, Cronbach's Alpha coefficient was tested in the factor analysis step. Finally, to estimate the influential level of independent variables on dependent variable - green purchasing intention, linear regression method was adopted.

Measurement variables

Thanks to previous papers like Tran, Y., T., B. et al. (2020), Nguyen, V. T. T et al. (2017), measurement criteria were based in the topic. Moreover, the study used 5-point Likert scale, ranging from strongly disagree (1) to strongly agree (5).

4. Results

From 2021 to 2022, 120 questionnaires were delivered and analyzed in the study. The author uses descriptive statistics to perform demographic characteristics of interviewees.

Table 1: Demographic characteristics of the survey

	Particular	Frequency	Percentage
	Gender	**120**	**100,0**
1	Male	50	41,7
2	Female	70	58,3
	Current income	**120**	**100**
1	0-5.000.000 VND	63	52,5
2	5.000.000-7.000.000 VND	31	25,8
3	7.000.000-10.000.000 VND	22	18,3
4	Over 10.000.000 VND	4	3,3
	Address	**120**	**100**
1	Ngo Quyen	14	11,7
2	Le Chan	16	13,3
3	Duong Kinh	6	5,0
4	Hai An	17	14,2
5	Thuy Nguyen	12	10,0
6	Vinh Bao	12	10,0
7	Kien An	10	8,3
8	An Lao	4	3,3
9	Do Son	5	4,2
10	Cat Hai	4	3,3
11	An Duong	11	9,2
12	Kien Thuy	2	1,7
13	Other	0	0

Source: The researcher's data analysis

As we can see from the Table 1, there are 50 male and 70 female respondents, respectively 41,7% and 58,3%. In term of currentincome, 52.5% respondents earning below 5 million dong, 25,8% from 5 to 7

million per month, 18.3%from 7 to 10 million per month and 3,3% over 10 million per month.

About residential areas, 17 people living in Hai An, account for 14,2%; 16 people in Le Chan, account for 13,3%; 12 people in respectively Thuy Nguyen and VinhBao, occupy 10%; 11 people in An Duong, equivalently 9,2 %; 6 people in Duong Kinh, account for 5,0%; 5 people in Do Son, occupy 4,2%; 4 people respectively in An Lao and Cat Hai, take 3,3%; 2 people in Kien Thuy, equivalently 1,7% as well.

Analysis methods

The study used some basic quantitativeanalysis methods such as Cronbach' Alphas,Factor analysis and Regression analysis. Specifically, Cronbach's Alpha is clearlyknown as a measure used to access the reliability, or internal consistency, of a set of scale or test items.The resulting Cronbach's Alpha coefficient of reliability range are suggested from 0,65 to 0,8. The method is testedthe validity of the scale, then adjust the research model and hypothesizes. According to Hair et al (1998), the scale ensures its validity when factor loading must be equal or greater than 0,5. Moreover, KMO (Kaiser, 1974),which measures sampling adequacy for each variable in the model, stays from 0,5 to 1 and the Bartlett's test is accepted for a significant level (Sig. <0,05).

Multivariable regression analysis is used to test research hypotheses. This is a statistic method studying the relationship betweenindependent variables and one or many different dependent variables. The significance of regression analysis is to estimate the value of dependent variables and test the research hypotheses.

Results

The results of analyzing the reliability of the scale by Cronbach's Alpha and factor analysis to test the validity of the scale in Table 2showed that the Cronbach's Alpha of all scales stay in a range from 0,7 to 0,9 and the item-total correlations of all variables are higher 0,3. Therefore, it is reliable enough for all measurement items to be test Exploratory Factor Analysis (EFA)

The results of analyzing the reliability of the scale by Cronbach's Alpha and factor analysis to test the validity of the scale in Table 2 showed that the Cronbach's Alpha of all scales stay in a range from 0,7 to 0,9 and the item-total correlations of all variables are higher 0,3. Therefore, it is reliable enough for all measurement items to be test Exploratory Factor Analysis (EFA).

Table 2: KMO and Bartlett's Test

Kaiser – Meyer-Olkin Measure of Sampling Adequacy		0,797
Bartlett's Test of Sphericity	Approx. Chi-Square	848.609
	Df	120
	Sig.	0.000

Source: Data analysis result of the research

Table 2 revealed KMO index is 0,797 (Sig. = 0,000) in the first Exploratory Factor Analysis and Bartlett's Test. The EFA results of 4 below Eigenvalue (representing the variation explained by each factor) reach 1,179. Thus, the results of Exploratory Factor Analysis meet the requirements of data and observed, correlated variables so it can be used for further analysis.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin - Watson
1	0,710[a]	0,504	0,491	0,71325156	1,886

Source: The researcher's data analysis

Table 3 suggests that R coefficientis 0,710 shows there is rather a close relationship among variables in the model. That the value of R^2 (R Square) is 0,504 means the model's relevance is 50,4% or 50,4% of the variation of green buying are explained by 4 above factors. Adjusted-R^2 Square, which reflects more exactly about the suitability of the modelthan the total, is 49,1 percent. With n=120, Durbin-Watson index reaches 1,886 (approximately 2) so there is no auto correlation among the residuals in the model. Thus, the studyis statistically significant.

Table 4: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		β	Std. Error	Beta		
1	(Constant)	-8,451E - 017	0,65		0,000	1,000
	FAC1_1	0,347	0,65	0,347	5,304	0,000
	FAC2_1	0,334	0,65	0,334	5,111	0,000
	FAC3_1	0,552	0,65	0,522	7,979	0,000

Source: The researcher's data analysis

After conducting regression tests with the total, Table 4 demonstrates the model does not violate test hypotheses and is significant statically. The relationship between dependent variables is proved in the following equation:

Standardized regression equation: *Purchasing Intention = 0,347 * Attitudes towards the behavior (AT) + 0,334* Subjective norm (SN) + 0,522 * Perceived behavioral control (PC).*

- The standardized beta coefficients ofperceived behavioral control (PC) which is 0,522, has a plus

sign (+) so there is a positive relationship between perceived behavioral control and intention. It means that when 1 unit of intentionto green buying increases, there must be a positive resonance of 0,522 perceived behavioral control (PC)

- The standardized beta coefficients of attitudes towards the behavior *(AT)* which is 0,347, has a plus sign (+) so there is a positive relationship between Perceived behavioral control and Intention. It means that when 1 unit of Intention to green buying increases, there must be a positive resonance of 0,347 Attitudes towards the behavior (AT).

- The standardized beta coefficients of subjective norm (SN)which is 0,344, has a plus sign (+) so there is a positive relationship between Perceived behavioral control and Intention. It means that when 1 unit of Intention to green buying increases, there must be a positive resonance of 0,344subjective norm (SN).

In addition, the orders of influence towards Intention areperceived behavioral control (PC), attitudes towards the behavior *(AT),* subjective norm (SN)

5. Conclusion and recommendations

The study researched to there lationships and their effect of factors influencing to green consumer behavior of young people in Haiphong. The result shows that there are three groups of factors influencing on green buying, including attitudes towards the behavior, subjective norms and perceived behavioral control. Specifically, attitudes towards the behaviors are the most influential factors triggered on the intention of buying green products while subjective norms are the weakest factors. In addition, the young people living inner areas in Haiphong tends to care and purchase green products more than those in other areas. They are also affected by their families and acquaintances before making green decisions.

In conclusion, organizations and retailers have to develop marketing strategies about green purchasing in Haiphong's remote areas, by the way focusing much more on Gen Z customers, who are potential customers in future.

References:

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In J. Kuhl, & J. Beckmann (Eds.), Action control: From cognition to behavior (pp. 11-39). Heidelberg, Berlin: Springer.

Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. Journal of Experimental Social Psychology, 22(5), 453–474. doi:10.1016/0022-1031(86)90045-4

Al-Swidi, A., Mohammed Rafiul Huque, S., Haroon Hafeez, M., & Noor Mohd Shariff, M. (2014). The role of subjective norms in theory of planned behavior in the context of organic food consumption. British Food Journal, 116(10), 1561–1580. doi:10.1108/bfj-05-2013-0105

Brécard, D., Hlaimi, B., Lucas, S., Perraudeau, Y., & Salladarré, F. (2009). Determinants of demand for green products: An application to eco-label demand for fish in Europe. Ecological Economics, 69(1), 115–125. doi:10.1016/j.ecolecon.2009.07.017

Bodo B. Schlegelmilch, Greg M. Bohlen and Adamantios Diamantopoulos. The link between green purchasing decisions and measures of environmental consciousness.

Chau, V. Ngai, L. 2010. The young market for Internet banking services: perceptions, attitudes and behavior. J. Serv. Market. 24 (1), 42-60.

Carter CR, Ellram LM, Ready KJ. Environmental purchasing: benchmarking our German counterparts. Int J Purchasing Mater Manage 1998;34(4):28–38.

Dorothée Brécarda, Boubaker Hlaimi, Sterenn Lucas, Yves Perraudeaua, Frédéric Salladarré, Determinants of Demand for Green Products: An application to eco-label demand for fish in Europe, ... (2009)

Frank, R.F., Chong, D.D., 20202. Generation Y: purchasing power and implications for marketing, Acad. Mark. Stud. J. 6 (2), 89-102

JA Roberts, DR Bacon. Exploring the Subtle Relationships between Environmental Concern and Ecologically Conscious Consumer Behavior, Journal of business research 40, 79-89 (1997).

Grob, A. (1995). A structural model of environmental attitudes and behaviour. Journal of Environmental Psychology, 15(3), 209–220. doi:10.1016/0272-4944(95)90004-7

Ham, M., Jeger, M., & Frajman Ivković, A. (2015). The role of subjective norms in forming the intention to purchase green food. Economic Research-Ekonomska Istraživanja, 28(1), 738–748. doi:10.1080/1331677x.2015.1083875

Hoang, T. T. B. (2016). Những nhân tố tác động tới mối quan hệ giữa ý định và hành vi tiêu dùng xanh của người tiêu dùng Việt Nam [Factors affecting the relationship between Vietnamese consumers' green consumption behaviors and intention] (Doctoral dissertation, VNU University of Economics & Business, Vietnam). Retrieved March 20, 2016, from https://xemtailieu.com/tai-lieu/nghien-cuu-nhung-nhanto-tac-dong-toi-moi-quan-he-giua-y-dinh-va-hanh-vi-tieu-dung-xanh-cua-nguoi-tieu-dung-viet-nam-1412694.html

Ho, Tr., L., Th., and Phan., Th., Th., Ph. (2018) Ứng dụng lý thuyết hành vi theo kế hoạch phân tích ý định hành vi du lịch có trách nhiệm về bảo vệ môi trường của du khách nội địa tại thành phố Cần Thơ [Adopting the Theory of Planned Behavior about friendly – environmentally protection awareness of domestic tourists in Cantho], Journal of Science Can Tho University, Vol 54, No. 9D (2018): 124-132 DOI:10.22144/ctu.jvn.2018.189

Kaman Lee, (2009), "Gender differences in Hong Kong adolescent consumers' green purchasing behavior", Journal of Consumer Marketing, Vol. 26 Issue: 2, pp.87-96, https://doi.org/10.1108/07363760910940456

Lee K. Gender differences in Hong Kong adolescent consumers' green purchasing behavior. J Consum Market 2009;26(2):87–96.

Liebermann, Y., & Stashevsky, S. (2002). Perceived risks as barriers to Internet and e-commerce usage. Qualitative Market Research: An International Journal, 5(4), 291–300. doi:10.1108/13522750210443245

Linghong Zhang, Jingguo Wang, Jianxin You (2014). Consumer environmental awareness and channel coordination with two substitutable products.

Nguyen, V. T. T et al. (2017). Factors affecting green purchasing intention in Ho Chi Minh City, Journal of Science Ho Chi Minh City Open University, 8(2), 51-65, doi:10.46223/HCMCOUJS.econ.en.8.1.172.2018

Peter D.Bennet (1988), Marketing McGraw-Hill series in marketing, illustrated, McGraw-Hill.

Pipitvanichtham, P., 2013. Intention to Adopt Environmental Friendly Practices in Thailand. Proceedings of European Business Research Conference, 5-6 September 2013, Sheraton Roma, Rome, Italy.

Philip Kotler and Kevin Lane Keller (2012), Marketing management, edition 14th, Pearson (2012), trang 151

Quyet-dinh-1393-QD-TTg-nam-2012-phe-duyet-Chien-luoc-quoc-gia-tang-truong-xanh Vietnam Green Growth Strategy (2012), https://thuvienphapluat.vn/van-ban/Tai-nguyen-Moi-truong/Quyet-dinh-1393-QD-TTg-nam-2012-phe-duyet-Chien-luoc-quoc-gia-tang-truong-xanh-148498.aspx

Ramayah, T., Lee, J. W. C., & Mohamad, O. (2010). Green product purchase intention: Some insights from a developing country. Resources, Conservation and Recycling, 54(12), 1419-1427. doi: 10.1016/j.resconrec.2010.06.007

Raymond A. Bauer, "Consumer Behavior as Risk Taking," in Dynamic Marketing for a Changing World, Robert S. Hancock, ed. (Chicago: American Marketing Assn., 1960), pp. 389-398.

Tran, Y., T., B. et al. (2020) Determinants trigger Vietnamese young consumers to purchase eco-friendly products, Management Science Letters 10 (2020) 3701–3706

Yu-Xiang Yen, Shang-Yung Yen (2011) Top-management's role in adopting green purchasing standards in high-tech industrial firms.

THE APPLICATION OF STRATEGIC MANAGEMENT ACCOUNTING TECHNIQUES IN FEED PRODUCTION FIRMS IN VIETNAMESE PRIVATE SECTOR

PhD. Nguyen Thanh Huyen*

Abstract: ***The study aims to show how feed production firms (FPFs) in Vietnamese private sector applied strategic management accounting techniques (SMATs). The database of this research is collected from survey sent to 113 feed production firms in Vietnamese private sector. The study used qualitative research methods combined with preliminary quantitative. The results of the study contribute to determining the level of application of strategic management accounting techniques in the FPFs in Vietnamese private sector. Then, solutions will be proposed to improve the efficiency of applying strategic management accounting techniques in FPFs in Vietnamese private sector, contributing to improving the competitiveness of enterprises.***

• Keywords: *application, strategic management accounting techniques, Vietnam.*

Date of receipt: 10th December, 2022
Date of receipt revision: 15th Jannuary, 2023
Date of delivery revision: 15th December, 2022
Date of approval: 30th Jannuary, 2023

Tóm tắt: *Nghiên cứu nhằm mục đích chỉ ra cách thức các doanh nghiệp tư nhân chuyên về sản xuất thức ăn chăn nuôi (FPF) tại Việt Nam áp dụng các kỹ thuật kế toán quản trị chiến lược (SMAT). Cơ sở dữ liệu của nghiên cứu này được thu thập từ các phiếu khảo sát được gửi tới 113 doanh nghiệp tư nhân chuyên về sản xuất thức ăn chăn nuôi tại Việt Nam. Nghiên cứu sử dụng phương pháp nghiên cứu định tính kết hợp với định lượng sơ bộ. Kết quả nghiên cứu góp phần xác định mức độ áp dụng các kỹ thuật kế toán quản trị chiến lược trong các doanh nghiệp tư nhân chuyên về sản xuất thức ăn chăn nuôi tại Việt Nam. Từ đó, đề xuất các giải pháp nhằm nâng cao hiệu quả áp dụng kỹ thuật kế toán quản trị chiến lược trong các doanh nghiệp tư nhân chuyên về sản xuất thức ăn chăn nuôi tại Việt Nam, góp phần nâng cao năng lực cạnh tranh của doanh nghiệp.*

• Từ khóa: *ứng dụng, kỹ thuật kế toán quản trị chiến lược, Việt Nam.*

1. Introduction

Strategic management accounting has been studied all over the world since 1980s. There are many arguments about definition of strategic management accounting techniques. The author summarized many typical studies about strategic management accounting techniques.

Guilding et al. (2000) synthesized 12 techniques of strategic management accounting. Their study was conducted in three countries, New Zealand, the United Kingdom and the United States. This was also the first study to evaluate the application of strategic management accounting techniques in enterprises operating in different fields. The study showed that the cost technique group and the two techniques of strategic cost and price strategy were the most widely used techniques at large enterprises in many fields in three countries: New Zealand, United States and Great Britain.

Next, Jack (2005) conducted a similar study but was carried out in enterprises operating in a completely different field, namely the agricultural sector in countries such as the United States, the UK, Australia and New Zealand. Research results show that the application of strategic management accounting techniques in enterprises in this sector is still quite limited compared to enterprises operating in other fields. However, a few large producers in agricultural sector in New Zealand and the USA tend to be more interested in

** University of Finance - Business Administration; email: huyenkhoakt@gmail.com*

using SMATs in the future. Value chain cost and integrated performance measurement techniques are potential for using in agriculture businesses in the UK, Australia, the USA and New Zealand, while managers are only interested standardized techniques.

Cadez and Guilding (2008) collected 16 strategic management accounting techniques and classified them into 5 groups: costing, controlling plan and performing measurement, strategic decision, competitor accounting and customer accounting. This is considered an almost complete set because it helps businesses manage arising problems related to internal and external entities in order to make strategic decisions to increase operating efficiency.

In Vietnam, from 2015, management accounting techniques have been inherited and applied as a complete solution to improve the efficiency of enterprises. Dao Thuy Ha (2015) has illustrated new points about the application of Kaizen costing method in steel manufacturing enterprises. Nguyen Thanh Huyen (2015) mentioned the application of cost management accounting according to the product life cycle in ceramic manufacturers in Vietnam.

At the same time, some later studies also added new techniques such as balanced score - card (Ha Nam Khanh Giao & Tran Dong Huy, 2016).

It can be said that, up to now, there has been no in-depth research on application of strategic management accounting techniques in feed production firms. In this article, the author deeply studied the application of strategic management accounting techniques in feed production enterprises in the private sector in Vietnam.

2. Literature review

2.1. Strategic management accounting

According to Simmonds (1981), strategic management accounting is "the provision and analysis of management accounting data about an enterprise and its competitors, using for developing and monitoring business's strategies".

Lord (1996) argued that strategic management accounting is a process consisting of three steps: gathering information about competitors, exploiting opportunities to reduce costs; connects accounting to strategic positions and these steps are repeated in six phases.

Dixon and Smith (1993) concluded that strategic management accounting includes four stages: determining business strategy, analyzing strategic cost, analyzing market and evaluating strategies. These authors represented for the first view of strategic management accounting when trying to combine strategies with management accounting.

From the author's point of view, "Strategic management accounting is the process of collecting, analyzing and providing financial and non-financial information about an enterprise and its competitors, in order to implement the enterprise's business strategy".

2.2. Strategic management accounting techniques

Applying criteria that Guiding and partners (2000) mentioned when determining strategic management accounting techniques, author divided these techniques into five basic groups as following

(1) Technique Group of Cost, including:

- *Attribute cost:* According to this method, a product is considered as a set of benefits (attributes) that are desired at high or low levels, among different groups of buyers, because that these attributes are the objects to collect the cost. These attributes include: Performance factors, safety, guarantee agreements, completion and accessories, assurance of supply, and after-sales services (Guilding et al, 2000; Cadez & Guilding, 2008).

- *Target Cost:* Target cost is a tool to manage production costs during designing phase. Then, based on the acceptable selling price, the company plans the target profit of manufacturing the product, and based on the expected selling price and target profit to determine the maximum target cost of each product.

If the expected cost to manufacture product is higher than the target cost, the company must change the product design or manufacturing process to make the cost equal to the target cost (Guilding et al, 2000; Cadez & Guilding, 2008; Cinquini & Tenucci, 2010).

- *Lifecycle Costs:* Lifecycle Costs record and add all the possible costs of a product over its entire lifecycle, including costs charged for the

product from making idea phase, production costs to costs paid by the purchaser over the lifecycle of the product, including installation, operation, support, maintenance, and disposal costs (Guilding et al, 2000; Cadez & Guilding, 2008; Cinquini & Tenucci, 2010). This costing technique clearly demonstrates two basic characteristics of SMATs, which are long-term orientation and market orientation (Cinquini & Tenucci, 2010).

- *Quality costs:* Quality costs measure whether the costs achieve or not achieve the quality of a product or service, including all products or services requirements set by the company and in accordance with the company's commitment to customers and society. From a strategic perspective, these techniques help to maintain the quality of enterprises' products (Cinquini & Tenucci, 2010).

(2) Technical group of management accounting, cost estimation, control and measurement, including:

- *Benchmarking:* Benchmarking is the identification and implementation of outstanding methods and activities of an ideal entity (Cadez & Guilding, 2008; Cinquini & Tenucci, 2010). According to Cinquini & Tenucci (2010), there are many different types of benchmarking standards, however; all of them emphasize the outward strategic orientation, towards competitors.

- *Balanced Scorecard:* The Balanced Scorecard is a system that turns vision and strategy into specific goals and detail measurement, through the establishment of a performance measurement system basing on four dimensions: finance, customers, internal business processes, learning and growth. The balanced scorecard method contributes to improve the organization's ability and also the connection between departments and employees in the organization (Dmitrović-Šaponja & Suljović, 2017).

(3) Technical group of strategic decision making, including

- *Strategic Pricing:* Strategic pricing is the analysis of strategic factors that influence the pricing process. These strategic factors include: Competitors' price, competitors' response, competitors' adaptability (elasticity), market growth, and economic scale. (Guilding et al, 2000; Dmitrović-Šaponja & Suljović, 2017).

(4) Competitor accounting technical group, including:

- *Competitor Cost Assessment:* Perform regular updates on competitors' unit cost estimates based on an assessment of facilities, technology, and economics scale. personnel structure and research, develop (Guilding et al, 2000; Cadez & Guilding, 2008; Cinquini & Tenucci, 2010).

- *Competitive Position Monitoring:* Analyze the position of competitors in the industry by assessing and monitoring trends in sales revenue, market share, sales volume, price units and profit on competitors' sales. This information can provide a basis for evaluating a competitor's market strategy (Guilding et al, 2000).

- *Competitor Appraisal Based On Published Financial Statements:* Assessing competitive advantages of competitors based on data analysis of published financial statements of the company. competitors (Guilding et al, 2000; Cadez & Guilding, 2008; Cinquini & Tenucci, 2010; Dmitrović-Šaponja & Suljović, 2017).

(5) Customer accounting technical team, including:

- *Customer Profitability Analysis:* Customer Profitability Analysis is a technique of recording and analyzing all revenues received from customers/ customers groups, and expenses, costs incurred to obtain that revenue, in order to determine the contribution of each customer/customer group in achieving the company's profits (Guilding and McManus, 2002; Cadez & Guilding, 2008).

- *Valuation of customers as assets:* Valuation of customers as assets is a tool to calculate the value of customers to businesses. For example, by calculating the present value of all future profit streams derived from a particular customer or group of customers (Guilding et al, 2000; Cadez & Guilding, 2008).

3. Research methods

The study was carried out by a combination of qualitative research methods and preliminary quantitative research. The methods used are primary data collection, secondary data collection, questionnaire, interview.

Sampling method: According to statistics of the Ministry of Agriculture and Rural Development by the end of 2020, there are 228 feed production

enterprises in the whole country, of which 71 are foreign-invested enterprises (accounting for 31%), 157 domestic enterprises (accounting for 69%). Domestic food production enterprises are all in the private economic sector *(Source: Ministry of Agriculture and Rural Development, 2021).*

The author uses the formula:

$$n = \frac{N}{1 + Nxe^2}$$

In which: e = 0.05

We have n = 113 enterprises

Regarding the size of enterprises in the total sample, enterprises with capital under 100 billion dong accounted for 89.8%, enterprises with capital over 100 billion dong accounted for 10.2%.

So using stratified random method, the author surveyed 12 large-scale enterprises and 101 small and medium-sized enterprises. The author sent a survey to the chief accountant and accountant of 113 Vietnamese food production enterprises in the private sector. Number of votes issued: 226, number of votes collected: 214, response rate: 95%.

The author interviewed in-depth interviews with managers and accountants at two enterprises representing two groups of sizes: large-scale enterprises and small and medium-sized enterprises, namely Dabaco Group Joint Stock Company and Phap Viet Feed Joint Stock Company.

4. Research results

4.1. Overview of feed production enterprises in Vietnamese private sector

By type of enterprise, Vietnamese feed production enterprises in the private sector are distributed according to the following table:

Table 1: Types of feed production enterprises Vietnamese private sector

No.	Type of enterprise	Number of enterprises	Ratio
1	Limited Liability	71	45,2%
2	Joint- stock	30	19,1%
3	Private	56	35,7%
4	Total	157	100%

Source: Compiled by the author

It can be seen that domestic small and medium-sized enterprises in the private sector are weak in competitiveness compared to foreign enterprises. Specifically, foreign enterprises account for 65% of the market share, while the remaining 35% is held by domestic enterprises. This market share is also in danger of decreasing due to the expansion in scale, number of enterprises as well as output of foreign enterprises due to the development potential of Vietnamese livestock industry.

Not only do they exceed in market share, but most foreign enterprises have methodical business strategies with closed production and business chains. Domestic enterprises need to quickly change their production and business strategies to regain market share from foreign enterprises (Foreign enterprises have great advantages in Vietnamese animal feed market share, 2021).

Table 2: Actual situation of applying quality management accounting in feed production enterprises Vietnamese private sector

Techniques of strategic management accounting	1	2	3	4	5	Mean
1. Technical group cost						
Attribute cost	18	24	32	28	11	2,9115
Target cost	12	16	38	35	12	3,1681
Lifecycle cost	14	18	36	32	13	3,1062
Quality cost	13	18	36	31	15	3,1504
2. Management accounting technical group estimates, controls and measures efficiency Standard of comparison						
Balanced Scorecard	15	28	36	27	7	2,8496
Balanced Scorecard	15	19	36	32	11	3,0442
3. Management accounting technical team makes strategic decisions						
Strategic pricing	11	22	32	32	16	3,1770
4. Competitor accounting technical team						
Evaluate competitors' costs	10	24	32	32	15	3,1593
Monitor competitive position	11	25	35	29	13	3,0708
Evaluate competitors based on financial statements	20	30	35	20	8	2,6991
5. Customer accounting technical team						
Analyze customer profitability	9	20	36	31	17	3,2389
Valuing customers as assets	9	18	36	33	17	3,2743

Source: Author's compilation

The cost engineering group: With the attribute cost technique has a relatively low mean value of 2.9115. This shows that many Vietnamese feed production enterprises in the private sector have not considered the feed product attribute as an object of cost aggregation. Through interviews, the object of collecting costs is mainly batches of feed products. The target cost technique has an average mean of 3,1681, which shows that the Vietnamese food production enterprises in the private sector have been interested in determining the cost according to the profit target to be achieved by the business. The cost-quality technique has a Mean of 3.1504 which proves that Vietnamese feed mill enterprises in the private sector have paid attention to costs to achieve product quality to meet market requirements.

Technical group of management accounting for estimation, control and efficiency measurement: The Matching standard technique has a Mean equal to 2.8496, showing that Vietnamese food manufacturing enterprises in the private sector have not paid much attention to learning methods. measures taken by efficient businesses. The interview results show that the main reason is that the companies keep their production and business know-how as well as business strategies. Therefore, it is difficult for other businesses to find information about competitors to learn. The balanced scorecard technique has a Mean of 3.0442, which proves that the Vietnamese food production enterprises under the research scope are quite interested in using the balanced scorecard to measure performance results.

Technical group of management accounting to make strategic decisions: Strategic pricing technique has Mean equal to 3.177, proving that Vietnamese food processing enterprises have a fairly clear pricing strategy, in line with the strategic goals of the business.

Competitor accounting technique group: Competitor's cost assessment technique has a Mean equal to 3.1593, showing that Vietnamese food manufacturing enterprises have paid attention to competitors' costs. The technique of monitoring competitive position has Mean equal to 3.0708, proving that the feed processing enterprises have paid attention to their position in the market. The technique of evaluating competitors based on financial statements with Mean equal to 2.6991 shows that food processing enterprises have not paid attention to assessing competitors through financial statements. The reason according to the interview results shows that most of the rival enterprises are not required to disclose financial statements. Therefore, the data source for evaluating competitors through financial statements is almost limited.

Customer accounting technical group: The customer profitability analysis technique has a Mean equal to 3.2389, which proves that the food processing enterprises have been quite interested in the profitability of customers for their business activities. enterprise. The technique of valuing customers as an asset with a Mean equal to 3.2743 also shows that food processing enterprises have clearly identified customer resources, treating customers as assets of the business.

5. Discussion

It can be seen that the level of application of quality management accounting techniques in the industrial production enterprises of the private sector in Vietnam is still quite modest. This explains why the competitiveness of domestic food production enterprises (both in the private sector) is inferior compared to foreign enterprises. Domestic enterprises account for 69% but the feed market share is only 35% - completely opposite figure. Strategic costing techniques have not been applied much; Feed production enterprises in the private sector mainly still apply traditional costing methods. Effective estimation, control and measurement techniques are also rarely used; It is difficult to collect information from competitors, leading to businesses not building many benchmarks. Technical group of management accounting to make strategic decisions has been interested by feed industry enterprises; The applied valuation methods are relatively clear, consistent with the strategy of each business. The technical accounting group of competitors has been interested in by feed production enterprises, but not much, the level is not high; This is a weakness in the application of quality management accounting techniques of these enterprises. The customer accounting technical group has received more attention, but the level is still not high; enterprises under the research scope have not fully

appreciated the value of customer resources to fully exploit this resource.

The above situation, the author proposes a solution to improve the ability to apply strategic management accounting in animal feed production enterprises in the private sector in Vietnam.

On the State side

Currently, in our country, management accounting has only stopped at general guidance according to Circular 53/2006 of the Ministry of Finance. strategic management accounting. does not have any documents guiding the implementation. This causes confusion for businesses in applying strategic management accounting. Therefore, the author proposes that the State should develop a document to guide enterprises in applying strategic management accounting, from which, enterprises have a basis for application in suitable conditions for enterprises.

On the side of Vietnam Association of Accounting and Auditors

The Vietnam Association of Accountants and Auditors should organize courses on strategic management accounting, fostering knowledge of strategic management accounting for business administrators and accountants. On that basis, improve the understanding of managers and accountants about strategic management accounting. This is an important condition for businesses to successfully apply strategic management accounting.

On the side of feed production enterprises

Feed production enterprises in the private sector need to strengthen the appointment of managers and accountants to participate in training courses on knowledge of strategic management accounting, raising awareness and techniques of applying strategic management accounting. Based on the deep understanding of quality management accounting of managers and accountants, feed production enterprises belonging to the private sector are able to successfully apply strategic management accounting, improving the competitiveness of enterprises in the domestic feed market.

6. Conclusion

Vietnamese feed production enterprises in the private sector have not had a position in the domestic feed market. Food production enterprises in the private sector have not yet applied many strategic management accounting tools in corporate governance. There are many reasons leading to the low level of application of strategic management accounting techniques in those enterprises. The author has proposed a number of core solutions to improve the effectiveness of the application of strategic management accounting in enterprises under the research scope. With the trend of integration, the feed production enterprises of the private sector need to make a breakthrough in corporate governance and improve their position in the market.

References:

Cadez S. & Guilding, C. (2008), An exploratory investigation of an integrated contingency model of strategic management accounting, Accounting, Organizations and Soiety, 33, 836–863.

Cinquini, L., & Tenucci, A. (2010), Strategic management accounting and business strategy: a loose coupling? Journal of Accounting & Organizational Change, 6(2), 228-259. doi:10.1108/18325911011048772.

Dao, T.H. (2015), Improving cost management accounting in steel manufacturing enterprises in Vietnam, PhD thesis, National Economics University.

Dixon, R., & Smith, D. (1993), Strategic management accounting. Omega, 21(6), 605-618. doi:10.1016/0305-0483(93)90003-4.

Dmitrović-Šaponja, L., & Suljović, E. (2017), Strategic management accounting in the Republic of Serbia. Economic Research-Ekonomska Istraživanja, 30(1), 1829-1839. doi:10.1080/1331677x.2017.1392884.

Guilding, C., Cravens, K. S. & Tayles, M. (2000), An international comparison of strategic management accounting practices, Management Accounting Research, 11, 113–135.

Guilding, C., & McManus, L. (2002), The incidence, perceived merit and antecedents of customer accounting: an exploratory note. Accounting, Organizations and Society, 27(1-2), 45-59. doi:10.1016/s0361-3682(01)00030-7.

Ha, N. K.G & Tran, D.H. (2016), Applying the balanced scorecard to propose solutions to perfect strategic management at Phu Nhuan Jewelry Joint Stock Company (PNJ), Open University Science Journal HCMC , 50(5), 41–55.

https://trungthanhhp.vn/doanh-nghiep-ngoai-co-uu-lon-trong-thi-phan-thuc-chan-nuoi-viet-nam/

Lisa Jack. (2005), The adoption of strategic management accounting tools in agriculture post subsidy reform: a comparative study of practices in the UK, the US, Australia and New Zealand, Chartered Institute of Management accountants, 5(7), 1–7.

Langfield-Smith, K. (2008), Strategic management accounting: how far have we come in 25 years?, Accounting, Auditing & Accountability Journal, 21(2), 204–228.

Ministry of Agriculture and Rural Development (2021), Livestock industry report 2020.

Nguyen, T.H. (2015), Applying the cost management accounting method system to the product life cycle in Vietnamese ceramic tile manufacturers, PhD thesis, National Economics University.

Simmonds, K (1981), Strategic management accounting, Management Accounting, 5(4), 26–29.

POLICIES ON RENEWABLE ENERGY DEVELOPMENT IN VIETNAM

Nguyen Duc Duong*

Abstract: ***In recent years, renewable energy is a global trend. Vietnam has had many policies to develop the renewable energy industry but has not been successful. The study used a qualitative research method and collected data from reports from relevant ministries and sectors to carry out problem analysis. Research has shown that while renewable energy brings many benefits, it actively contributes to minimizing impacts on the environment, and climate change; contributes to ensuring energy security; the country's socio-economic development; job; improves the qualifications of domestic workers. However, the development of renewable energy currently faces many difficulties in terms of policy, financial and technical mechanisms. Since then, the research has suggested measures to solve this problem from state management agencies and businesses.***

• Keywords: *policy, development, renewable energy, finance.*

Date of receipt: 02nd November, 2022

Date of delivery revision: 08th November, 2022

Date of receipt revision: 15th December, 2022

Date of approval: 01st February, 2023

Tóm tắt: *Trong những năm gần đây, năng lượng tái tạo đang là xu hướng toàn cầu. Việt Nam đã có nhiều chính sách phát triển ngành năng lượng tái tạo nhưng chưa thành công. Nghiên cứu sử dụng phương pháp nghiên cứu định tính và thu thập dữ liệu từ báo cáo của các Bộ, ngành liên quan để tiến hành phân tích vấn đề. Nghiên cứu đã chỉ ra rằng năng lượng tái tạo tuy mang lại nhiều lợi ích, góp phần tích cực giảm thiểu tác động đến môi trường, biến đổi khí hậu; góp phần đảm bảo an ninh năng lượng; phát triển kinh tế - xã hội của đất nước; công việc; nâng cao trình độ của lao động trong nước. Tuy nhiên, việc phát triển năng lượng tái tạo hiện gặp nhiều khó khăn về cơ chế chính sách, tài chính và kỹ thuật. Từ đó, nghiên cứu đề xuất các biện pháp tháo gỡ vấn đề này từ phía cơ quan quản lý nhà nước và doanh nghiệp.*

• Từ khóa: *chính sách, phát triển, năng lượng tái tạo, tài chính.*

1. Introduction

Energy is the infrastructure, the driving force for the socio-economic development of acountry. An adequate and sustainable energy supply is one of the keys to determining economicgrowth. This means that energy policy is an extension of national policy. In contrast, nationalpolicy is the standard by which an energy policy is evaluated and established. Therefore, energyplanning needs special attention. Vietnam is one of the developing countries in Southeast Asiawith an increasing demand for electricity to serve the industrialization of the country.

2. Literature review

Pham Hung in the ministerial-level scientific research project "Research and propose mechanisms to support the development of renewable energy in Vietnam" in 2013 after studying renewable energy development policies in China. Countries, India, and Thailand say that the main barriers to renewable energy include: Investment and operating costs for renewable energy technology are still higher than that of traditional power generation systems; Electrical energy cannot be stored, so renewable energy sources are always weather dependent and always changing, so are not able to meet the changing needs of the power grid; Renewable energy technologies are often small-scale below 1 kW and can go up to less than 100MW, while traditional power generation technologies often reach capacities above 100MW or even above 1000MW. With the same opinion, Luong Duy Thanh, Phan Van Do, Nguyen Trong Tand am in a scientific journal article "Main causes promoting the development, potential, and status of, renewable energy exploitation in Vietnam" in 2015 argues that the barriers to the development of renewable energy.

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) in "Energy-policy Framework Conditions for Electricity Markets and Renewable Energies" in 2009 said that: Vietnam is rich in renewable

** East Asia University of Technology, Hanoi, Vietnam; email: duongnd@eaut.edu.vn*

energy sources. The potential for small hydro systems is 800-1400 MW, while biomass fuel systems can provide an additional 250-400 MW. The mini-hydro electricity network provides hydroelectricity that can meet the electricity needs of hundreds of thousands of households in the northern mountainous region and central region of Vietnam. At the same time, the agency also believes that solar photovoltaic power systems can serve about 50,000 households in the southern and central regions of the country, although the technology is too expensive to calculate. Feasibility.

Peter Meier and colleagues in "The Design and Sustainability of Renewable Energy Incentives" in 2013 argue that: The stalled investment in renewable energy development is largely the result of credit tightening, high-interest rates, and costs. labor costs increase. While the World Bank supports the RE Development Project by providing finally ncial support. Sharing the same opinion, Grießhaber and his colleagues in "Transferring a technology incubator to address climate change - lessons from Taiwan for Vietnam" in 2015 said that: Barriers to technology development in Vietnam are diverse. On the one hand, there are common challenges such as a weak financial sector as well as macroeconomic instability, along with difficulties in accessing finance, especially for businesses.

Aldo Baietti in "Green Investment Climate Country Profile - Vietnam" in 2013 said that to develop renewable energy, Vietnam needs to do the following things: First, it is to review the general incentive framework for RE development. makes clean technology more competitive than pollution alternatives. The government could consider how a dynamic strategic framework could be developed for investments. Such a strategy makes renewable energy technologies more attractive than other polluting solutions to spur new investment; Second, introduce government reforms in Vietnam's energy sector, especially for low-emissions projects that are often capital intense capital-intensive international experience has shown that these projects will require continued financial support and shared commitment between project developers and the Government. In this context, PPPs can play an increasing role in the development of renewable energy technologies; Third, many rural and semi-urban areas are still heavily dependent on the use of biomass for heating and cooking. However, as income increases, consumer habits will inevitably use electricity for these purposes. Since biomass accounts for nearly half of the country's total energy supply, the Government can develop a coherent strategy to ensure that the reduction in biofuel use is working by increasing cleaner energy.

3. Method research

The research is based on the methodological basis of Marxism - Leninism and Ho Chi Minh's thought, combined with the viewpoints and policies of the Communist Party of Vietnam on socio-economic development in general and investment in renewable energy development. At the same time, using general economic knowledge of n state management tt, policies are in-depth on investment and development of renewable energy. In addition, the study also selectively inherits and appropriately applies theoretical perspectives and theoretical frameworks on the economic management of domestic and international scientists on investment-related content renewable energy development.

The topic will use specific scientific research methods such as theoretical research methods; documentary research methods; research methods summarizing experiences in the steps of developing and implementing renewable energy policies; statistical methods, data collection, comparison, analysis, and synthesis; combine the results obtained with the application of theory to solve the problems posed for the thesis.

From collecting research documents related to renewable energy, and develop and implementing renewable energy policies, the thesis will compare concepts, classifications, data an Scotland used synthesis or separate points of view points ach specific aspects and content. From there, the thesis gives an overview of the research problem and provides analysis, evaluation, and lessons learned.

4. Results

4.1. Renewable energy development

Solar energy: Solar energy is often used in the form of solar thermal power plants, solar electric batteries, solar hot water, solar drying equipment, etc. Due to the advancement in technology for manufacturing solar panels, leading to the improvement of efficiency in converting solar heat into electricity and reducing the cost of panels in the past time; As well as the Government of Vietnam's solar power purchase and sale policy (Table 1), a series of solar power plants were established across the country, mainly in the South-Central Coast provinces.

Thus in 2018 installeded capacity of solar power in Vietnam only reached 105 MW, in 2019 this number has increased to 5GW, and by 2020, the installed capacity

has increased to 16.5GW. The boom in investment in solar farms and rooftop solar power has led to a solution to control solar power development by EVN and local authorities. Besides the strong development of solar power projects, other applications of solar energy (solar water heaters) are still in a slow state of development.

Wind energy: According to the World Bank and other energy organizations, Vietnam has great potential for wind energy (NLG) with an estimated 520 GW of installed capacity. Wind energy can be developed into electrical energy in two main areas: onshore wind power and offshore wind power. With large and stable capacity, small land area, and competitive electricity price; Many wipriceswer projects on land and offshore in Vietnam have come into production anornd are ithe n thornvestment stage.

Thus, the total wind power capacity by 2025 included in the Power PlaI in June 2020 is 11,800MW, much higher than the initially set target of about 800 MW in 2020 and about 2,000 MW in 2025, and about 6,000 MW in 2030. Calculation results of author Du Van Toan show that Vietnam's sea area has great technical wind energy potential that can reach 637 GW and account for 13,4% of theoretical wind energy. Therefore, a series of large domestic and foreign corporations are implementing and preparing investment projects for onshore and offshore wind power projects in Vietnam.

Biomass energy: With a huge potential for biomass energy, including tens of millions of tons of agricultural by-products (straw, rice straw, rice husks, cereal crops, etc.); tens of millions of tons of domestic waste, tens of millionandnd f tons of livestock waste. The by-products and wastes that are causing environmental pollutionneed to be treated; but also a renewable energy resource that can be recovered by combustion. According to the 2011 National State of Environment Report, the total volume of domestic solid waste generated nationwide is about 44,400 tons/day. By 2019, this figure is 64,658 tons/day (urban area is 35,624 tons/day and rural area is 28,394 tons/day).

Other forms of energy: Besides the energy sources mentioned above, Vietnam also hapotentialls forpotentialewable energy sources but has not been invested in research and exploitation, nor has any preferential policies. first aid. These are forms of energy such as tidal energy, wave energy, geothermal energy, etc. To be deployed into energy supply projects, these forms of energy need to overcome many other policies, technicalandnd technological, and logistical barriers.

4.2. Mechanisms and policies for renewable energy development

Renewable energy development is a major policy of the Party and State, which has been concretized in Resolution No. 55 of the Politburo, the Prime Minister's Decision approving the Renewable Energy Development Strategy and other policies mechanism to encourage the development of renewable energy projects.

Renewable energy development goals in Vietnam's Renewable Energy Development Strategy for the period to 2030 with a vision to 2050, approved by the Prime Minister in Decision No. 2068/QD-TTg dated November 25th. In 2015, the proportion of electricity produced from RE (including large and small hydroelectricity) in the total national electricity production must reach 32% by 2030 and 43% by 2050. In the revised Power Master Plan VII, it is expected that renewable energy sources (including small hydropower, wind power, solar power, and biomass power) will account for 21% of the country's total power capacity by 2030. And in Resolution No. 55-NQ/ The Central Government on February 11, 2020, of the Politburo stipulates that the proportion of RE sources in the total primary energy supply will reach 15-20% in 2030 and 25-30% in 2045, corresponding to the proportion of renewable energy in the total energy supply. The nationally produced electricity is about 30% in 2030 and 40% in 2045.

The oabove-mentioned RE targets, the Ministry of Industry and Trade has advised and submitted to the Government of Vietnam to issue various incentive mechanisms for different types of renewable energy that are assessed as having great potential as follows:

Table 1: Summary of incentive mechanisms for renewable electricity development

Type of renewable energy	Type of technology	Incentive and Effective Mechanism	Selling price (excluding VAT)
Small hydropower (under 30MW)	Power production	Avoidable cost tariff	The avoidable cost tariff is published annually by the Ministry of Industry and Trade
Wind power (for projects put into operation before November 2021)	Project on land	FIT for 20 years	8,5 US Cents/kWh
	Offshore project	FIT for 20 years	9,8 US Cents/kWh
Biomass	Co-generation of heat-electricity	FIT for 20 years	7,03 US Cents/kWh
	Not Co-generation of heat-electricity	FIT for 20 years	8,47 US Cents/kWh

Type of renewable energy	Type of technology	Incentive and Effective Mechanism	Selling price (excluding VAT)
Electricity from waste	Burning	FIT for 20 years	10,05 US Cents/kWh
	Bury	FIT for 20 years	7,28 US Cents/kWh
Solar power	Floating solar power	FIT for 20 years	7,69 US Cents/kWh
	Ground solar power	FIT for 20 years	7,09 US Cents/kWh
	Rooftop solar power	FIT for 20 years	8,38 US Cents/kWh

Source: Report of the National Steering Committee on Electricity Development

In addition to the incentive mechanisms for buying electricity as mentioned above, renewable energy projects in Vietnam can also enjoy other support mechanisms such as incentives for corporate income tax, equipment import tax, incentives on land use, and access to finance...

Table 2: Other incentive mechanisms for grid-connected renewable power projects

No	Financial incentive mechanism	Degree
1	Corporate income tax	Corporate income tax rate: - The first 4 years from the year of taxable income: 0% - Next 9 years: 5% - Next 2 years: 10% - The remaining years: 20%
2	Import Tax	Goods imported as fixed assets, materials, and sem, and i-finished products not produced domestically. Investors should check the annual List of goods and products exempt from import tax announced by the Ministry of Planning and Investment.
3	Using land	Preferential land rental according to the regulations of the province
4	Environmental protection fee	0%
5	Investment	The Vietnam Development Bank (VDB) lends up to 70% of the total investment cost at an interest rate equivalent to that of a 5-year Government bond plus 1%/year

Source: Report of the National Steering Committee on Electricity Development

In recent years, with the active participation of the Government, ministries, branches, and localities, Vietnam's business environment has continuously improved, creating excitement for domestic and foreign investors. expand the scale of production and business activities. In addition, people's material and economic life increases, leading to an increase in electricity demand. However, this is also a huge challenge for Vietnam's electricity industry in the context of:

1. The domestic primary energy supply has reached its limit, leading to dependence on imported fuel.

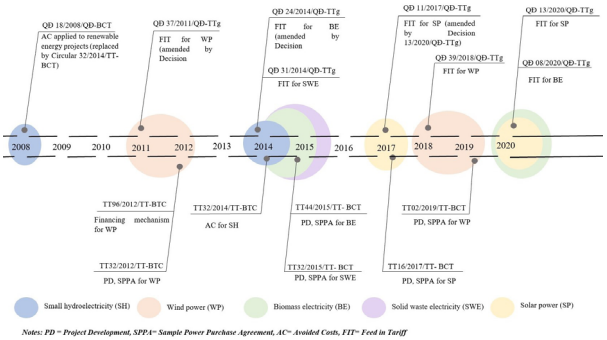
2. Distribution of power sources and uneven load causing great transmission pressure on the North-South 500kV transmission line system.

3. Climate change impacts lead to drought; hydroelectric reservoir lacks water for production.

4. Some Power projects under the revised Power Master Plan VII are behind schedule compared to the requirements set forth…

The above challenges take place in the context that the power system is under a lot of pressure to ensure electricity supply, especially when the operation progress of thermal power sources faces many risks. Creation is considered one of the important solutions. Politburo also issued Resolution 55 on the orientation of Vietnam's national energy development strategy to 2030, with a vision to 2045. In which, setting targets for renewable energy sources to account for a billion the share of the total primary energy supply will reach about 15-20% by 2030; 25 - 30% by 2045.

Figure 1: Current incentive mechanism for renewable energy development



As of 2018, the total capacity of solar power plants put into operation was only about to 86 MW, accounting for 0.18% of the national power capacity structure. However, at that time, when Decision No. 11 took effect, there were mafarms solarlar power projects (PPD) that had been supplemented with the planning.

Specifically, as of April 2018, the total capacity of solar PV plants added to the master plan is about 7,667 MWp, equivalent to about 6,286 MW(ac). However, the grid connection planning of these solar power plant projects is carried out independently without a comprehensive assessment of the relevant grid responsiveness in the region. Realizing that this may cause risks to the existing transmission grid, in May 2018, PECC2 proactively proposed to the Electricity of Vietnam (EVN) to calculate and prepare a Report "Research and development". rescue and release capacity of solar and wind power plant projects

nationwide until 2020" and has been agreed by EVN. PECC2's capacity clearance report has made the following main contents:

(1) Reviewing the list of solar and wind power sources expected to be put into operation in the period up to 2020 which has been supplemented by the Ministry of Industry and Trade and the Prime Minister.

(2) Reviewing the synchronous grid of projects and the list of electricity grids expected to be invested by EVN up to 2020.

(3) Assess the responsiveness of the power grid.

(4) Calculating the amount of solar and wind power that cannot be consumed because the grid has not yet met.

(5) Proposing relevant power grid solutions to put into operation to meet the power transmission needs of solar and wind power plants.

Developing renewable energy sources will mitigate the impacts of climate change (reducing greenhouse gas emissions) and pollutants from burning fossil fuels; at the same time, adding capacity to the power system, contributing to increased economic benefits for localities, and businesses, and creating jobs for workers. In line with Vietnam's commitments in the 2015 Paris Agreement, the Government of Vietnam has issued decisions on mechanisms to encourage the development of solar power projects in

5. Discussion

Over the past two decades, a system of mechanisms and policies for renewable energy development has been built and gradually completed. However, the potential for renewable energy development in Vietnam is still very large, diverse, and abundant. Therefore, it is necessary to continue researching, amending, supplementing, and perfecting mechanisms and policies to strongly encourage the development of renewable energy, including:

Firstly, it is necessary to implement several tasks and solutions according to Resolution No. 55-NQ/TW dated February 11, 2020, of the Politburo on the orientation of Vietnam's national energy development strategy until 2020. 2030, with a vision to 2045, including building breakthrough mechanisms and policies to encourage and promote strongly the development of renewable energy sources to maximally replace fossil energy sources; to form and develop several renewable energy centers in advantageous regions and localities; invest in modernizing the electricity industry from production, transmission to distribution to meet the development requirements of the electricity market, capable of large-scale integration of renewable energy sources; speeding up the roadmap for the implementation of a competitive electricity market, a mechanism of direct electricity purchase and sale contracts between producers and consumers, an appropriate bidding and auction mechanism for energy supply, especially in power projects.

Secondly, continue to implement Decision No. 2068/QD-TTg dated November 25, 2015, of the Prime Minister approving Vietnam's renewable energy development strategy to 2030, with a vision to 2050.

Thirdly, formulate and implement relevant plans, including the National Power Development Master Plan for the period of 2021 - 2030, with a vision to 2045 (Electricity Master Plan VIII) approved by the Prime Minister. case in Decision No. 1264/QD-TTg dated October 1, 2019; The national energy master plan for the period 2021 - 2030 with a vision to 2050 has been approved by the Prime Minister in Decision No. 1743/QD-TTg dated December 3, 2019. In addition, it is necessary to study and complete relevant mechanisms and policies on land, taxes, and credit incentives in renewable energy development.

6. Conclusion

Renewable energy (solar power, wind power, and waste electricity) in recent years has had a remarkable development in our country after the Government decided on increasing the electricity purchase price. However, there are still many barriers to the development of renewable energy in Vietnam (institutional and policy barriers, science and technology barriers, and infrastructure barriers). Which, institutional and policy barriers are the biggest barriers to the sustainable development of renewable energy in Vietnam.

References:

Institute of Energy, "Report on the third draft of the National Electricity Development Planning Project for the period of 2021 – 2030 with a vision to 2025", February 2021.

PECC2, "Research Report on connection and release of the capacity of solar and wind power plant projects nationwide to 2020", July 2018.

PECC2, "Report on power transmission plans of power sources in the South-Central Region 2 (Ninh Thuan, Binh Thuan)", August 2019.

PECC2, "Research report on the influence of rooftop solar power on the Power System", January 2021.

PECC2, "Report on research on plans to release capacity of renewable energy projects nationwide to 2025", September 2020.

Renewable energy development policy; Dr. Nguyen Van Hoi; Director of the Institute for Strategic Studies, Industry and Trade Policy.

DEFAULT PROBABILITY OF LISTED SEAFOOD AND CONSTRUCTION FIRMS BASED ON STRUCTURAL APPROACH

Assoc.Prof.PhD. Dao Thi Thanh Binh* - Dinh Thi Huong*

Abstract: ***The study analyzes the probability of default for the seafood and construction industry firms listed on the Vietnam Stock Exchange in the period 2017-2019. The study focuses on using structural models to determine the probability of default of the enterprises, beginning with a theoretical framework based on the foundation of Black-Scholes (1973) and Merton (1974) theory to apply to an extension of models for complex debt structures such as the Leland (1994) model, and then, Leland and Toft (1996) to answer the question of how the probability of default changes over time and credit rating.***

• Keywords: *default probability, KMV model, Leland 1994 model, Leland and Toft 1996 model.*

Date of receipt: 15th December, 2022

Date of receipt revision: 20th Jannuary, 2023

Date of delivery revision: 20th December, 2022

Date of approval: 05th February, 2023

Tóm tắt: *Bài nghiên cứu phân tích xác suất vỡ nợ của các công ty niêm yết trên sàn giao dịch chứng khoán Việt Nam đối với ngành thủy sản và ngành xây dựng giai đoạn 2017-2019. Bài nghiên cứu tập trung sử dụng mô hình cấu trúc để xác định xác suất vỡ nợ của doanh nghiệp, phân tích bắt đầu với khuôn khổ lý thuyết dựa trên nền tảng của Black-Scholes (1973) và lý thuyết Merton (1974) để áp dụng cho phần mở rộng của các mô hình cho các cấu trúc nợ phức tạp như mô hình Leland (1994), và sau đó, Leland &Toft (1996) để trả lời câu hỏi về sự thay đổi của xác suất vỡ nợ theo thời gian và xếp hạng tín dụng.*

• Từ khóa: *xác suất vỡ nợ, mô hình KMV, mô hình Leland 1994, mô hình Leland và Toft 1996.*

1. Introduction

Probability of default (PD) or default probability (DP) has become significantly essential, especially in the period of global economic recession and financial crisis. Researchers and analysts are interested in the question whether firms or financial institutions go bankruptcy in subsequent years. In addition, estimation of default probability is a main criterion in credit rating by credit rating agencies such as Standard and Poor, Fitch and Moody's.

The quantitative modeling of default probability is considered as an extensive subject today because of innovative methodology and financial mechanism. Thus, many academics as well as practitioners have expressed great attention to models of forecast default risk of firms. One widely used application is structural models initiated by Merton and then developed by KMV Corporation, therefore, the model can be called Merton's KMV model. In this research, two additional models are used to calculated the probability of default including Leland (1994) and Leland and Toft (1996) models.

The first goal of this research is to understand the strengths and weaknesses of static structural models in determination of the firm's probability of default. Besides, it is necessary to simplify the understanding of structural model under the closed-form calculation so that it is appropriate with Vietnam market. The second objective is using the real data gathered from Vietnamese stock market to estimate relevant parameters for closed-form structural model. In addition, it is necessary to evaluate the compatibility of models with Vietnamese companies in seafood industry and construction industry. The third objective of the research is to answer some following questions:

1. How does default probability change according to the change in time horizon of default?

2. Which is average credit rating for conducted companies based on S&P rating?

2. Literature Review

2.1. The Merton (1974) Model

** Hanoi University, Vietnam; email: binhdtt@hanu.edu.vn - 1604000050@s.hanu.edu.vn*

2.1.1. Underlying Asset

The original model for corporate debt valuation introduced by Merton (1974) has presented a theoretical framework to determine a firm's debt-to-equity ratio. Developed based on the assumption that the company's capital structure includes equity and zero-coupon debts with maturity T and par value D. The asset value follows a Wiener process (also called geometric Brownian motion) given by: $dVt=\mu Vtdt+\sigma VtdWt$

2.1.2. Value of Equity

At the maturity of zero-coupon bonds, shareholders receive max Vt-D,0. At time t $0\leq t\leq T$, the value of equity is calculated with the Black-Scholes model as follows:

$Et = Vt*Nd1-D*e-rT-t*Nd2$

where N is the cumulative standard normal distribution function and d1, d2are quantified by:

$d_1 = lnVtD+r+12A2T-tAT-t$

$d_2 = lnVtD+r-12A2T-tAT-t$

$= d_1-AT-t$

2.1.3. Default Probability

In case of zero-coupon debts, default never happens prior to maturity and the firm declares bankruptcy if asset value falls below the value of principal at maturity (Leland, 2004).

Default boundary in KMV is computed as: VB-KMV=PST+12PLT

where PST denotes the principal of short-term liabilities and PLT is the principal of long-term liabilities.

To compute the probability of default, a new parameter called "distance to default" (DD) is introduced which measures the distance between the market value of firm's asset and default boundary (Lu, 2008). The formula for DD is given by:

$DDt,T=LnVVB-KMVt,T-\mu-\delta-122T-tT-t$

Hence, the term "expected default frequency" (EDF) is created as a measure of the probability that a firm goes into bankruptcy over a certain period of time.

$EDFt=DPt=fDDt,T,t$

The default probability at horizon t, denoted DPt is calculated as: $DPt=N-DDt,T$

2.2. The Leland (1994) Model

2.2.1. Underlying Asset

Firm's asset value denoted V follows a diffusion stochastic process. As the additional equity issuance is used to finance net cost of coupon, asset value must satisfy the following partial equation: 122V2FVVV,t+rVFVV,t-rFV,t+FtV,t+C=0

where FV,t is the value of a claim on the company that continually pays positive coupon C when the firm is solvent and r is the constant risk-free rate. Generally, closed-form solutions for this equation in case of arbitrary boundary conditions do not exist. Nevertheless, time independent value of security implies that the term FtV,t=0 and this above equation becomes: 122V2FVVV+rVFVV-rFV+C=0

This new equation generates a solution as a functional form: $FV=A0+A1V+A2V-X$ where $X=2r2$

and A0, A1, A2 are constant and determined by boundary conditions. This equation is used to determine debts value, bankruptcy costs and tax benefits which are all time independent.

2.2.2. Value of Debt

Denoting DV as debts value, VB as bankruptcy value, α $0\leq\alpha\leq1$ as a fraction of asset value lost due to default. If bankruptcy occurs, debtholders receive $1-\alpha VB$.

Substituting $A0=C/r;\ A1=0,\ A2=1-\alpha VB-C/rVBX$ into functional form, the value of debt equals: $DV=Cr+1-\alpha VB-CrVVB-X$

2.2.3. Value of Equity

The value of equity equals the total value of firm minus the value of debt. To calculate total firm value, tax benefits and bankruptcy costs denoted TBV and BCV respectively are firstly determined.

The total value of firm, V, computed by adding the value of tax advantages in the firm's asset value and deducting the value of bankruptcy costs: $= V+\tau Cr-\tau Cr+\alpha VBVVB-X$

The value of equity is calculated as residual of asset value after deducting debt value:

$$EV=V-1-\tau Cr+1-\tau Cr-VBVVB-X$$

2.2.4. Default Probability

The cumulative default probability (DP) at any time t from now time 0 is determined as following:

$$DPt;b,\mu,\sigma = N\text{-}b\text{-}\mu\text{-}122t/t + e\text{-}2b\mu\text{-}122/2N\text{-}b+\mu\text{-}122t/\sigma t$$

with $b=lnV/VB$

2.3. The Leland and Toft (1996) Model

2.3.1. Assumptions

A stationary capital structure implies that VB remains unchanged (Dao and Lai, 2018). At maturity of debt, the firm continuously issues new debt with the same principal and maturity T which is redeemed at par provided the firm is solvent. Total principal value of all outstanding debts keeps constant at P with total unchanged coupon paid C per year. New debt principle is issued at an annual rate p=P/T so that the stationary capital structure is guaranteed. Hence, at any time s the principal of total outstanding debts equals P unless default occurs and remaining time-to-maturity get a uniform distribution within the interval s,s+T, implying average maturity equals T/2. Let c=C/T denotes a constant coupon rate that bonds with principle p bear per year. Total annual debt payments are independent of time and computed by C+P/T.

2.3.2. Underlying Asset

The firm's unlevered value follows a diffusion process: $dVV=V,t\text{-}\delta dt+\sigma dz$

with is the constant fraction of asset value distributed to securities holders, and dz is the increment of a standard Wiener process.

2.3.3. Value of Debt

Consider a single debt with principal pt, constant coupon ct, maturity t, and value dV; VB, t. From risk-neutral valuation, the value of debt is obtained as:

$$dV;\ VB,t=0te\text{-}rsct1\text{-}Fs;V,VBds+e\text{-}rtpt1\text{-}Ft;V,VB+0te\text{-}rs1\text{-}\alpha VBtfs;V,VBds$$

The first term in this equation show the discounted expected value of coupon stream which will be paid at time s with probability 1-Fs; V, VB, where Fs; V, VB represents the cumulative distribution function of the first passage time to default. The second term denotes the expected discounted value of principal repaid at maturity, and the third term is the expected discounted value of asset's fraction that distributed to debtholders if default occurs and fs; V, VB represents the density of the first passage time to bankruptcy.

The total value of debt denoted DV;VB,T when debt of maturity T is issued can be interpreted as: $DV;\ VB,T=t=0TdV;\ VB,tdt = Cr+P\text{-}Cr1\text{-}e\text{-}rTrT\text{-}IT+1\text{-}\alpha VB\text{-}CrJT$

where:

$IT=1rTGT\text{-}e\text{-}rTFT$

$JT=1z\sigma T\text{-}VVB\text{-}a+zNq1Tq1T+VVB\text{-}a\text{-}zNq2Tq2T$

2.3.4. Value of Equity

Following Leland (1994) model, the total value of firm is the summation of the asset value and the value of tax benefit minus the value of bankruptcy cost over the infinite horizon. With x=a+z, the value of debt equals:

$$vV;VB=V+\tau Cr1\text{-}VVB\text{-}x\text{-}\alpha VBVVB\text{-}x$$

The value of equity is thus determined by: EV;VB,T=vV;VB,T-DV;VB,T

2.3.5. Default Probability

The cumulative default probability (DP) at any time t from now time 0 is calculated by:

$$DPt;b,\mu,\delta,\sigma=N\text{-}b\text{-}\mu\text{-}\delta\text{-}122t/t + e\text{-}2b\mu\text{-}\delta\text{-}122/2N\text{-}b+\mu\text{-}\delta\text{-}122t/\sigma t$$

At T where VB=P, the probability of default equals: $DP = N\text{-}b\text{-}\mu\text{-}\delta\text{-}122T/\sigma T$

3. Research Methodology

3.1. Data Collection

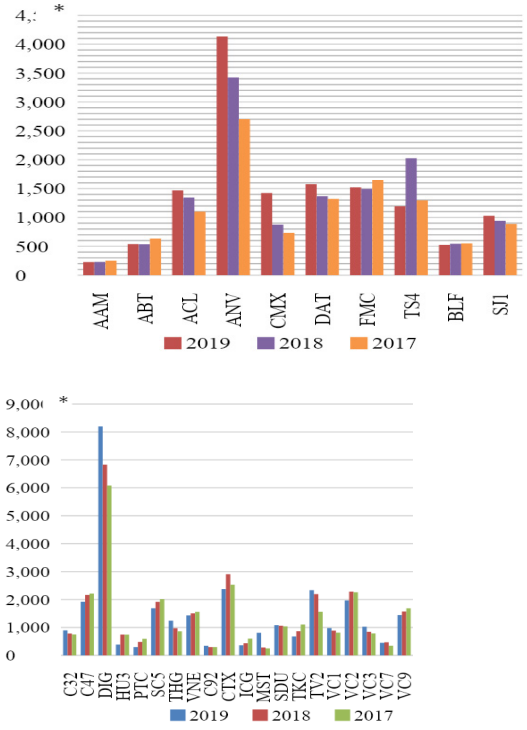
The research attempts to study the probability of default for listed seafood and construction industries. There are 13 seafood firms and 27 construction firms. The stock prices of all these firms are continuously collected on a daily basis for the period of three years in order to calculate stock returns. The asset volatility and drift are indispensable parameters for closed-form models of default probability.

Data about firms' assets for seafood companies are illustrated in the Figure 1. The graph did not include the two highest asset value companies HVG and VHC which accounted for more than 50% of total asset value for seafood industry and the lowest asset value of NGC. In general, HVG, VHC and ANV remained the top largest seafood companies while NGC and AAM were two smallest firms by total asset.

Figure 1 demonstrates the value of asset for construction companies excluding four biggest

firms VCG, DXG, CTD, and HBC and two smallest firms KDM and VE9. Overall, the asset value of firms in construction industry displayed larger standard deviation than seafood industry. While VCG, DXG, CTD, and HBC revealed more than 10,000 billion VND in asset value, KDM, VE9, C92 and VC7 value of asset did not surpassed 500 billion VND. The majority exhibited asset value of below 3,000 billion VND.

Figure 1: Seafood companies and Construction companies by total assets (in billion VND)



Source: Authors

3.2. Parameter estimation

3.2.1. Stock volatility and drift estimation

• Stock volatility

Denote Si as the closing stock price at the end of i-th trading period and k=ti-ti-1 is the length of time interval (expressed in years) between two continuous trading periods. In other word, k=1/ number of trading days. There were 250 trading days in 2017 and 2019 for total 40 stocks. In 2018, some stocks experienced 250 business trading days, meanwhile, some other stocks witnessed 280 trading days.

Let ui be the logarithm of daily returns: ui=lnSiSi-1

Then the average daily returns, u is computed as follow: u=1ni=1nui

The standard deviation of returns, is given by: v=1n-1i=1nui-u2

Finally, annualized stock volatility, is determined by: E=k

• Stock drift

The expected rate of return on stock or drift E is calculated as:E=uk+12E2

3.2.2. Asset volatility and drift estimation

• Asset volatility

Asset volatility is implied from stock volatility by Merton-KMV models.

Merton (1974) shows the relationship between asset volatility and stock volatility as follow:

$$A=1Nd1*EtVt*E$$

• Asset drift

The expected return on asset is adjusted from the expected return on stock by the following formula: $A=E1+DE$

3.2.3. Other parameters

Data about risk-free rate, corporate tax rate are gathered from online sources in which, risk-free rate is the average returns on Vietnam 5-year Government bonds. Other parameters consisting of bankruptcy cost, payout rate and maturity are assumed so that these figures fit the Vietnam companies in general.

Table 1: The parameters

	2019	2018	2017
Risk-free rate, r	3.20%	4%	4.70%
Tax rate,	20%	20%	20%
Bankruptcy cost,	50%	50%	50%
Payout rate,	2%	2%	2%
Maturity, T	5 years	5 years	5 years

Source: Authors

3.3. Calculation

The estimated parameters are used as inputs for closed-form solution to determine probability of default. The default probability is computed by three models: Merton-KMV, Leland (1994) and Leland and Toft (1996).

4. Discussion of Findings

4.1. Descriptive Statistics

Overall, year 2018 revealed a higher stock volatility and lower standard deviation in rate of

return comparing to year 2017 and 2019 in both two industries. The statistical description of volatility and drift for these industries is depicted in Table 2 and Table 3. Along with higher volatility, 2018 annual drift of seafood companies also presented a higher rate than 2017 and 2019 drift. By contrast, construction firms drift in 2018 was lower than the figure in 2017.

Table 2: Descriptive analysis of stock volatility and drift of seafood companies (%)

	2019		2018		2017	
	Stock volatility	Drift	Stock volatility	Drift	Stock volatility	Drift
Mean	44.40%	10.44%	52.98%	23.21%	45.78%	10.37%
Median	46.56%	8.58%	48.00%	29.01%	43.38%	7.38%
Minimum	22.99%	-76.49%	37.84%	-28.07%	29.52%	-27.32%
Maximum	62.21%	78.29%	70.03%	74.07%	76.12%	69.52%
Standard Deviation	12.11%	43.99%	11.68%	37.22%	14.25%	26.20%

Extreme drift value: μ<-80% or μ>80%
Source: Author's calculation

Table 3: Descriptive analysis of stock volatility and drift of construction companies

	2019		2018		2017	
	Stock volatility	Drift	Stock volatility	Drift	Stock volatility	Drift
Mean	42.91%	5.56%	49.88%	11.49%	45.38%	29.76%
Median	39.60%	7.32%	48.13%	16.36%	43.63%	25.35%
Minimum	16.22%	-72.25%	28.41%	-49.41%	20.90%	-33.24%
Maximum	76.50%	75.89%	75.82%	78.45%	82.31%	75.50%
Standard Deviation	18.34%	35.51%	12.33%	35.78%	13.85%	30.17%

Extreme drift value: μ<-80% or μ>80%
Source: Author's calculation

4.2. Default Probability

The critical value chosen to set the boundary for the default probability is 50% since total 40 selected firms are all exist at present. The estimated figures that higher than 50% are deleted from the descriptive table so that the results are reasonable in practice.

4.2.1. KMV Default Probability Model

Table 4: KMV default probability of seafood companies

No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
1	AAM	0.08%	2.97%	1.37%	14.90%	1.89%
2	ABT	0.00%	9.20%	0.04%	26.52%	0.01%
3	ACL	0.08%	-	0.09%	-	14.98%
4	ANV	-	-	0.00%	-	-
5	CMX	7.39%	-	9.77%	-	-
6	DAT	15.80%	1.47%	22.15%	2.32%	-
7	FMC	-	6.99%	0.00%	25.10%	-
8	HVG	10.99%	8.75%	41.74%	13.49%	27.17%
9	TS4	0.03%	0.00%	0.00%	0.09%	30.78%
10	VHC	0.03%	48.59%	0.00%	-	1.01%
11	BLF	3.83%	0.00%	0.02%	0.76%	22.38%
12	NGC	1.62%	45.52%	0.00%	-	24.33%
13	SJ1	26.07%	16.32%	-	28.21%	41.60%

Source: Author's calculation

Table 4 indicates the default probability for seafood industry by Merton KMV model. The results show that with the same time horizon of three years, 2018's PD is slightly higher than 2017's PD and 2019's PD in five stocks namely AAM, ABT, FMC, VHC, and NGC. Especially, VHC and NGC witness the surprised jump to extremely high rate of 48.59% and 45.52% respectively while the default rates in 2017 and 2019 are just around 0.00%-1.62%. By contrast, DAT, HVG, BLF, and SJ1 exposes the opposite behaviors when 2018's PD of these stocks is lower than the other two years. Among these stocks, DAT and HVG see the huge distances between default rate of 2018 and default rates of two other years.

When the time of default is chosen continuously, referring that 2019's PD is computed with time horizon of 3 years, 2018's PD is calculated with 4-year horizon and 2017's PD is defined with 5-year horizon, it can be observed that there is an increase in PD from 3-year to 5-year time horizon appearing in stocks ACL, TS4, BLF, NGC, VHC and SJ1. It is understandable that when the time horizon for default increases, the cumulative default probability definitely rises. Three stocks AAM, ABT, and FMC still remain the fact that 2018's PD is the highest value given that 2017 computed with longer time horizon.

Table 5: KMV default probability of construction companies

No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
1	C32	0.06%	0.00%	0.00%	0.00%	2.58%
2	C47	41.15%	10.29%	0.00%	45.75%	-
3	CTD	0.05%	0.00%	0.00%	0.01%	16.99%
4	DIG	-	0.25%	0.00%	0.78%	-
5	DXG	-	12.17%	0.00%	28.14%	-
6	HBC	-	0.00%	0.00%	0.02%	-
7	HU3	10.34%	2.90%	0.00%	36.66%	-
8	PTC	8.64%	5.62%	3.00%	16.83%	30.82%
9	ROS	2.94%	0.00%	0.00%	0.00%	39.12%

No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
10	SC5	14.12%	16.80%	4.33%	37.27%	43.79%
11	THG	0.02%	0.02%	6.92%	0.21%	1.09%
12	VNE	2.65%	0.00%	0.02%	0.00%	20.26%
13	C92	2.45%	0.01%	0.00%	0.72%	2.35%
14	CTX	36.14%	2.14%	-	16.14%	-
15	ICG	0.49%	15.89%	0.08%	42.36%	14.31%
16	KDM	0.00%	23.18%	0.16%	38.99%	0.00%
17	MST	0.00%	44.25%	3.59%	-	0.00%
18	SDU	3.06%	3.31%	0.44%	7.24%	16.04%
19	TKC	31.22%	9.17%	0.00%	26.17%	-
20	TV2	0.00%	-	0.09%	-	2.12%
21	VC1	22.37%	11.23%	9.47%	30.49%	-
22	VC2	4.28%	0.00%	20.52%	0.19%	-
23	VC3	0.00%	5.92%	0.00%	33.46%	0.02%
24	VC7	1.04%	0.17%	0.01%	0.46%	24.65%
25	VC9	16.55%	0.03%	3.74%	2.00%	-
26	VCG	48.80%	3.94%	0.35%	11.53%	-
27	VE9	32.02%	0.88%	0.32%	1.50%	-

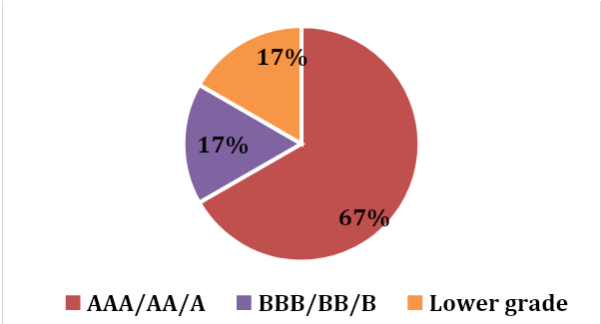
Source: Author's calculation

Construction companies experience a more observable trend when more than 50% of described stocks have highest default probability in 2017 given the same default horizon. Among these stocks, C47, TKC, VCG and VE9 obtain the significant gaps in 2017's PD and 2019's PD when 2019's rate is just around 0.00% while 2017's rate is over 30%. It can be obviously seen that default rate in 2019 gets the lowest figure on average. VC2 is a special firm with the highest probability of 20.52% in 2019 in compare with 0.00% in 2018 and 4.28% in 2017.

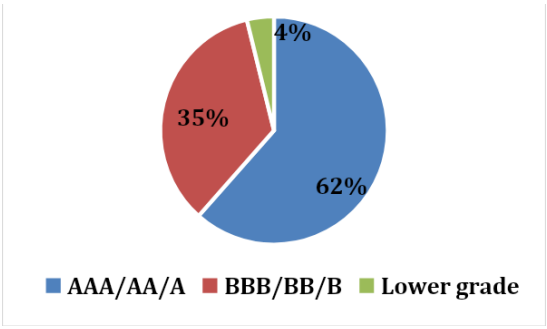
With the consecutive time horizon, cumulative default probability in 2018 computed with 4-year horizon, and cumulative default probability in 2017 calculated at 5-year length, shows the higher value than that in 2019 with 3-year length. Most stocks follow this trend except KDM and MST which go against with PD in 2017 at lowest level of 0.00%.

Figure 2: Credit rating for seafood and construction industry by KMV model 2019

Seafood



Construction industry



Source: Authors

According the credit rating by cumulative default rate estimated by S&P Global (2018), at the time of 2019 with the default time horizon of three years, 67% of seafood firms and 61% of construction companies ranks AAA/AA/A with the default probability less than 0.25%. Furthermore, credit rating of BBB/BB/B in construction industry is approximate as twice as rating in seafood industry (35% and 16% respectively). Besides, 17% of seafood companies is in lower grade credit rating comparing to 4% of construction companies.

4.2.2. The Leland (1994) Default Probability Model

Table 6: Leland (1994) default probability of seafood companies

No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
1	AAM	0.52%	0.00%	0.06%	0.01%	2.22%
2	ABT	17.62%	0.01%	0.11%	0.02%	-
3	ACL	5.69%	0.00%	0.97%	0.00%	11.66%
4	ANV	0.00%	0.00%	0.72%	0.00%	0.00%
5	CMX	5.47%	0.00%	0.18%	0.00%	11.54%
6	DAT	0.02%	4.61%	0.00%	12.46%	0.08%
7	FMC	0.00%	0.01%	0.04%	0.01%	0.00%
8	HVG	1.92%	1.62%	0.00%	4.88%	8.28%
9	TS4	12.29%	27.51%	-	35.40%	19.56%
10	VHC	2.31%	0.00%	0.82%	0.00%	9.57%
11	BLF	9.84%	15.99%	0.90%	23.33%	26.07%
12	NGC	6.95%	0.00%	-	0.01%	16.86%
13	SJ1	0.81%	0.21%	0.00%	0.65%	3.81%

Source: Author's calculation

In comparison between 3 consecutive years, the default probability of 2017 is remarkably higher than this figure indicated for the two years left in six stocks namely AAM, ABT, ACL, CMX, VHC and NGC. Especially among them, it can be clearly seen that 2017's PD with ABT stock having a powerful upsurge with the number up to 17.62%, more than a hundred times higher than this number

in 2018 and 2019 respectively 0.01% and 0.11%. Alternatively, ANV, DAT and FMC, it was shown a slight lower than the other two years.

It can be observed that there is an increase in PD from 3-year to 5-year time horizon appearing in stocks ACL, HVG, BLF and SJ1. Especially, BLF has a substantial upward in 2018 and 2017 respectively 23.33% and 26.07%. Three stocks AAM, ABT, and FMC still remain the fact that 2018's PD is the highest value.

Table 7: Leland (1994) default probability of construction companies

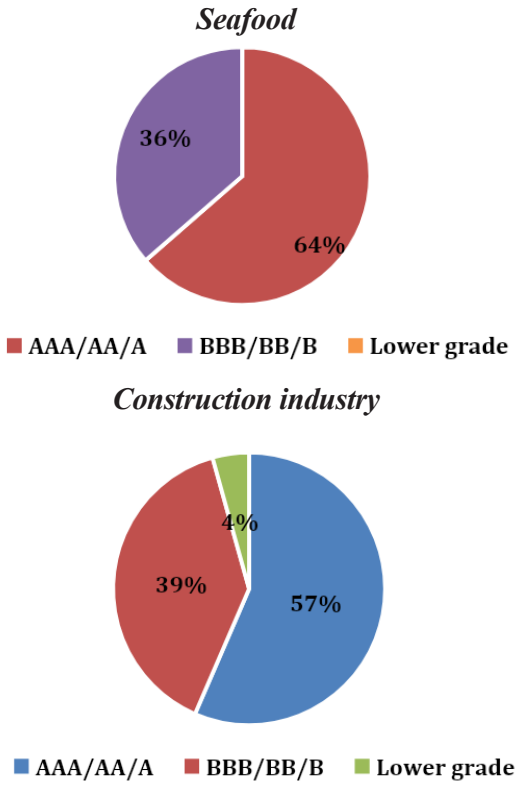
No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
1	C32	0.77%	9.59%	1.00%	23.04%	3.26%
2	C47	0.10%	0.10%	-	0.16%	0.15%
3	CTD	0.00%	9.73%	-	24.46%	0.01%
4	DIG	0.00%	2.35%	0.10%	6.94%	0.00%
5	DXG	0.00%	0.03%	3.69%	0.09%	0.00%
6	HBC	0.00%	31.52%	42.55%	-	0.00%
7	HU3	1.51%	0.21%	1.31%	0.29%	2.73%
8	PTC	1.06%	0.27%	0.23%	0.73%	4.33%
9	ROS	0.00%	-	-	-	0.01%
10	SC5	1.12%	0.10%	0.13%	0.27%	4.11%
11	THG	4.12%	3.25%	0.00%	8.05%	14.39%
12	VNE	0.21%	40.64%	0.77%	-	0.94%
13	C92	19.30%	12.59%	0.00%	20.82%	-
14	CTX	0.21%	2.14%	0.00%	3.91%	0.48%
15	ICG	2.78%	0.00%	1.11%	0.00%	7.69%
16	KDM	-	0.16%	2.84%	0.32%	-
17	MST	-	0.05%	0.03%	0.10%	-
18	SDU	2.04%	2.29%	0.53%	6.39%	8.05%
19	TKC	0.04%	0.06%	-	0.17%	0.08%
20	TV2	27.20%	0.00%	0.00%	0.00%	-
21	VC1	0.11%	0.20%	0.04%	0.50%	0.22%
22	VC2	2.71%	25.36%	0.00%	36.49%	5.27%
23	VC3	23.87%	0.00%	0.03%	0.00%	-
24	VC7	0.14%	7.65%	3.82%	19.59%	0.43%
25	VC9	0.35%	13.79%	0.11%	21.18%	0.48%
26	VCG	0.00%	0.16%	0.00%	0.48%	0.00%
27	VE9	0.14%	4.95%	3.37%	13.12%	0.57%

Source: Author's calculation

Table 8 demonstrates that the 2017's DP seems lower than this figures in 2018 and 2019 given the same time length. Some stocks HBC, VNE, VC2, and VC9 experienced significant higher DP in 2018 where as 2017's DP of these stock showed small numbers. Besides, C47, DXG, TKC, VC1, and VCG showed relatively constant DP at low rate in both 2017 and 2018. TV2 and VC3 can be seen as strange behavior when the DP in 2017 dramatically bigger than this number in two other years.

With time continuous estimation, DP in 2017 still told that this was the lowest value in three years in some stocks such as DIG, DXG, and VCG. Meanwhile, some stocks had highest DP in 2017 namely SC5, THG, and SDU of 4.11%, 14.39%, and 8.05% respectively.

Figure 3: Credit rating for seafood and construction industry by Leland (1994) model



Source: Authors

Again, based on credit rating by S&P (2018), 64% of listed seafood companies had ranking AAA/AA/A, while 57% of construction firms was valued as investment grade. Percentage of companies which are in BBB/BB/B credit rating is similar for both seafood and construction industry, 36% of seafood compared to 39% of construction companies. There is an interesting point that no firms in seafood industry lies on lower grade credit rating while this percentage in construction industry is 4%.

4.2.3. The Leland and Toft (1996) Default Probability Model

As is observed, with the same horizon of three years, 2017's DP was sharply higher than 2018' DP and 2019's DP in two stocks namely AAM and VHC. Particularly, this figure of ANV in 2019 was shown to be extremely high up to 40.74%, countless higher than that in 2018.

Table 8: Leland &Toft (1996) default probability of seafood companies

No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
1	AAM	11.58%	1.08%	4.27%	1.34%	19.97%
2	ABT	83.60%	2.18%	14.12%	2.66%	-
3	ACL	11.15%	-	-	-	25.04%
4	ANV	-	0.01%	40.74%	0.01%	-
5	CMX	-	-	-	-	-
6	DAT	7.82%	-	-	-	9.89%
7	FMC	0.49%	4.24%	7.76%	5.04%	0.50%
8	HVG	-	-	-	-	-
9	TS4	23.00%	6.42%	-	18.67%	43.12%
10	VHC	39.99%	0.56%	24.20%	0.59%	-
11	BLF	-	0.00%	18.39%	0.09%	-
12	NGC	-	-	-	-	-
13	SJ1	-	-	-	-	-

Source: Author's calculation

Table 9: Leland & Toft (1996) default probability of construction companies

No	Stock	DP_2017 t = 3	DP_2018 t = 3	DP_2019 t = 3	DP_2018 t = 4	DP_2017 t = 5
1	C32	23.25%	-	41.50%	-	35.73%
2	C47	-	-	-	-	-
3	CTD	0.55%	-	-	-	0.69%
4	DIG	0.00%	-	17.19%	-	0.00%
5	DXG	0.38%	-	-	-	0.38%
6	HBC	6.39%	-	-	-	6.43%
7	HU3	2.36%	1.65%	24.38%	2.36%	5.82%
8	PTC	-	-	22.29%	-	-
9	ROS	0.36%	-	-	-	0.44%
10	SC5	-	-	-	-	-
11	THG	-	-	0.77%	-	-
12	VNE	18.65%	-	-	-	26.13%
13	C92	-	0.00%	0.00%	0.00%	-
14	CTX	-	-	-	-	-
15	ICG	-	1.91%	38.77%	2.19%	-
16	KDM	-	8.29%	-	10.06%	-
17	MST	-	-	-	-	-
18	SDU	-	-	-	-	-
19	TKC	-	-	-	-	-
20	TV2	35.61%	-	3.97%	-	-
21	VC1	-	-	-	-	-
22	VC2	-	7.85%	-	21.05%	-
23	VC3	-	1.21%	4.48%	1.33%	-
24	VC7	21.24%	-	-	-	25.77%
25	VC9	2.09%	-	-	83.20%	3.21%
26	VCG	1.32%	27.11%	3.22%	32.65%	1.37%
27	VE9	-	-	-	-	-

Source: Author's calculation

According to the table, there was a third of the stocks in 2017 have a much lower probability of default than that in 2018 and 2019 such as DIG, VC7 and VE9. The rate of HBG stock caused a dramatic surprise in 2018 and 2019 with the numbers illustrated to be 31.52% and 42.55%, respectively.

In fact, the Leland and Toft (1996) model gives more unreasonable default probability and shows higher the estimated figures than two other models. Most unreasonable figures related to negative asset drift value. It can have doubts that the model does not fit perfectly with some company at a certain level.

5. Conclusion

By studying 40 companies listed on the Vietnamese stock market, 13 of which are in the seafood sector and 27 of which are in the construction industry, this research provides insights on the probability of default based on the structural approach. This research attempts to empirically test the probability of default initiated by Merton (1974), by Leland (1994) and Leland and Toft (1996) in Vietnam market.

Regarding to probability of default, the trend is not clearly observed. With the same period of default horizon, KMV model and Leland (1994) model can be different at some aspects. Seafood industry is considered to get more fluctuation than construction industry.

References:

Black, F. and Scholes, M., 1973. The pricing of options and corporate liabilities. Journal of political economy, 81(3), pp. 637-654.

Leland, H.E., 1994. Corporate debt value, bond covenants, and optimal capital structure. The journal of finance, 49(4), pp. 1213-1252.

Lelanda, H.E., 2004. Predictions of Default Probabilities in Structural Models of Debt. The Credit Market Handbook, p. 38.

Leland, H.E. and Toft, K.B., 1996. Optimal capital structure, endogenous bankruptcy, and the term structure of credit spreads. The Journal of Finance, 51(3), pp. 987-1019.

Merton, R.C., 1974. On the pricing of corporate debt: The risk structure of interest rates. The Journal of finance, 29(2), pp. 449-470.

Poulsen, T.K. and Miltersen, K.R., 2014. Dynamic capital structure: Debt rollover and funding liquidity (Doctoral dissertation, Master's Thesis).

Binh, D.T.T. and Phuong, L.H., 2018. A study on optimal capital structure of Vietnamese real estate listed firms. Journal of Economics and Development, 20(3), pp.45-70.

FACTORS AFFECTING THE INTENTION TO USE GREEN PRODUCTS: A CASE STUDY OF USING ECO-FRIENDLY STRAWS BY HANOIANS

Le Thuy Huong* - Do Khac Huong*

Abstract: ***Currently, it is an inevitable trend to use green products for the protection of consumers' health as well as the sustainability of the environment. By setting up a model and analyzing the data of a survey on 422 Hanoians, the study shows the factors affecting the intention of using eco-friendly straws by Hanoi consumers. Those are the health care, attitude, concern for the environment, subjective norms, product availability perception and perceived food prices. The paper also suggests recommendations to improve the intention to buy eco-friendly straws, develop eco-friendly, healthy products in general and eco-friendly straws in particular.***

• Keywords: *eco-friendly products, healthy products; eco-friendly straws.*

Date of receipt: 02nd November, 2022
Date of delivery revision: 08th November, 2022
Date of receipt revision: 15th December, 2022
Date of approval: 01st February, 2023

Tóm tắt: *Hiện nay, sử dụng các sản phẩm xanh để bảo vệ sức khỏe người tiêu dùng cũng như sự bền vững của môi trường là một xu hướng tất yếu. Bằng việc thiết lập mô hình và phân tích dữ liệu khảo sát trên 422 người dân Hà Nội, nghiên cứu chỉ ra các yếu tố ảnh hưởng đến ý định sử dụng ống hút thân thiện với môi trường của người tiêu dùng Hà Nội. Đó là chăm sóc sức khỏe, thái độ, mối quan tâm đối với môi trường, chuẩn mực chủ quan, nhận thức về tính sẵn có của sản phẩm và giá cả thực phẩm. Bài viết cũng đưa ra các khuyến nghị nhằm nâng cao ý định sử dụng ống hút thân thiện với môi trường, phát triển các sản phẩm thân thiện với môi trường và tốt cho sức khỏe nói chung cũng như ống hút thân thiện với môi trường nói riêng.*

• Từ khóa: *sản phẩm thân thiện với môi trường, sản phẩm tốt cho sức khỏe, ống hút thân thiện với môi trường.*

1. Introduction

Our society is facing with bad habits that harmful for environment and life such as throwing garbage indiscriminately, over speed and reckless driving, smoking in public places, etc. These habits are formed from people's daily activities and gradually form the consciousness of each person. In order to change these unhealthy habits, it is necessary for social organizations and governments to take measures to change people's consciousness. To take the measures, social marketing is considered as an effective tool.

One of the factors that harmful for environment and human health is plastic waste. It takes hundreds of years or even longer to decompose a plastic straw or a plastic bag into the natural environment.

In Vietnam, plastic straws are so popular in restaurants, hotels, coffee, and milk tea shops. The situation of use of plastic straws and cups is very common, especially in big cities.

To protect the environment for ourselves and future generations, community organizations and authorities need social marketing programs to promote awareness of eliminating plastic straws and forming habit of using eco-friendly straws. To have an effective social marketing program, it is needed to understand the habits and behaviors of using straws of Vietnamese consumers.

Thus it is meaningful and necessary to research "Factors affecting the intention to use green products: A case study of using eco-friendly straws by Hanoians" to analyze consumer behaviors towards limiting the use of plastic pipes in order to create the basis for social marketing programs of encouraging the use of eco-friendly straws.

2. Literature review

Daniel Holzer (2018) argues that literally eco-friendly means not harming the environment. Thus, a product which pays attention to the safety of the

** National Economics University, Vietnam; email: huongdk@neu.edu.vn*

environment and human life is truly environmentally friendly. At a minimum, the product does not contain harmful substances, does not affect resources, does not contaminate water, soil, and air. The product will be made from environmentally friendly materials, reducing the impact on the environment when using (less waste, using renewable energy, low maintenance costs) and creating a safe environment for human health. Thus, the use of environmentally friendly products will help us change our habits and adjust our behavior to be more conscious of protecting the environment.

To clarify the factors affecting behavioral intention, studies often rely on the theory of planned behavior (TPB) model of Fisbein and Ajzen (1991). This study also wants to use and develop its model based on TPB model. At the same time, the study also consulted an overview of previous studies related to the topic to find gaps and build its research model. In the studies of the factors affects the behavior of environmental protection, each person's lifestyle determines different individual actions that allow us to distinguish ourselves from others in society (Campbell, 1998; Chaney, 1996). The largest environmental impacts are related to the individual daily actions such as individual housing, food, energy, and travel (Gronco and Warde, 2001; Lorek and Spangenberg, 2001; Spangenberg and Lorek, 2002). These activities which generate polluting emissions and emissions, are a major cause of environmental degradation and contribute to global climate change (OECD, 2002; Worldwide Fund for Nature, 2005; Zacarias-Farah and Geyer-Allely, 2003). Researchers have found that individuals' behavioral choices are influenced by factors such as living and working conditions and ideal lifestyle commonly reported in the mass media (Sanne, 2002). These factors act as barriers to behavior changes. For example, the power of pervasive marketing of goods and services can prevent consumers from acting rationally. Consumers are not free to choose behavior, but they are dependent on unsustainable consumption patterns (Sanne, 2002).

Besides lifestyle, a number of socio-cultural and economic factors can shape and limit individual decisions to engage in pro-environmental behavior (Burgess, 2003; Costanzo et al., 1986; Hinchliffe, 1996; Holdsworth and Steedman, 2005; Whitelegg, 1993; Whitelegg and Haq, 2003). While there may be willingness to engage in pro-environment behavior, individuals are waiting for permission and support to do so. They often wait for stakeholders such as government and business to take the lead in implementing the behavior, i.e., the concept of "I will if you will" (National Consumer Council, 2006). Economic incentives, institutional barriers, inequalities in access, and mass communication of green issues can influence on community change before individuals are actively involved in pro-environment behavior.

Pro-environment behavior also depends on human perception (Owens, 2000). However, cognitive factors such as public perception that sustainable goods and services are more expensive, lack of awareness about how to develop environmentally sustainable, or people's distrust of Governments and businesses in promoting lifestyle change which have not been paid much attention on social marketing research (Holdsworth and Steedman, 2005).

The green and ethical products are available and convenient and had major impact on the sales (Mintel, 2005, 2007; The Co-operative Bank, 2008).

Several studies (Boulstridge and Carrigan, 2000; Carrigan and Attalla, 2001) suggest that price, value, quality, brand familiarity, and convenience play important roles in purchasing decisions for green and ethical products. Retailers recognize it is necessary to launch the green product to consumers with reasonable price (Carrigan and de Pelsmacker, 2009; Mintel, 2007), thereby employing strategies such as Tesco's commitment UK to tackle energy consumption through discounts on low energy light bulbs. Consumer's expectations are widening and there are growing concerns about sustainability (Newholm, 2005) because of the potential for environmental overconsumption.

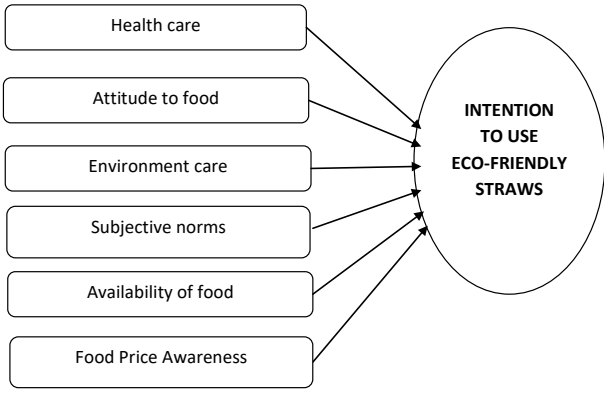
However, few studies have tackled the issue of congruence between consumer's responsibility and environmental reform (Connolly and Prothero, 2008). In fact, policymakers and social marketers are still calling for reduced fuel consumption as a step towards sustainability and as a means of solving environmental problems (Peattie and Peattie, 2009). In contrast, consumers will adjust their consumption in a particular way (Connolly and Prothero, 2008), and the current gap between consumers' positive attitudes towards sustainability and consumption behavior are often inconsistent and contradictory. Boulstridge and Carrigan (2001) show that this gap remains a concern.

According to Connolly and Prothero (2008) and Warde (2005), consumer is the person who engages

in the meaningful social activities daily, sustainable, or otherwise, related to consumption (purchase, use and/or dispose) of physical goods in one way or another. Thus, attitudes about consumption and social relations and norms influence the changing behavior of the public in society.

Specifically, the case study of the intention to use eco-friendly straws has not been exploited much. Only a few studies have been concerned about this product, such as the Study by Juliana Mohd Abdul Kadir et al (2020). Research topic "Factors affecting the intention to use bio degradable straws" by Juliana Mohd Abdul Kadir et al (2020) distributedan online questionnaire to 242 students to measure the relationship among the four variables attitude, knowledge, behavioral control, and subjective norm. This study found that attitude, subjective norm and behavioral control have a positive relationship with intention to use bio degradable straws. However, the knowledge fator was not significant in explaining the intention to use. Research by Christian Haposan Pangaribuan and partners (2021), "Investigation into Millennials' Perceived Environmental Knowledge towards Intention to Use Environmental-Friendly Drinking Straws" has extended the theory of Planned Behavior in explaining the intention to use eco-friendly straws of the millenials (born between 1980 and 2000). Research has shown that environmental attitudes, personal norms and social norms affect behavioral intentions. Meanwhile, the variable on environmental knowledge does not have enough evidence and data to confirm whether or not it affects the intention to use eco-friendly straws. In the research project "Factors affecting the intention to use environmentally friendly straws of consumers in Ho Chi Minh City", the authors used the theory of rational action (TRA) (Ajzen & Fishbein, 1975) and Theory of Planned Behavior (TPB) (Ajzen, 1991) as a theoretical basis to develop a measurement model consisting of 5 independent variables: (1) Attitudes, (2) Subjective Norms, (3) Behavioral control, (4) Social influence, (5) Environmental perception and a dependente variable: Intentionto use eco-friendly straws. The research results show that all these 5 factors affect the intention to use eco-friendly straws of Ho Chi Minh consumers, in which atitude is the fator that has the most impact and environmental awareness fator is the least affected factor. From the review of these studies, the author has proposed the following research model and hypotheses.

Figure 1: Research models



To test this model, the author makes the following hypothesis:

H1. The more health-conscious consumers are, the higher their intention to buy eco-friendly straws.

H2. The better the consumer attitude towards the use of eco-friendly straws, the higher the purchase intention.

H3. The more consumers care about the environment, the higher the intention to buy eco-friendly straws.

H4. The higher a consumer has a subjective norm in favor of buying an eco-friendly straw, the greater the purchase intention.

H5. The higher the consumer awareness of the availability of eco-friendly straws, the greater the purchase intention.

H6. High perception of eco-friendly straw prices positively affects the intention to buy eco-friendly straws.

3. Methodology

The study was conducted quantitatively with a sample of 422 consumers through an online survey method. The questionnaire was built based on recognized scales from previous studies.

The eco-friendly straw purchase intention scale is extracted from the study of Susan L. Holakand Donald R. Lehmann (1990).

The scale of health concern is extracted from the study of Oude Ophuis (1989).

Attitude scale is extracted from the study of Azen and Fishbein (1991).

The scale of concern for the environment is extracted from the study of Gil J. M., Gracia A. and Sanchez M. (2000).

The subjective norm scale is extracted from the study of Azen and Fishbein (1991).

The Product Availability Perception Scale is extracted from the study of Anssi Tarkiainen et al (2005).

The food price scale is extracted from the study of Victoria Kulikovskiand Manjola Agolli (2010).

Collected data is used to re-evaluate the scale, analyze factors, analyze correlation and test the model and research hypotheses by means of multiple regression with the support of SPSS software in steps after:

(1) Descriptive statistics of data collected by comparing frequencies between different groups according to the control variable

(2) Verifying the value of the scale by factor analysis method EFA

(3) Assess there liability of the scale

(4) Analysis of multiple regression model

4. Data analysis

4.1. Descriptive statistics of the independente variable and testing the distribution of the independente variable scales

The results of descriptive statistics of the independent variables show that the answers to the statements of the scale of the in dependent variables are quite diverse. There are strongly agree and strongly disagree, indicating that there is no limit in terms of variation for the scales used. The average value of the observed variables has a rather large difference (2.45 - 4.25), showing that there is a different assessment of the importance level between the independent variables. sis

The results of the Skewness and Kurtosis tests show that the absolute values of these two indexes are within the allow ablelimits of Skewness less than 3 and Kurtosis 5, respectively. The above results show that the independent variablescale has a normal distribution, ensure the requirements to perform the tests and subsequent analysis in the following sections.

4.2. Descriptive statistics of the dependente variable

Statistical results of min, max values of each observed variable in the above table show that there is a big difference in the evaluation of consumers with the statements in the scale. The same statement has consumers strongly agree but also consumers strongly disagree. The mean value of the observed variables in the scale of intention to buy environmentally friendly straws is quite uniform (mean = 3.71; 3.76; 3.79; 3.81; 3.85). Through this average value, it can be seen that the intention to buy environmentally friendly straws of Vietnamese consumers is higher than average.

4.3. Exploratory fator analysis

The results show that KMO = 0.853 satisfies the condition that KMO > 0.5 (Kaiser, 1974). Thus, it can be concluded that factor analysis is appropriate with the available data. Similarly, there sults of the Barlett test show that p = 0.000 < 5%, which means that the variables are related to each other and are eligible for factor analysis by EFA test.

Principal Component Analysis extraction with Varimax rotation is used in factor analysis to measure in dependent variables. Variables with Factor loading less than 0.3 will be eliminated, stopping when the Eigenvalue (representing the variation explained by each factor) > 1 and the total variance extracted is greater than 50% (Gerbingand Anderson, 1988).

The results show that from 31 observed variables, 7 groups of factors can be drawn. The total explanatory variance when the group of factors is drawn as 63.489% (>50%).

After performing the EFA factor test, theresults show that: Factors of health concern, attitude, subjective norm, perception of product availability, perception of selling price and attention to the environment have all their variables are allocated in each independent factor and have the required factor loading value (> 0.3). Thus, all the scales selected for the variables in the model meet the requirements and can be used in the subsequent analysis.

The results of the reliability evaluation of the scales by Cronbach Alpha (> 0.7) show that the scales are reliable and can be used in the subsequent analysis.

4.4. Test the research hypothesis

The model's adjusted R2 valueis 0.366. This shows that the compatibility of the model with the independent variable is reasonable. Thus, significant independent variables explain 36.6% of the variation of Intent to buy eco-friendly straws.

The model's F-testresults show that F = 32,587, sig = 0.000. Thus, this relationship ensures reliability with an allowable level of 5%. Therefore, it can be concluded that the independent variables have an impact on the consumer's intention to buy eco-

friendly straws and the multiple linear regression model fitst he data set and isusable.

The results of checking the multi collinearity of the model show that the coefficients of variance VIF of the control variables included in the analysis in this model are all values less than 2. Thus, there are nomulti collinearity of the variables. The control variable is insignificant and the variables in the model are accepted.

The results of the regression analysis show that:

- The sigvalue of the factor of interest in health< 0.05, so hypothesis H1 can be accepted. Thus, it can be affirmed that the more consumer scare about their health, the higher the intention to buy eco-friendly straws.

- The sigvalue of the attitude factor< 0.05, so the hypothesis H2 can be accepted. Thus, it can be affirmed that the better the consumer attitude towards the use of eco-friendly straws, the higher the purchase intention.

- The sigvalue of the factor of environmental concern > 0.05 can therefore reject the hypothesis H3. Thus, there is no basis to confirm that the more consumer scare about the environment, the higher the intention to buy eco-friendly straws.

- The sigvalue of the subjective norm factor < 0.05, so hypothesis H4 can be accepted. Therefore, it can be concluded that the higher the consumer's subjective norm in favor of buying eco-friendly straws, the greater the purchase intention.

- The sigvalue of the perceived product availability factor> 0.05 can therefore reject the H5 hypothesis. Therefore, there is no basis to assert that the higher the consumer awareness of the availability of eco-friendly straws, the greater the purchase intention.

- The sigvalue of the perceived factor of product selling price < 0.05, so hypothesis H6 can be accepted. From there, it can be confirmed that the high awareness of the price of eco-friendly straws positively affects the intention to buy environmentally friendly straws.

The results confirm that of the 6 factors studied, there are 4 factors that are concern about health, attitude, subjective norms, perception of selling price affecting the intention to use eco-friendly straws of urban residents in Vietnam.

The relationship between the dependent variable and the independent variables is shown in the following linear regression equation:

$$Y = 0.156X1 + 0.154X2 + 0.288X3 + 0.102X4$$

Y: Intention to buy eco-friendly straws

X1: Care about health

X2: Attitude

X3: Subjective norms

X4: Perception of selling price

The regression equation shows that the standardized Beta coefficients of the independent variables with values > 0 and < 0 show that the independent variables positively and negatively affect the intention to buy environmentally friendly straws. Thus, according to the above equation, when 1 unit of intention to buy environmentally friendly straws increases, there must be a positive resonance of 0.156 health concerns, 0.154 attitudes, 0.288 subjective standards and 0.102 perception of food prices.

5. Discussion and implications

The impact of healthcare

This result can be explained as follows: Vietnamese consumers are mostly knowledge able people and they care about their health. Health care is expressed in many different forms such as morning exercise, using functional products, and consuming healthy products. That leads to the intention to buy safe products to protect their health. However, unlike the results of in-depth interviews, the official quantitative research results show that health concern is not the strongest factor influencing the intention to buy environmentally friendly straws, but rather the most important fator, subjective norms fator, because health concern is the buying motivation derived from the individual himself while the subjective norms are the buying motivation stemming from social requirements. Vietnamese people are people with social culture (Huu Ngoc, 2006), so the social motivation may be stronger than the individual's motivation in generating the intention to buy eco-friendly straws.

Impact of attitude

This result can be explained as follows attitude stemming from belief in the good or bad of an object or event. When consumers have a good attitude towards eco-friendly straws, they have a belief that straws will be good for consumers' health and good for the environment. From there, they will have an intention to buy eco-friendly straws.

The impact of concern for the environment

Research Hypothesis 3 (H3) states that the more concerned consumers are with the environment, the

higher their intention to buy eco-friendly straws. However, there sults of the study showed that sig = 0.736 > 0.05. Thus, the test results show that there is not enough basis to confirm the hypothesis H3. Thus, there is no basis to affirm that caring about the environment will give rise to the intention to buy eco-friendly straws. The reason may be that consumers have not clearly seen the relationship between the use of paper, rice, bamboo straws... will reduce plastic waste into the environment, there by helping to protect the environment.

The impact of subjective norms

Research hypothesis 4 (H4) states that the higher a consumer has a subjective norm in favor of buying an eco-friendly straw, the greater the purchase intention. And according to the analysis results, the Beta value of this independent variable has the largest value. Thus, among the independent variables considered, subjective norms have the most impact on the intention to buy eco-friendly straws. This result can be explained as follows: Vietnamese consumers are conscious people who always want to follow social norms and what people around them expect. When the whole society speaks out about the issue of environmental pollution, consumers realize that they need to use eco-friendly straws to suit the new requirements of society and those around them. That creates pressure and sparks the intention to buy eco-friendly straws in them.

The impact of product availability perception

Research Hypothesis 5 (H5) states that the higher the consumer perception of the availability of eco-friendly straws, the greater the purchase intention. However, the research results showed that sig = 0.265 > 0.05. Thus, there is not enough basis to confirm hypothesis H5. Or we can say that we have not seen the link between the availability of eco-friendly straws and the intention to buy this product. The availability of straws does not necessarily create purchase intention, but the intention to buy comes from other factors as analyzed in there sults of this study.

The impact of perceived food prices

Research hypothesis 6 (H6) states that the perception of a high price of eco-friendly straws positively affects the intention to buy eco-friendly straws. This result can be explained as follows. Currently, in Vietnam, regulations to identify eco-friendly straws have not been widely disseminated. Most eco-friendly straws only print safety information on the packaging. On the other hand, the management of products sold in the market is still not strict, so many products have safety labels but actually do not meet the standards. Consumers therefore use price as an indicator of a food's properties. High-priced products are considered by consumers to be of high quality and are truly safe. This drives them to higher buying intentions.

6. Recommendations

Based on the research results, the author proposes some solutions to improve the intention to buy eco-friendly straws as follows:

- Consumers' interest in health will spark the intention to buy eco-friendly straws in them is the conclusion of the study. Therefore, businesses with eco-friendly straws can carry out activities to arise in consumers a sense of concern for their health. In fact, there are many industries such as the functional product industry that have used this solution. They offer wellness programs with sales. Eco-friendly straw businesses can conduct counseling programs on safe consumption and health promotion to improve consumers' understanding of health issues related to consumer products. use. From there, it will raise the awareness of consuming eco-friendly straws and promote consumers' intention to buy eco-friendly straws.

- Research has found that when consumers have a good attitude towards eco-friendly straws, they will have an intention to buy. Attitudes come from beliefs and beliefs come from perceptions. Administrators need to build consumer awareness about the harmful effects of plastic straws on the body and at the same time communicate about eco-friendly straws such as paper straws, rice straws, grass straws or bamboo straws. From there, beliefs and attitudes in favor of using eco-friendly straws will be built.

- The study also found that subjective norms will lead consumers to purchase eco-friendly straws. Subjective norms are people's perceptions of how to behave in accordance with the requirements of society. So, first of all, in society, it is necessary to form general requirements or trends about the use of eco-friendly straws. These requirements or trends want to reach the awareness of consumers, it is necessary to have communication activities in society. These activities will guide the correct and safe use of the product. At the same time, it shows consumers consumption trends or social requirements on food consumption. From there, it will be possible

to form consumer behavior trends that increase their intention to buy eco-friendly straws.

In addition, manufacturing and producing businesses can develop and implement solutions to increase product quality the eco-friendly straws and build trust with consumers by creating the brand name for enterprises producing the eco-friendly straws. Currently, there are not many strong brands, which are really known to have a reputation for producing and trading eco-friendly straws. The production and business enterprises are still immature and have not yet built a strong brand. In order to improve consumer confidence, raise the intention to buye co-friendly straws and help customers make a quick purchase decision, the enterprices need to create a reputation, build a famouse brand name and develop it in the eco-friendly straws market.

Besides, concern for the environment has not shown a relationship with the intention to buy eco-friendly straws while these types of straws are manufactured with the aim of protecting the environment and the health of consumers. Therefore, it is necessary to have measures to educate and communicate for people to understand the problem of environmental pollution caused by variou stypes of plastic waste, including plastic straws, after that, with concern for the environment and awareness of environmental protection, consumers will have more intention to buy eco-friendly straws.

Some macro recommendations

In order to promote the production and consumption of eco-friendly straws, besides the efforts of businesses, the Goverment should consider to give the macro impacts to create a more favorable environment for production, business and consumption of eco-friendly straws. Based on the research results, the author would like to make some specific recommendations as follows:

- The Goverment has introduced policies to support manufacturing and trading enterprises to produce the eco-friendly and healthy products such as tax reduction, help building distribution channels, supporting the development of purchasing and producing input materials.

- The Goverment can organize social marketing campaigns to support consumers to use eco-friendly consumer products. Besides, it is possible to introduce policies on consumption to encourage the consumption of environmentally friendly products.

The above suggestions and recommendations have helped answer the fourth question of the study about what solutions can be offered to improve the intention to buy eco-friendly straws of Vietnamese consumers.

References:

Ajzen, I. (1991). The theory of planned behavior. Organizational Behavior and Human Decision Processes, 50(1), 179-211.

Boulstridge, E. and M. Carrigan (2000). Do Consumers Really Care About Corporate Responsibility? Highlighting the Consumer Attitude-Behaviour Gap. Journal of Communication Management, 4(4), 355–368.

Burgess, J. (2003). Sustainable consumption: is it really achievable? Consumer policy review, 13 (3), 78–84.

Campbell, C., (1998). Consuming goods and the good of consuming. In: D.A. Crocker and T. Linden, eds. Ethics of consumption: the good life, justice, and global stewardship. Lanham, MD: Rowman & Littlefield.

Carrigan, M. and A. Attalla (2001). The Myth of the Ethical Consumer: Do Ethics Matter in Purchase Behaviour? Journal of Consumer Marketing, 18(7), 560–578.

Christian HaposanPangaribuan (2020). Investigation into Millennials' Perceived Environmental Knowledge towards Intention to Use Environmental-Friendly Drinking Straws, ISSN 2774 – 7395, 21 – 30

Connolly, J. and A. Prothero (2008). Green Consumption: Life-Politics, Risk and Contradictions. Journal of Consumer Culture, 8(1), 117–145.

Costanzo, M., et al. (1986). Energy conservation behavior: the difficult path from information to action. American Psychologist, 41, 521–528.

Daniel Holzer (2018). What Does Eco-Friendly Mean? https:// homeguides.sfgate.com/ecofriendly-mean-78718.html.

Gronco, J. and Warde, A., (2001). Ordinary consumption. London: Routledge.

Hinchliffe, S., (1996). Helping the earth begins at home: the social construction of socio-environmental responsibilities. Global environmental change, 6 (1), 53–62.

Holdsworth, M. and Steedman, P., (2005). 16 pain-free ways to save the planet. London: National Consumer Council. Available from: http://www.ncc.org.uk/responsibleconsumption/16ways.pdf.

Juliana Mohd Abdul Kadir (2020). Examining a TPB model towards intention to use biodegradable drinking straw using PLS-SEM, 15 (5), 13 – 18

Mintel. (2005). Organics – UK (Mintel Reports, London).

Mintel. (2007), The Impact of the Environment – UK (Mintel Reports, London).

Newholm, T. (2005). 'Case Studying Ethical Consumers' Projects and Strategies', in R. Harrison, T. Newholm and D. Shaw (eds.). The Ethical Consumer (Sage, London), 107–124.

OECD. (2002). Towards sustainable household consumption? trends and policies in OECD countries. Policy brief, July 2002. Paris.

Owens, S., (2000). "Engaging the public": information and deliberation in environmental policy. Environment and planning A, 34, 1141–1148.

Peattie, K. and S. Peattie. (2009). 'Social Marketing: A Pathway to Consumption Reduction?'. Journal of Business Research, 62(2), 260–268.

Sanne, C., (2002). Willing consumers – or locked-in? Policies for sustainable consumption. Ecological economics, 42, 273–287.

Spangenberg, J.H. and Lorek, S., (2002). Environmentally sustainable household consumption: from aggregate environmental pressures to priority fields of action. Ecological economics, 43, 127–140.

The Co-operative Bank. (2008). The Ethical Consumerism Report, http:// www.goodwithmoney.co.uk/assets/ Uploads/Documents/ECR_2008_Web.pdf.

Warde, A. (2005). 'Consumption and Theories of Practice'. Journal of Consumer Culture, 5(2), 131–153.

Whitelegg, J. and Haq, G., (2003). Earthscan reader in world transport policy and practice. London: Earthscan.

Whitelegg, J., (1993). Time pollution. The ecologist, 23 (4), 132–134.

DOES WEATHER AFFECT INVESTORS' TRADING BEHAVIOR? INTERNATIONAL EVIDENCE AND PERSPECTIVES IN VIETNAM

Nguyen Thi Hoa Hong* - Pham Thi Mai Huong* - Nguyen Yen Linh* - Pham Thuy Linh*

Abstract: ***The paper examines the influence of weather variability on the investors' trading behavior, thereby answering the question "Does weather affect investors' trading behavior?" In this paper, we apply a qualitative research technique, specifically the in-depth interview method to synthesize and evaluate international evidence and perspectives in Vietnam. Our interviews involve investors, manager and experts whose majors are both financial and non-financial but all have investment experience. Besides, weather is classified into daily and extreme weather. The findings reveal that the weather does have an certain impact on investors' trading behavior in the direct and indirect way. Based on those results, the Vietnamese stock market can consider any variation in weather forecasts to take appropriate countermeasures to investors' trading behavior.***

• Keywords: *investor, trading behavior, weather, weather variability.*

Date of receipt: 02nd November, 2022 *Date of receipt revision: 15th December, 2022*

Date of delivery revision: 08th November, 2022 *Date of approval: 01st February, 2023*

1. Introduction

Traditional finance researchers pursue efficient market theory assuming that investors always behave rationally, then ignoring unconscious factors. Hence, behavioral finance has substantially progressed towards building a more realistic model which incorporates the unlikelihood of investors to behave as utility maximizers. However, these models are not completely separated as they jointly explain how investors make decisions in both rational and irrational ways. Motivated by such findings, our investigations attempt to identify factors that might influence Vietnamese investors' affective state, which is one of two factors ruling out an individual's decision-making process other than cognitive evaluation (Loewenstein et al., 2001; Cummins et al., 2009), then impacting the market outcomes. The correlation between meteorological variables and the stock exchange market has long been a subject of investigation, yet barely examined in Vietnam. The correlation between the weather and the stock market has been examined in a large amount of former research. Many findings share a result that proves the existence of the weather's effects. However, it is still a controversial topic to reach an agreement on "how it affects". Hence, we aim at examining the linkage between Vietnamese weather dimensions and investors' trading behaviors which are reflected in stock returns. The experiment reported that though both experienced and less experienced investors have weather-induced changes in mood, the professional group seems to be unlikely to change perception or judgment under such circumstances. This study also discovers that investors' level of experience plays a crucial role in determining the intensity of weather effect on trading behavior. We believe that the results of an examination into the Vietnamese market would increase the objectivity of the relationship, thereby narrowing the gap to a consensus in the future.

2. Literature review

There have been many extensive studies conducted to examine the relationship between weather and the stock exchange market. Firstly inspired by Saunders (1993) who indicated that cloudiness has a statistically significant impact on New York stock exchange, following investigations continue to provide evidence of an existing correlation between meteorological variables and stock indices found in various markets (Hirshleifer and Shumway, 2003; Cao and Wei, 2005; Floros, 2008; Goodfellow et al., 2010; Lanfear et al., 2018). To identify a mechanism through which weather could influence stock market's indices, a study implemented by Bassi et al. (2013) concluded that risk-taking or risk-averse behaviors are a result of weather-induced fluctuations of mood. To be more specific, as adverse weather conditions increase negative feelings, the investors are more likely to choose a safer choice and not interested in high payoffs. Contrarily, investors who are in an optimistic mood due to weather-related

** Foreign Trade University; email: hongnth@ftu.edu.vn*

factors tend to be more risk-tolerant, thus undeterred by low expected returns. Affective state seems to be an intermediary channel through which weather conditions exert an influence on financial investors' risk preference, then resulting in stock market indices (Kramer and Weber, 2012; Bassi and Paolo, 2013). Consequently, risk-based decisions of investors are reflected in the stock market's outcomes.

How investors' mood affects financial decisions is further explained by behavioralists. Isen and Patrick (1983) was one of the earliest psychologist researchers to document the impact of mood as information on risk attitudes. In detail, positive state subjects are found to have more risk-taking behaviors than control groups, though both subjects are deemed more prudent in high-risk situations. Forgas' affect infusion model (AIM) (1994, 1995) also suggests that people in good emotional states tend to show a preference for taking risk than those who are in a bad mood. Meanwhile, Cialdini et al. (1973) argues that individuals in a negative affective state try to leave it (mood repair) to get back to a positive affective state, which means higher tolerance for risk is more common in people with negative feelings. Although there are conflicting results that provide asymmetrically theoretical explanation of affect's influence on decision-making process, the majority of subsequent evidences are consistent with Isen and Patrick's findings (Kliger and Levy, 2003)

Baker and Nofsinger (2010) pointed out some predominantly essential mood variables including weather, sunshine and international sporting results, mood have still been a complex object to measure accurately. That weather which could influence affective state has widely been demonstrated in the past few decades. In 1984, Howard and Hoffman showed the differential effects of weather on 10 variables representing mood. Cao and Wei (2005) reported a negative correlation between temperature and investors' mood. Specifically, high temperature, as a weather factor, tends to induce apathy as well as hysteria and vice versa. Current investigations showed the same conclusion that individual investors' affective state changes due to weather fluctuation (Schmittmann et al., 2015; Chuang et al, 2020). It all points to the conclusion that mood acts as a transmission mechanism linking the relationship between weather and investors' decisions.

As aforementioned, much attention has been paid to whether investors' decision-making process is subject to meteorological variables. For example, Floros (2008) found a negative correlation between temperature and market returns in five European stock exchange markets, whereas Pardo and Valor (2003) reported no possible effect of sunshine duration, humidity on both Madrid stock prices and returns. Meanwhile, Goetzmann et al. (2014) provided evidence that weather-induced mood affects American investors' financial sense as their upbeat mood results in higher arbitrage costs. Collectively, the results tend to differ depending on research methodology, individual investors' sensitivity to weather changes, weather factors existing in each stock market, stock market's indices chosen, perceptions of active investors of good and bad weather, and so forth.

Noting that there has been hardly any research which has been exhaustively conducted on the Vietnamese stock exchange market, we attempted to undertake an investigation into the relationship between meteorological variables and investors' financial behaviors as well as the market's outcomes. While most previous research used quantitative methodologies with real-life financial and weather data; we would like to utilize a qualitative approach instead as it seems to be more compatible to probe the psychological variance of investors under the effect of weather-related dimensions. Moreover, with a view to having a profound perception of the market, our study examined all types of investors including individual and institutional ones categorized by levels of experience. Especially, severe weather situations have also been taken into account in our experiment.

3. Data and research method

In-depth interviews are adopted to conduct this research study, aiming at exploring the possible intervention of weather factors in the decision making process of investors. This helps to explain the channels through which weather influences the stock market, instead of setting a relationship between them merely based on quantitative data.

Data collection took place in November, 2022. Those who participated in this study were asked a number of questions related to their personal traits and tendency of emotional states to be affected by external factors, especially weather. We also elicit insights from their tolerance for risk and practices in trading activities, such as sources of information and analysis methods utilized in making transactions. Participants are encouraged to share

their observations and experiences of investors from a similar background to them, if there are any.

To best represent such a diversity in perspectives and behaviors, selected participants are required to be active investors, including both individual and institutional traders with a variety of demographic characteristics as well as at different experience levels. The researcher first obtained key informants from their own personal contacts, before using the snowball technique to widen the sample. Information of interview participants is presented as follows (Table 1):

Table 1: Demographics of respondents

No.	Name	Age	Sex	Occupation	Education	Years of experience
1.	P-1	21	Female	Student	High school	1
2.	P-2	30	Male	Marketing research analyst	Master	1
3.	P-3	26	Male	Salesman	Bachelor	2
4.	P-4	30	Male	Broker	Bachelor	5
5.	P-5	32	Female	Accountant	Master	5
6.	P-6	42	Male	HR manager	PhD	5
7.	P-7	35	Male	Financial analyst	Master	7
8.	P-8	40	Female	Portfolio manager	PhD	10
9.	P-9	55	Female	Financial researcher	PhD	7
10.	P-10	42	Male	Data engineer	PhD	7

Source: Authors' synthesis

Generally, 10 investors in total were selected to conduct in-depth interviews. They are categorized into three main groups based on their experience in trading. Within each group, a relative balance is ensured between the two genders as well as between investors with finance and non-finance majors. Ages and education levels are also included for later analysis.

In order to avoid unnecessary inconsistency in the quality of interview responses, a protocol is implemented, giving detailed guidelines for interviewers to follow. Each interview was conducted in a place agreed by the informant, with a duration of one to two hours. The protocol also covers the structure of the interview. Before starting, interviewers must ensure the confidentiality of respondents and obtain their consent. A list of questions is used for all interviews, although the sequence can be flexible. Answers are audiotaped to avoid missing important information and check for clarity later. After completing interviewing, main points for each response are summarized and compared to find shared patterns or themes among the participants.

4. Results and Discussions

4.1. Impact of comfortable weather on investors' trading behavior

The most noticeable pattern in the interview response is the presence of weather influence on trading behaviors, as former research has indicated. Most interviewees agree that weather affects their decision-making process to some extent. Presented below is a response by P-3 explaining his inclination in different weather conditions. This is similar to answers by many other investors, when asked the same questions:

"Although I see myself as someone rational, I have to admit that my mood is more or less affected by weather. For example, on a day when the weather is uncomfortable, let's say, it's hot outside and the humidity is high, I can be very aggressive and easily get irritated. Or the cloudy sky usually makes me feel lazy and lack motivation. In such circumstances, I avoid making risky decisions if I don't have to, as I believe I cannot maintain good judgment when being in a bad mood."

To sum up, negative changes in weather cause most investors to suffer bad mood, thus being more conservative in making transactions, while changes toward comfortable weather conditions tend to put investors at a higher level of risk tolerance. Interestingly, although either stock purchasing or selling involves risk, nearly all participants share a common thinking that it would be better to take risk by buying more stocks to extend their portfolio. Therefore, the return on the stock market would increase as a certain result of an increase in demand, and the high risk - high return theory.

In our interviews, the term "comfortable weather" is adopted, which allows examining the incorporating effect of different weather factors, instead of temperature, rainfall... separately. As weather variables appear to be inter-correlated, the inclusion of all possible weather conditions enhances the external validity of the conclusion (Howarth and Hoffman, 1984). Although previous studies exist investigating the combined action of diverse meteorological elements (Liu et al., 2021), they applied a quantitative standard for good weather to everyone, which can give biased results. In our study, the in-depth interview methodology enables

us to elicit investors' personal assumptions and their corresponding behaviors. Respondents can use their own perception of comfortable weather to answer the question rather than being forced to consider a fixed condition as a comfortable one. Moreover, the term also eliminates the inconsistency caused by external factors such as geographical differences (e.g. Europeans normally enjoy the sunshine while Asians try to avoid the sunshine), aging problems, etc.

4.2. Impact of extreme weather on investors' trading behavior

The recorded responses indicate that the weather has an impact on stock returns and volatility not only through the intermediary channel of investor sentiment but also by affecting economic activities directly. The phenomenon deems more apparent in the case of extreme weather.

To explain, weather is an important external factor that influences a company's operation. Interviewee P-4 explained how he conducts analysis, mentioning the case of Vinasun (VNS), a traditional brand of taxi in Vietnam.

"To predict the movements of stock prices, I analyze various sources of information, such as financial statements, new policies implemented by the government, dominant trends, etc. Global warming recently increases the frequency of extreme weather in Vietnam, with remarkably heavy rains and storms. Consequently, the demand for using taxis to travel in the event of severe weather is very high. As Uber/Grab prices double or triple on those days, many consumers are gradually back to the traditional option when booking a taxi. As such, I decide to purchase Vinasun stocks, which are believed to perform well as the company is expected to exceed the profit plan."

Besides the opportunities for certain enterprises, severe weather interrupts business processes, supply chains, and consumer movements, among other factors. Most investors shared a common observation of great volatility in the market index on the days when extreme weather happens. This finding provides a different aspect in the relationship between weather and the stock market, which significantly excludes the subjective elements (traders' mood, personal experience on weather) and contributes to a more reliable result.

Nevertheless, the finding is closely related to another considerable factor - the level of acknowledgment of investors which is not included in the research. To take instance, regarding an experienced trader, it is assumed that he does not understand the operation of logistics firms. In this case, his decision will not be impacted by the extreme weather since he does not understand how it changes the potential development of that type of business. As a result, it would be hardly certain to make a conclusion about the finding because it requires further examination.

4.3. Impact of weather variability on investors' trading behavior

Nearly all the investors interviewed admitted that weather factors have an influence on their mental and psychological states to a certain extent, which in turn lead to biased behaviors and affect their trading performance. The impact, however, tends to be more intense among non-professional investors. Below here is part of the response given by participant P-1 during the interview:

"Clearly, my mood is affected by different weather factors, such as temperature and cloudiness. For example, during hot summer days, let's say the temperature is 38°C, I can get irritated easily and usually be more aggressive in making decisions. Or I can be in a bad mood and pessimistic about everything on cloudy winter afternoons… I do not have a specific method when it comes to analyzing stocks. Some of the Facebook groups notify me of the upward or downward trend in some specific stocks. For most of the time, I make transactions based on this source of information… Usually, I do not spend lots of my time following market movements."

This can be seen as a typical answer of investors who have little knowledge and experience in trading. As such, it indicates that the non-professional group tend not to have a consistent method in analyzing stock performance, thereby their decisions being more subjected to external stimuli, including weather. On the other hand, professional investors reported the use of more reliable sources of information and rational methods, including financial statements, analysis models and technology tools, thus being less influenced by weather-induced emotion.

Interview participants' responses also suggested another explanation for the variation in the impact of weather on different groups. Below is the answer by investor P-4 when asked about the time and location he made transactions:

"I work as a broker for Techcombank Securities. Every day, besides matching orders, I also have to

closely watch market movements, make predictions and give financial advice to my customers. I myself also use those analyses to make transactions of my own. Therefore, I buy and sell stocks during working hours in my office".

Similar responses were obtained from financial analysts and portfolio managers whose full time jobs involve supporting trading decisions. Meanwhile, non-professional investors admitted using their free time for activities other than trading in certain weather conditions. This suggests that weather impact on trading behavior is more significant for amateur investors compared to professionals.

The varying impact of weather factors on different investor groups can be seen as a novel discovery, as in previous quantitative research, aggregate data of stock market cannot directly measure nonprofessional and experienced investors' trading inclination separately. Although the in-depth interviews provide valuable insights, further quantitative research is required to generalize the finding.

5. Conclusion and Recommendations

Numerous studies in behavior finance have established that stock performance is correlated with changes in weather conditions, yet hardly any research has been carried out on the Vietnamese market. Therefore, this study aims to determine whether there is a relationship between the stock market and weather factors, as well as how the market is affected. Thus, in-depth interviews were conducted with 10 active investors with representative demographic characteristics. From the responses, we find that nearly all interview participants experience a change in affective states induced by weather factors. Their emotions then affect their decision making process and cause them to behave in a particular way. To be more specific, for most investors, good weather conditions positively influence mood, which in turn leads to risk-seeking behaviors and higher returns are attained as a result. Another finding from this study is that weather can affect the stock market directly, not through the sentiment of investors as in the event of extreme weather, business processes, supply chains and consumer movements are interrupted and stock indices drop consequently. By finding shared patterns in the given responses, we see that there is a variation in the impact of weather on different groups of participants. In particular, professionals are less likely to have their decisions influenced by weather compared to non-professional investors. This is a new finding as previous quantitative research, using aggregate data of the whole market, was unable to measure the trading activities of each group of investors separately.

Nevertheless, we still suffer some limitations in this study. Since only ten investors were chosen, the sample might not be representative enough for the results to be generalized. Future studies are recommended to adopt quantitative research methods, ideally with individual trading data if available, to investigate the impact of weather on the stock market and trading behavior.

References:

Baker, H.K. & Nofsinger, J.R. eds., 2010. Behavioral finance: investors, corporations, and markets (Vol. 6). John Wiley & Sons.

Bassi, A., Colacito, R. & Fulghieri, P. (2013), 'An Experimental Analysis of Weather and Risk Attitudes in Financial Decisions', Review of Financial Studies, 26(7), 1824-1852.

Cao, M. & Wei, J. (2005), 'Stock market returns: A note on temperature anomaly', Journal of Banking & Finance, 29(6), 1559-1573.

Chuang, Y.W., Tsai, W.C. & Weng, P.S. (2020), 'The impact of weather on order submissions and trading performance', Pacific-Basin Finance Journal, 64, p.101456.

Cialdini, R.B., Darby, B.L. & Vincent, J.E. (1973), 'Transgression and altruism: A case for hedonism', Journal of Experimental Social Psychology, 9(6), 502-516.

Cummins, L.F., Nadorff, M.R. & Kelly, A.E. (2009), 'Winning and positive affect can lead to reckless gambling', Psychology of Addictive Behaviors, 23(2), 287-294.

Floros, C. (2008), 'Stock market returns and the temperature effect: new evidence from Europe', Applied Financial Economics Letters, 4(6), 461-467.

Forgas, J.P. (1994), 'The role of emotion in social judgments: An introductory review and an Affect Infusion Model (AIM)', European Journal of Social Psychology, 24(1), 1-24.

Forgas, J.P. (1995), 'Mood and judgment: the affect infusion model (AIM)', Psychological bulletin, 117(1), 39-66.

Goetzmann, W.N., Kim, D., Kumar, A. & Wang, Q. (2015), 'Weather-induced mood, institutional investors, and stock returns', The Review of Financial Studies, 28(1), 73-111.

Goodfellow, C., Schiereck, D. & Verrier, T. (2010), 'Does screen trading weather the weather? A note on cloudy skies, liquidity, and computerized stock markets', International Review of Financial Analysis, 19(2), 77-80.

Hirshleifer, D. & Shumway, T. (2003), 'Good day sunshine: Stock returns and the weather', The journal of Finance, 58(3), 1009-1032.

Howarth, E. & Hoffman, M.S. (1984), 'A multidimensional approach to the relationship between mood and weather', British Journal of Psychology, 75(1), 15-23.

Isen, A.M. & Patrick, R. (1983), 'The effect of positive feelings on risk taking: When the chips are down', Organizational behavior and human performance, 31(2), 194-202.

Kliger, D. & Levy, O. (2003), 'Mood-induced variation in risk preferences', Journal of economic behavior & organization, 52(4), 573-584.

Kramer, L.A. & Weber, J.M. (2012), 'This is your portfolio on winter: Seasonal affective disorder and risk aversion in financial decision making', Social Psychological and Personality Science, 3(2), 193-199.

Lanfear, M.G., Lioui, A. & Siebert, M.G. (2018), 'Market anomalies and disaster risk: Evidence from extreme weather events', Journal of financial markets, 46, p.100477.

Liu, H., Zhang, W., Zhang, X. & Liu, J. (2021), 'Temperature and trading behaviours', International Review of Financial Analysis, 78, p.101890.

Loewenstein, G. F., Weber, E. U., Hsee, C. K. & Welch, N. (2001), 'Risk as Feelings', Psychological Bulletin, 127(2), 267-286.

Pardo, A. & Valor, E. (2003), 'Spanish stock returns: where is the weather effect?', European financial management, 9(1), 117-126.

Saunders, E.M. (1993), 'Stock prices and Wall Street weather', The American Economic Review, 83(5), 1337-1345.

Schmittmann, J.M., Pirschel, J., Meyer, S. & Hackethal, A. (2015), 'The impact of weather on German retail investors', Review of Finance, 19(3), 1143-1183.

PROMOTE THE ROLE OF OWNER'S REPRESENTATIVE AGENCIES TO IMPROVE THE OPERATION EFFICIENCY OF THE BUSINESS

Assoc.Prof.PhD. Nguyen Thi Ha* - Pham Thi Binh**

Abstract: ***The problem of handling finance, determining the value of enterprises for equitization and divestment of State capital in enterprises currently has many shortcomings; business performance is still weak. One of the very important reasons is that the roles and responsibilities of the owner's representative agency have not been promoted well; still quite fuzzy: There is no clear separation between ownership and management functions; The responsibility in management has not been clearly defined, and there is overlap in leadership and business administration... The article summarizes some basic solutions to further enhance the roles and responsibilities of the owner's representative agency ownership in the enterprise, contributing to improving the operational efficiency of the enterprise.***

• Keywords: *roles, responsibilities, owner's representative agency, operational efficiency, enterprise.*

Date of receipt: 15th December, 2022
Date of receipt revision: 20th Jannuary, 2023
Date of delivery revision: 20th December, 2022
Date of approval: 05th February, 2023

Tóm tắt: *Vấn đề xử lý tài chính, xác định giá trị doanh nghiệp để cổ phần hoá, thoái vốn Nhà nước tại doanh nghiệp hiện nay còn nhiều bất cập; hiệu quả hoạt động của doanh nghiệp còn yếu. Một trong các nguyên nhân rất quan trọng là vai trò, trách nhiệm của cơ quan đại diện chủ sở hữu chưa được phát huy tốt; còn khá mờ nhạt: Chưa tách bạch rõ chức năng sở hữu và chức năng quản lý; Chưa phân định rõ trách nhiệm trong quản lý, còn chồng chéo trong lãnh đạo và điều hành doanh nghiệp... Bài viết tổng hợp một số giải pháp cơ bản nhằm đề cao hơn nữa vai trò, trách nhiệm của cơ quan đại diện chủ sở hữu tại doanh nghiệp, góp phần nâng cao hiệu quả hoạt động của doanh nghiệp.*

• Từ khóa: *vai trò, trách nhiệm, cơ quan đại diện chủ sở hữu, hiệu quả hoạt động, doanh nghiệp.*

1. Introduction

Pursuant to the provisions of law, specifically in Clause 1, Article 3 of Decree No. 10/2019/ND-CP, the concept of "owner's representative agency is an agency or organization assigned by the Government. exercise the rights and responsibilities of the state owner's representative for enterprises established by decision or assigned to manage, and exercise rights and responsibilities for the state capital invested in joint-stock companies, limited liability companies with two or more members in accordance with the law on management and use of state capital invested in production and business in enterprises and other relevant laws."

Also in Decree No. 10/2019/ND-CP, Article 4, on the exercise of rights and responsibilities of the state owner's representative agency, effective from 15/03/2019, there are regulations on agencies The owner's representative agency is assigned by the Government with the following rights and responsibilities: *Firstly,* is the agency of the Committee for the Management of State Capital at Enterprises - this is the agency representing the owner of the enterprise owned by the State. The country holds 100% of the charter capital and the state's investment in the enterprise in accordance with the Government's regulations. *Secondly*, when the ministry, ministerial-level agency, and government-attached agency, in fact, during transactions, it is often referred to as a ministry, and the People's Committee of the province or centrally run city is collectively called the People's Committee. Provincial People's Committee - This is the owner's representative agency, but is the

** Academy of Finance*
*** CQ57.04 CLC - Academy of Finance*

owner's representative for the following subjects: Enterprises in which 100% of charter capital is held by the State and the state's investment capital in the following entities; enterprises established under the decision of the Ministry, the provincial People's Committee or assigned to manage and are not subject to transfer to the Committee for the management of state capital at enterprises and the State Capital Investment Corporation according to regulations of the Law; Enterprises in which 100% charter capital is held by the State and the state's investment capital in enterprises is transferred to the Committee for the Management of State Capital at Enterprises and the State Capital Investment and Trading Corporation in the period not yet transferred; *Thirdly,* is the State Capital Investment and Trading Corporation that exercises the right to represent the state owner in enterprises transferred from ministries and provincial-level People's Committees in accordance with law.

In Article 6 of Decree 159/2020/ND-CP, there are specific provisions on the authority of the owner's representative agency. Specifically: For enterprises with 100% charter capital held by the State under the establishment authority of the Prime Minister; Decision on evaluation of the Chairman of the Members' Council, the President of the company; To decide on planning the Chairman of the Members' Council, the President of the company after consulting the Ministry of Home Affairs; To decide on assessment, planning, appointment, re-appointment, transfer, rotation, approval of resignation, dismissal, commendation, discipline, retirement of members of the Members' Council, Supervisors; To give opinions before the Members' Council or the company's president decides on planning, appointment, re-appointment, transfer, rotation, acceptance of resignation, dismissal, commendation, discipline and retirement for General Director, Director, except for the case specified in Clause 3, Article 5 of this Decree; Approving the policy at the request of the Members' Council on the appointment of Deputy General Director and Deputy Director. For enterprises with 100% charter capital held by the State under the establishment authority of the owner's representative agency: Decide on assessment, planning, appointment, re-appointment, transfer, rotation, acceptance agree to resign, relieve from duty, reward, discipline and retire for the Chairman of the Members' Council, the company's president, members of the Members' Council, and the controller; To give opinions before the Members' Council or the company's president decides on planning, appointment, re-appointment, transfer, rotation, acceptance of resignation, dismissal, commendation, discipline and retirement for General manager director; Approving the policy at the request of the Members' Council on the appointment of Deputy General Director and Deputy Director. For enterprises with state-owned capital: Decide to evaluate, appoint, re-elect or dismiss the representative of the state capital portion, reward, discipline, and retire the representative of the state capital portion.

2. Some problems exist

- The ownership function and management function are not clearly separated, between the ownership of the State ownership representative agency and the rights of the enterprise and the enterprise's ownership, the phenomenon of "playing football and blowing whistleat the same time" still exists. The state interferes too deeply in enterprises; businesses are "creepy" and afraid of responsibility. When the State contributes capital to an enterprise, the State plays the role of a shareholder. Thus, the enterprise has the right to decide, the owner to manage and use the capital. However, at present, there is still the concept that the State is still the owner. And so the business will not have the right to decide and decide; enterprises will not be proactive in using state capital, the responsibility of enterprises will also decrease, and the operating efficiency of enterprises will therefore also be reduced.

- There is no clear separation of responsibilities in management, there is overlap in leadership and business administration. There is no clear separation between corporate governance and management. This creates conflicts and conflicts of interest between the parties involved. In order to resolve this conflict, more "agency costs" must be incurred. This is also the cause leading

to a decrease in the operating efficiency of the business. It is not advisable to let a person who holds the role of both chairman of the board of directors and general director at the same time. In fact, currently in Vietnam, there is still the most type of management according to the general director, the general director has the highest authority, the board of directors is weak; or vice versa is the executive board, concurrently general director or in the "nepotism" style (husband is chairman of the board, wife is general director). Meanwhile, in Vietnam, most of the people on the board of directors are often people with large capital but do not have professional expertise, so if they let them run the business, the business will lose money, hard to avoid. And the life of the business will depend on the chairman of the board of directors and the general manager. If one of them has problems, the business goes down.

3. Some solutions to enhance the roles and responsibilities of the owner's representative agency at the enterprise

In fact, the role and responsibilities of the owner's representative agency in handling finance and determining the value of enterprises for equitization or divestment of state capital in enterprises are still unclear; It is necessary to find solutions to further address this problem. The article summarizes some basic solutions as follows:

Firstly**,** to further enhance the role of the Committee for Management of State Capital at Enterprises (CMSC). In which, the role of ensuring effective use, preserving and increasing the total value of the portfolio of state capital invested in enterprises under management should be promoted. Publicity and transparency in investment, management and use of state capital in enterprises represented by the Commission. To publicize information on investment, management and use of state capital in enterprises represented by the Committee as the owner's representative in accordance with law.

Secondly**,** improve the operational efficiency of the State Capital Investment Corporation (SCIC); it is necessary to clarify more clearly about the management position, scope of activities, functions, tasks and areas of investment allowed; SCIC's investment decision-making authority as well as regulations on preservation and development of investment capital and capital divestment mechanism for investments. SCIC is the representative owner of the Government of Vietnam in enterprises to which the government contributes capital. SCIC has the right to make financial investment and capital trading (buying or selling government capital in equitized state-owned enterprises) according to market principles. SCIC has basically had effective and active activities; clearly separate state management functions and business functions. SCIC has pioneered in testing new mechanisms and policies on state-owned enterprises, especially the divestment of state capital in a professional, effective and market-based manner. However, it can be seen that SCIC's activities are heavily tilted towards social efficiency such as employment, welfare, and tax issues, so the efficiency of business operations according to market principles is somewhat affected. According to the assessment of Ms. Nguyen Thi Thu Binh - Deputy Director of the General Department of SCIC, in terms of financial performance, SCIC has a total revenue of 70,894 billion dong, with the total payment to the state budget reaching 54,842 billion dong. As of December 31, 2018, SCIC's total equity reached VND 46,018 billion, total assets were estimated at VND 48,803 billion. Regarding the reception and transfer of businesses, SCIC has received 1,055 enterprises and sold capital in 995 enterprises. The total disbursed investment capital of SCIC from its establishment to December 31, 2018 is about VND 27,700 billion. Besides the achieved results, there are still shortcomings in SCIC's activities related to institutional building and improvement; implementation of state capital ownership in enterprises or development orientation in the coming time. Furthermore, the management position, scope of activities, functions, tasks and areas of investment permission; SCIC's investment decision-making authority as well as regulations on preservation, development of investment capital and divestment mechanism for SCIC's investments are not clear. This also significantly affects the performance of SCIC.

Thirdly, stronger decentralization, empowering the owner's representative agency to take more initiative in making decisions on capital preservation, improving efficiency for enterprises, and in increasing charter capital in a timely manner, additional capital sources for development investment; proactive in using financial leverage to amplify business efficiency, amplify return on equity, amplify earnings per common share...

Fourthly, improve the capacity and qualifications of the owner's representative. Owner's representative is the person who exercises the rights and obligations of the capital owner appointed by the State owner at the enterprise. With the goal of how to develop production and business activities, preserve and develop effectively capital, protect the interests of the State, on the basis of harmonizing interests with other shareholders... very high from the owner representative. At the same time, senior managers of SOEs also need specific training programs to help them manage effectively, improve business operations, and overcome problems arising from the relationship between owners and representatives, balancing the goals of serving society and equity for the interests of shareholders. In the dynamic and competitive business reality, the training and improvement of the owner's representative in financial handling, business valuation when equitization, divestment of State capital as well as Corporate governance is very important task of the owner's representative agency.

Fifthly, innovate and apply a modern governance framework for state-owned enterprises. The establishment of the Committee for the management of state capital at enterprises and a number of state-owned investment and trading companies are specific actions to implement the State's policy and efforts in separating ownership and state management. This is also a step to establish a modern, transparent and market-based governance framework. Besides, in order to improve competitiveness, innovating and applying a modern governance framework for state-owned enterprises is an urgent need and one of the goals is to build a framework of evaluation criteria and improve effective supervision in the following areas: financial handling, enterprise valuation upon equitization, divestment of state capital... Building a modern governance framework for SOEs is a legal framework and regulations for State-owned enterprises in order to clarify to shareholders, business managers and interested stakeholders, the public about the goals and expectations of the State. At the same time, it also helps to build an effective monitoring system so that state-owned enterprises are responsible for business results. The development of a governance framework will facilitate financial processing and enterprise valuation to be conducted in a professional, consistent manner and accurately reflect the principles and market values of SOEs, to ensure the effectiveness in early detection of violations, warning of the risks of making State enterprises lose money or lose state capital. Building a supervisory framework and monitoring system to check the operation of enterprises in a transparent and public manner. Select capable, qualified and specialized personnel to participate in corporate governance, even for personnel representing the State capital with a high ownership rate.

Sixthly, it is necessary to clearly separate between the ownership function and the management function, between the ownership of the State ownership representative agency and the rights of the enterprise and the ownership of the enterprise. At this time, the State should act as a shareholder, exercising all rights and obligations as a common shareholder; The State supervises the activities of enterprises like other shareholders. As for the management of the business, so that the business can take the initiative and decide for itself with the motto of collecting revenue to cover expenses to ensure profits. The state should only care about the final results and efficiency and only supervise the operation of enterprises, not directly run the enterprises.

References:

Ministry of Finance, World Bank "Training Toolkit on Corporate Governance in State Enterprises" (2021)
luatduonggia.vn
Decree No. 10/2019/ND-CP
Decree No. 159/2020/ND-CP
Nhat Quang.cmsc.gov.vn

FACTORS AFFECTING INFORMATION DISCLOSURE ON SOCIAL RESPONSIBILITY AT FOOD AND BEVERAGE ENTERPRISES IN VIETNAM

MA. Nguyen Thi Hien* - MA. Nguyen Thi Lien Huong*

PhD. Dang Thi Minh Nguyet* - PhD. Nguyen Thu Huong* - MA. Do Thuy Linh*

Abstract: ***The study focuses on determining the factors affecting information disclosure of social responsibility of food and beverage enterprises in Vietnam. The authors use the fixed effect model (FEM) and random effect model (REM) to analyze data collected from the financial statements of 31 companies listed on the Vietnam stock market during the period of 2014-2020. Results show that: (1) the REM model is suitable; (2) the factors affecting the information disclosure of social responsibility include the Gender of the Chairman of the Board of Directors, the Production sector of the enterprise, Ownership percentage of the CEO, and Number of board members with university degrees or higher.***

• Keywords: *information disclosure, social responsibility, food and beverage enterprises, FEM model, REM model.*

Date of receipt: 02nd November, 2022

Date of delivery revision: 08th November, 2022

Date of receipt revision: 15th December, 2022

Date of approval: 01st February, 2023

Tóm tắt: *Nghiên cứu tập trung xác định các yếu tố ảnh hưởng đến CBTT về trách nhiệm xã hội của các doanh nghiệp thực phẩm và đồ uống tại Việt Nam. Nhóm tác giả sử dụng mô hình tác động cố định (FEM) và mô hình tác động ngẫu nhiên (REM) để phân tích dữ liệu thu thập từ báo cáo tài chính của 31 công ty niêm yết trên thị trường chứng khoán Việt Nam giai đoạn 2014-2020. Kết quả cho thấy: (1) mô hình REM phù hợp; (2) các yếu tố ảnh hưởng đến việc công bố thông tin về trách nhiệm xã hội bao gồm Giới tính của Chủ tịch HĐQT, Lĩnh vực sản xuất của doanh nghiệp, Tỷ lệ sở hữu của CEO và Số lượng thành viên HĐQT có trình độ đại học trở lên.*

• Từ khóa: *công bố thông tin, trách nhiệm xã hội, doanh nghiệp thực phẩm và đồ uống, mô hình FEM, mô hình REM.*

1. Introduction

Apart from enterprises' contributions to economic growth, their role in society is increasing significantly. Most stakeholders are gradually paying more attention to corporate social responsibility. However, some companies that are violating social issues such as causing pollution, waste treatment, exhausting natural resources, not ensuring product quality and safety, or breaking the rights of consumers and employees. In the context that green growth and sustainable development are highly focused, businesses in all fields need to promote the application and improvement of CSR activities and disclose information on social responsibility fully and transparently. In the stock market, the regulations on information disclosure for listed companies are increasingly strict. In Vietnam, there is Circular No. 155/2015/TT-BTC and, later, Circular No. 96/2020/TT-BTC replacing Circular 155, providing guidelines for the disclosure of sustainable development information on the stock market.

Decision No. 3690/QD-BCT in 2016 of the Ministry of Industry and Trade approving the national plan for the development of the beverage industry to 2025, with a vision to 2035, gave the view of the development goal. This goal is " *based on balancing production and consumption among regions across the country, ensuring the harmony of interests of the state, society, and enterprises; at the same time preventing abuse of alcoholic beverages;... develop sustainably, focusing on ensuring food safety and protecting the ecological environment*". According to estimates of the Ministry of Industry and Trade, the annual consumption of the food and beverage

** ThuongMai University; email: hienvcu83@gmail.com - nguyenthilienhuong@tmu.edu.vn - nguyetminh@tmu.edu.vn - huongnt.t@tmu.edu.vn - linhdo181@gmail.com*

industry accounts for about 15% of GDP and tends to increase in the coming time, indicating the critical role of the food and beverage industry for the state budget as well as for the overall development of the economy and society. Therefore, researching factors affecting information disclosure of social responsibility for food and beverage enterprises in Vietnam is required.

2. Literature review

Besides growing in size and optimizing profits, businesses also participate in corporate social responsibility activities to achieve sustainable development. CSR information disclosure aims to reduce the environmental impact, encourage voluntary employee attitude, and donate to charities. These are considered actions and policies of businesses that aim to bring about a positive influence on society.

2.1. Studies within Vietnam

Currently, there are few studies on CSR disclosure information in Vietnam. Previous studies mainly focus on the theory of social responsibility, such as explaining corporate behavior in the disclosing information. Some findings were found that Being low level in publicizing information (Kelly Anh Vu et al., 2017; Ta Thi Thu Hang; 2020); Business leaders do not have a high awareness of CSR implementation (Pham Duc Hieu, 2012); Capital ownership ratio of the state and of managers in enterprises has a negative impact on CSR disclosure (Kelly Anh Vu et al., 2017).

Several studies are on the impact of CSR implementation on the corporate financial performance. Ho Viet Tien and Ho Thi Van Anh (2017) researched listed companies in the period 2012-2016 and found that disclosing information about community activities, products, and environmental responsibility has a positive impact on ROA and Tobin'Q of enterprises. Hieu et al (2019) showed that the required level of disclosure information about the social environment was significantly correlated with company size, leverage ratio, profitability, and number of listing years. From a different perspective, Vuong Hoang Quan (2020) identified the ethical gap of corporate social responsibility based on the practices of Vietnamese enterprises to improve the participation of local stakeholders in solving environmental problems and in ecological conservation and social responsibility.

2.2. Studies without Vietnam

There are diverse and considered from more perspectives in analyzing factors having effects on disclosure information of CSR in foreign studies.

First, Enterprise size: Most o previous studies have found a positive relationship between the size and the degree of CSR by assessing the impact of size on CSR (Vicente et al., 2019). Large companies are subject to more scrutiny and public attention than small companies and are therefore under greater pressure to implement sustainable practices. In addition, large enterprises are also better positioned to exercise economies of scale when they implement social responsibility programs.

Second, Profitability: A business with excellent results will be less likely to face urgent financial requirements from investors. Thus, the business can afford to invest in CSR programs that benefit the economy and society (Artiach et al., 2010). In addition, firms with better economic performance can invest in new capital, leading to a better sustainability even if this is not the primary objective (Ziegler and Schröder, 2010).

Third, Ownership structure: Companies with multiple owners are generally expected to disclose more information than corporations with centralized ownership to reduce information asymmetry between organizations and shareholders (Prencipe, 2004). Companies with widely held shares are more likely to improve their financial reporting policies by using CSR disclosures that include their environmental and social information to reduce disproportionality. Sánchez et al. (2011) argue that the company's management is more sensitive to social issues when the company's ownership is more dispersed, as ethical investors or social funds are more likely to interfere in their decision-making.

Four, Characteristics of the business: Enterprises with higher social pressure, such as those causing environmental pollution, should publish objective and verifiable measures of their environmental activities being implemented (Braam et al., 2016). The selective publication of environmental performance indicators will help these companies increase their credibility, thereby increasing social trust and the legitimacy of environmental activities.

Fifth, Group of corporate governance factors affecting CSR: According to Galia and Zenou (2013), diversity in the board of directors is defined as a different combination of attributes, characteristics,

and expertise of the board of directors and corporate decisions, including observable and unobserved aspects (e.g., gender, age, ethnicity, education, and work experience). Increasing gender diversity on the board of directors can foster decision-making because it refers to different perspectives and opinions and evaluates outcomes differently (Daily et al., 2003). Ben-Amar et al. (2017) also suggest that women's attention and consideration of the needs of others can lead to women's active participation in strategic issues, affecting the company and its shareholders. Another issue of corporate management that has attracted the attention of scholars is manager ownership. According to Demsetz (1983), the ownership of managers increased can lead to CEOs becoming conservative and inappropriately evaluating social performance.

3. Methodology

3.1. Data

The study uses panel data to collect information of 31 enterprises in the food and beverage industry in the period from 2014 to 2020. Financial data (Total assets, profitability, etc) is obtained from financial statements; corporate governance data (Board size, CEO gender, etc) is taken from governance reports, and CSR data is scored from annual reports and sustainability reports of the companies during the study period.

Data of the dependent variable CSR is determined according to the following formula:

$$CSR = \sum_{j=1}^{e} \frac{e_j}{e}$$

In which:

CSR is an index to assess the level of corporate CSR information disclosure;

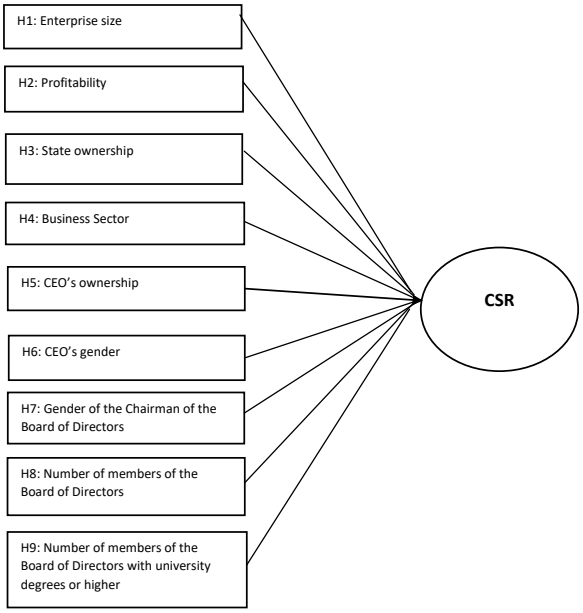
e_j is the number of indicators that the company has disclosed information (e_j = 1 if an indicator is announced by the enterprise, otherwise, e_j = 0); e = 34 is the total number of evaluation criteria. Information on the evaluation criteria is obtained from annual reports, independent reports, and corporate websites.

3.2. Hypotheses and research methods

• Hypotheses

The variables in the study were selected based on the stated theory and research overview. The study proposes 9 hypotheses as described in Figure 1 below:

Figure 1: Research hypotheses



• Research methods

For the panel data regression model, there are 3 commonly used methods:

(1) The least squares estimator model (Pooled OLS): is a normal OLS model, undifferentiated by objects and over time, so the regression results are often unreliable.

(2) Fixed Effect Model (FEM): Consider an economic relationship between the dependent variable Y and the vector X consisting of the independent variables. We have panel data for Y, and X consisting of N-objects and T-times. So, we have the observed NxT. The regression model of fixed effects FEM is determined as follows:

$Y_{it} = X_{it}\beta + \eta_i + u_{it}$ *với* $i = 1, 2, \ldots, N$ *và* $t = 1, 2, \ldots, T$

In which: β is the matrix of regression coefficients, the random error of the model is separated into 2 components: one represents the unobserved factors that differ between subjects but do not change over time η_i; representation of unobservable factors that vary between subjects and change over time (u_{it}).

(3) Random Effect Model (REM):

$Y_{it} = \beta_2 X_{2it} + \ldots + \beta_k X_{kit} + \mu_{it}$ với i = 1, 2, …, N và t = 1, 2, …, T; $\mu_{it} = \varepsilon_{it} + u_{it}$

In which: ε_i is a random error with zero expectation and variance of σ^2; u_{it} is the combined component error of both the individual characteristics of each object and over time; error μ_{it} is not correlated with any explanatory variables in the model.

The Pooled OLS model is a model that cannot control for each individual characteristic of each enterprise in the study, while the two models FEM and REM overcome this drawback. Therefore, the authors decide to use the FEM model and REM model, then use the Hausman test to determine whether the FEM model or REM model is suitable for research.

The variables included in the model are described in detail in the following table:

Table 1: Description of variables included in the regression model

No	Variables	Code	Calculation	Expectation Negative/ positive
1	Level of CSR information disclosure	CSR	Dependent variable	
2	Enterprise size	TS	Total assets (billion VND)	+
3	Profitability	ROE	= Profit after tax/Average equity(%)	+
4	State ownership	SHNN	State ownership ratio(%)	+
5	Business sector	NGANH	Sector = 0: beverage; Sector = 1: food	
6	CEO's ownership	SH_CEO	CEO's share ratio (%)	-
7	CEO's gender	GT_CEO	GT_CEO = 0: male GT_CEO = 1: female	+
8	Gender of the Chairman of the Board of Directors	GT_ CTHDQT	GT_CTHĐQT=0: male GT_CTHĐQT=1: female	+
9	Number of members of the Board of Directors	QM_ HDQT	Number of members of the Board of Directors	+
10	Number of members of the Board of Directors with university degrees or higher	SoDH	Number of members of the Board of Directors with university degrees or higher	+

4. Research Result

4.1. Descriptive statistics of the variables in the model

Table 2 indicates that the level of CSR information disclosure in the food and beverage enterprises is quite low, with CSR level of around 0.08, which shows that, on average, only 8% of CSR criteria are published on annual reports or sustainable development reports. However, the size of the food and beverage enterprises is considerably large, with the average total asset over the year being around 6,360 billion; the average state ownership ratio in these businesses is around 6.830%. Moreover, we can see that the common number of members in the businesses' Board of Directors is 6.

Table 2: Describe the important features of the variables in the model

Variable	Observation	Mean	Max	Min	Standard deviation
CSR	217	0.080	0.297	0	0.067
TS	217	6,360	115,736	47.8	1,690
ROE	217	0.138	2.107	-1.875	0.269
SHNN	217	6.830	55	0	15.689
NGANH	217	0.871	1	0	0.336
SH_CEO	217	5.405	56.48	0	12.387
GT_CEO	217	0.820	1	0	0.385
GT_CTHDQT	217	0.862	1	0	0.346
QM_HDQT	217	5.747	11	3	1.403
SODH	217	3.829	10	0	2.226

Source: Researchers' analysis results

Next, the research evaluates the correlation of the variables in the model.

Table 3: The correlation of the variables in the model

Variable	CSR	TS	ROE	SHNN	NGANH	SH_ CEO	GT_ CEO	GT_ CTHDQT	QM_ HDQT	SO DH
CSR	1									
TS	-0.027	1								
ROE	-0.083	0.029	1							
SHNN	0.015	-0.010	0.111	1						
NGANH	0.245	0.126	-0.045	0.060	1					
SH_CEO	0.159	0.022	-0.011	-0.114	0.152	1				
GT_CEO	-0.038	-0.057	-0.213	-0.141	-0.180	-0.193	1			
GT_ CTHDQT	0.158	-0.092	-0.096	-0.055	-0.114	-0.201	0.473	1		
QM_HDQT	-0.070	0.191	0.095	0.071	0.097	-0.002	-0.016	-0.015	1	
SODH	-0.159	0.100	0.021	0.214	0.026	0.082	0.013	0.047	0.443	1

Source: Researchers' analysis results

Table 3 indicates that the elements in the model are affecting food and beverage manufacturing businesses' CSR. However, the correlation of business characteristic factors is below 10%, which is very low. The factors affecting CSR the most are industry, CEO's ownership ratio, Chairman of the BOD's gender, and the number of BOD members who have a university degree. However, some factors have negative impacts such as enterprise size (total asset) and the ability to generate profit (ROE). Some factors showing the diversity of BOD have inverse effects in comparison with presumption, such as the number of university graduated BOD members, the number of BOD members, and CEO's gender. The difference in sign in the correlation model in comparison with the expected hypothesis will be considered in detail on the regression result. The independent variables in the model have low correlation so the

research identifies there is no multicollinearity phenomenon.

4.2. Result of researching factors affecting CSR

Table 4 describes the regression results of FEM model and REM model with mentioned variables

Table 4: Regression result of FEM model and REM model

Variable	FEM Model		REM Model	
	Regression coefficient	Standard deviation	Regression coefficient	Regression coefficient
TS	0.0000	0.0000	0.0000	0.0000
ROE	-0.0136	0.0147	-0.0115	0.0136
SHNN	0.0008***	0.0003	0.0008***	0.0003
NGANH	0.0459***	0.0117	0.0491**	0.0234
SH_CEO	0.0011***	0.0003	0.0011***	0.0005
GT_CEO	-0.0074	0.0117	0.0025	0.0130
GT_CTHDQT	0.0479***	0.0126	0.0457***	0.0141
QM_HDQT	-0.0017	0.0033	-0.0017	0.0037
SODH	-0.0034	0.0029	-0.0043	0.0033
R^2	0.3625		0.1443	
***: level of significance 1%; **: level of significance 5%; *: level of significance 10%				

Source: Researchers' analysis results

Table 4 shows that many factors brought into the model have no statistical significance, such as business size, profitability, size of BOD, and the number of BOD members who graduated from university and higher. Therefore, the researchers eliminate variables that have no statistical significance from the model and get the suitable model as below:

Table 5: Regression result from FEM and REM model after repairing

Variable	FEM model		REM model	
	Regression coefficient	Standard deviation	Regression coefficient	Regression coefficient
SHNN	0.0008***	0.0003	0.0007***	0.0003
NGANH	0.0461***	0.0113	0.0466***	0.0113
SH_CEO	0.0012***	0.0003	0.0011***	0.0003
GT_CTHDQT	0.0458***	0.0112	0.0457***	0.0112
SoDH	-0.004731*	0.00243	-0.0053**	0.0022
R^2	**0.3657**		**0.1911**	
***: level of significance 1%; **: level of significance 5%; *: level of significance 10%				

Source: Researchers' analysis results

To find the most suitable model, the research conducted Hausman test and the result shows that REM model is suitable

Statistic	Chi-squared	P_value
	9.02	0.067 > 0.05

Testing autocorrelation and heteroscedasticity on the REM model shows that the model has autocorrelation and heteroscedasticity.

Statistic	F	P_value	Chi-squared	P_value
	69.46	0.000 <0.05	57.42	0.000 <0.05

Therefore, the research has overcome two phenomena by using regression GLS and got the result below:

Table 6: REM model regression result after repairing

Variable	REM Model	
	Correlation coefficient	Standard deviation
SHNN	0.0004	0.0003
NGANH	0.055***	0.0097
SH_CEO	0.0011***	0.0004
GT_CTHDQT	0.0528***	0.0095
SoDH	-0.0058***	0.0018
***: level of significance 1%;		

Source: Researchers' analysis results

Table 6 lists the factors affecting CSR disclosure of food and beverage manufacturing businesses, including 4 factors: gender of CEO, business field, ownership ratio of CEO, and the number of BOD members graduating from university. It shows that food manufacturing companies have an average of 5.5% higher level of CSR information disclosure than beverage manufacturers do. At the same time, the companies with female Chairman of BOD have 5.5% higher levels of CSR disclosure than the business with male chairman of BOD. The ratio of CEO who owns the company also helps improve CSR, but the level of influence is around 0.1%. The research also points out that the higher the number of BOD graduating from university the lower the level of CSR disclosure.

5. Conclusion and recommendations

5.1. Conclusion

From the research, it can be seen that:

Firstly, Vietnam's food and beverage manufacturing businesses did not pay much attention to disclosing CSR information. This current situation is shown through CSR disclosing annual reports and sustainable development reports of companies over the year with low results. This result is similar to research on the status of CSR in Vietnam businesses by Kelly Anh Vu et al. (2017), and Ta Thi Thu Hang (2020).

Secondly, of 9 factors included in the model, there are only 4 factors affecting the level of CSR information disclosure of companies in the food and beverage industry: Gender of the BOD Chairman, the production field of the enterprise, the CEO's

ownership rate and the number of BOD member with university degrees or higher.

Thirdly, the effect of state ownership is in some direction with CSR information disclosure, the model result is similar to previous studies by Ghazali (2007), and Mohamed Adnan et al. (2018).

*Fourth*ly, regarding gender diversification in BOD, the findings of the research show that there is a positive relationship between the gender of the BOD Chairman with CSR information disclosure. This result is in compliance with the experimental result of previous research

5.2. Recommendations

From the research findings, some recommendations are given:

Firstly, to management agencies

Food and beverage are one of the most important economic sectors, greatly influencing the health and life of people, so compliance in disclosing CSR information needs to be fully accomplished. There is stricter supervision in the responsibility to disclose CSR information of companies in the Vietnamese market. Circular 96/2020/TT-BTC guiding the disclosure of information in the stock market took effect from 01/01/2021. However, the situation of enterprises not disclosing sufficient information according to regulations leads to negative effects on public confidence in general and investors in particular. Management agencies need to have a mechanism to unify the standards and reporting methods of each industry group to have a solid basis for enterprises to disclose information. To speed up and improve efficiency, it is necessary to have a mechanism to rank sustainable enterprises, thereby creating motivation for businesses to pay more attention to CSR information disclosure.

Secondly, to the businesses in the food and beverage industry

It is necessary to continue to strictly implement the disclosure of corporate social responsibility information. Clearly seeing the importance of factors (Gender of BOD Chairman, production field of the company, CEO's ownership rate, and the number of board members graduating from university or higher) have an impact on disclosing CSR of the food and beverage industry to have a mechanism and strategy for this activity at the enterprise. Therefore, companies in the food and drink industry need to strengthen and strictly implement regulations regarding CSR disclosure in the near future. In addition, the food and beverage enterprises with female BOD chairmen will have a higher level of CSR information disclosure on average than the businesses with male BOD chairmen. Therefore, businesses in general, especially those with a male Chairman need to pay more attention to sustainable development factors, therefore promoting CSR information disclosure. The businesses are also cautious in adjusting the CEO's ownership ratio because this is also an important factor affecting the disclosure of CSR information in the food and beverage industry.

References:

Ho Thi Van Anh. (1970). Social Responsibility and Financial Efficiency: Evidence from Vietnamese listed companies. University of Economics Ho Chi Minh City.

Pham Duc Hieu. et al. (2019). Mandatory Social and Environmental Disclosure of Listed Companies in Vietnam. Academy of Accounting and Financial Studies Journal, 23.

Ta Thi Thuy Hang. (2007). "Studies on the impact of social responsibility disclosure on financial performance of listed companies on Vietnam stock market". Doctoral Thesis, National Economics University.

Ho Viet Tien. et al. (2017) The corporate environmental responsibility and corporate financial performance: evidence from Vietnamese listed companies. In Proceedings of ICUEH2017: International conference of University of Economic Ho Chi Minh City: Policies and sustainable economic development, HCMC, Vietnam, September 28, 2027 (pp. 647-665). UEH Publishing House.

Pham Duc Hieu. (2011). Corporate social responsibility: A study on awareness of managers and consumers in Vietnam. Journal of Accounting and Taxation, 3(8), pp.158-161.

Artiach, T.et al. (2010). "The determinants of corporate sustainability performance", Accounting & Finance, Vol. 50, No. 1, pp. 31-51.

Ben-Amar, W.et al.(2017). "Board Gender Diversity and Corporate Response to Sustainability Initiatives: Evidence from the Carbon Disclosure Project", J Bus Ethics, Vol. 142, pp. 369-383

Braam, G.J.M. et al. (2016) "Determinants of corporate environmental reporting: The Importance of Environmental Performance and assurance," Journal of Cleaner Production, Vol. 129, pp. 724-734.

Circular 155/2015/TT-BTC guiding information disclosure on the stock market issued by Ministry of Finance

Circular 96/2020/TT-BTC guiding information disclosure on the stock market issued by Ministry of Finance

Daily, C.M.et al. (2003) "Corporate governance: Decades of dialogue and Data," The Academy of Management Review, 28(3), p. 371.

Demsetz, H. (1983), "The structure of ownership and the theory of the firm", The Journal of Law and Economics, 26(2), pp. 375-390.

Galia, F. and Zenou, E. (2012), "Board composition and forms of innovation: Does diversity make a difference?", European J. of International Management, 6(6), p. 630.

Gallego-Álvarez, I.et al.(2011), "Corporate social responsibility and innovation: a resource-based theory", Management Decision, Vol. 49 No. 10, pp. 1709-1727.

Ziegler, A. and Schröder, M. (2010) "What determines the inclusion in a sustainability stock index?",Ecological Economics, 69(4), pp. 848-856.

Vicente, M. et al. (2019) "Population history and genetic adaptation of the Fulani nomads: Inferences from genome-wide data and the lactase persistence trait",BMC Genomics, 20(1).

Vu, K.A. and Buranatrakul, T., (2017) "Examining CSR disclosure in Vietnam: too little, too late", UTCC Int. J. Bus. Econ, 9, pp.65-79.

Vuong Hoang Quan. et al. (2020) "Identifying the moral-practical gaps in corporate social responsibility missions of Vietnamese firms: An event-based analysis of sustainability feasibility," Corporate Social Responsibility and Environmental Management, 28(1), pp. 30-41. Available at: https://doi.org/10.1002/csr.2029.

COST-BENEFIT ANALYSIS ON APPLYING SHARING ECONOMY TO THE WHITE DRAGON FRUIT FARMS IN VIETNAM

Nguyen Nguyet Nga* - Vu Thi Thuy Linh**

Abstract: ***The aim of the study was to clarify the costs and benefits of applying sharing platform in the white dragon fruit farms in Vietnam. The research focused on white dragon fruit products in Binh Thuan provinces in the period 2018-2019. The Cost and Benefit Analysis method was used in analyzing data. Two scenarios were developed in order to show changes in the costs and benefits of white dragon fruit farms. The results show that applying sharing economy in white dragon fruit farms brings many benefits to farmers. The research is crucial in the context of the scheme promoting sharing economy model of the Ministry of Planning and Investment was approved by the Government of Vietnam from August 2019.***

• Keywords: *sharing economy, white dragon fruit farm, cost-benefit analysis, quantitative approach, agricultural.*

Date of receipt: 02nd November, 2022
Date of delivery revision: 08th November, 2022
Date of receipt revision: 15th December, 2022
Date of approval: 01st February, 2023

Tóm tắt: *Bài viết tập trung làm rõ các chi phí và lợi ích của việc đưa nền tảng chia sẻ để ứng dụng trong chuỗi thanh long ruột trắng ở Việt Nam. Nghiên cứu tập trung vào phạm vi nghiên cứu tại tỉnh Bình Thuận trong giai đoạn 2018 - 2019 và sử dụng phương pháp Phân tích chi phí - lợi ích để phân tích dữ liệu. Tác giả xây dựng hai kịch bản nhằm chỉ ra sự thay đổi về chi phí và lợi ích của các trang trại trồng thanh long ruột trắng. Kết quả cho thấy việc ứng dụng kinh tế chia sẻ giữa các trang trại trồng thanh long ruột trắng mang lại nhiều lợi ích cho nông dân. Nghiên cứu đóng vai trò quan trong bối cảnh Bộ Kế hoạch và đầu tư thúc đẩy mô hình kinh tế chia sẻ được hỗ trợ bởi Chính phủ Việt Nam từ tháng 8 năm 2019.*

• Từ khóa: *kinh tế chia sẻ, trang trại thanh long ruột trắng, phân tích chi phí - lợi ích, nghiên cứu định lượng, nông nghiệp.*

1. Introduction

Sharing economy is a hybrid market model which refers to a peer-to-peer network based on sharing access to goods and services through online community-based services (Schor, 2016). In terms of the benefits of sharing economy in agriculture, Watkins's research (2017) focused on explaining the nature of sharing economy as shifting from ownership to access a product or a service. Thus, the business model in fruit and vegetable agriculture can shift from a single farm to a shared network of many famrs in sharing economy.

Most of white dragon fruit farms in Vietnam operate separately, and inefficiently (The Dragon Fruit Research Centre, 2019). Thus, the benefits of these farms are very low and unstable. In the context of rapid development of scientific and technological achievements, applying sharing economy could be a vital solution to solve problems for Vietnamese fruit and vegetable farms such as lack of land, capital, or partners… The successful application could create good conditions for Vietnamese dragon fruit farms in provinces such as Binh Thuan, Can Tho, Vinh Phuc, and Lam Dong.

This study focuses on clarifying the costs and benefits before and after applying sharing economy of dragon fruit farms in Vietnam. The research question is whether applying sharing economy to develop the connection between cultivation stages could bring economic benefits to dragon fruit growers or not. The research

** Thuongmai University; ** Corresponding author; E-mail: vuthuylinh@tmu.edu.vn*

objects are costs and benefits in two scenarios which are *Business as Usual Scenario*(before applying sharing economy) and *Sharing Economy Scenario (after applying sharing economy)* of Vietnamese white dragon fruit farms in developing the connection between cultivation stages. The study focuses on applying sharing economy in white dragon fruit products of Binh Thuan and Vinh Phuc provinces in two years (2018 and 2019). The research method used is a cost-benefit analysis.

2. Literature review

The industrial revolution 4.0 with new technologies such as artificial intelligence, robotics, the internet of things, nanotechnology, molecular biotechnology, and genetic technology... opens the ability to help export meet the requirements of improving productivity, quality, and value of exported products, saving resources and protecting the environment (Nguyen Thu Huong, 2016). Wolfert (2017) mentioned the applicability of the smart farm model and the impact on the food supply chain. As Wolfert (2017), the future of smart agriculture can be explained by two scenarios: (1) Closed, proprietary systems: the farmer is a part of a highly integrated food supply chain, or (2) Open collaborative system: farmers and stakeholders are on a flexible chain network for choosing business partners as well as technology. The development of data and application infrastructures (platforms and standards) and their institutional coherence will play a vital role in the battle between these scenarios.

The sharing economy has exploded clearly since the industrial revolution 4.0 was born in 2013. Hamari et al(2015, p.3) referred that sharing economy is related to "a peer-to-peer-based activity of obtaining, giving, or sharing access to goods and services, coordinated through community-based online services". As the Ministry of Planning and Investment of Vietnam (2019), sharing economy is a concept associated with the digital revolution. The sharing economy model is an economic system in that assets or services are shared between individuals or free of charge/fee, typically through internet tools (Vietnam Ministry of Planning and Investment, 2019). This is a new method of connecting buyers (users) and sellers (suppliers) for economic activity. With the development of information technology, industrial revolution 4.0, and sharing economy, there have been more and more studies on the application of these fields to supply chain development over the world. Chen (2003) pointed out the applicability of information sharing in supply chain coordination. However, this study only provides theoretical models and it doesn't specialize in practice and financial issues as well.

In recent years (since 2016), there are some articles about applying sharing economy in agriculture. Grigoras (2016)showed the applicability of sharing economy in agriculture and pointed out that this is a "dream" combination because sharing economy is beneficial for these products. Further analyzing the benefits of sharing economy in agriculture, Watkins's research (2017) explained the nature of sharing economy as shifting from ownership to access. Thus, the business model in dragon fruit cultivation can be changed from a single farmto an economy (not single entities) with sharing nature. More specifically, applying sharing economy to perishable goods such as vegetables and fruits will avoid damage for farmers (2021). In the United States, 40-50% of post-harvest produce is unused and 25% of post-harvest produce is damaged in transportation (Christian, 2008).

In summary, although some new models which apply sharing economy to the supply chain of the agricultural product have appeared (Hello mum is an example), there is no research on the application of sharing economy in white dragon fruit cultivation stages, especially in-depth analysis of the costs and benefits of the application.

3. Research methodology

The study uses quantitative methods to survey and analyze the costs and benefits of white dragon fruit farms in Binh Thuan province.

3.1. Extended Cost and Benefit Analysis Method

Cost and benefit analysis is using analysis and evaluation results to consider the economic efficiency of an activity or a project. This method compares benefits with the costs of the project as well as costs and benefits brought to the environment (Christian, 2008).

The costs and benefits of development activities are determined (based on the results of activities), quantified, and transfer into a monetary value. Comparing the benefits and costs of an investment project to evaluate effectiveness through the following indicators:

* Project's net profit (net present value NPV - Net Present Value: B-C):

Using NPV indicator (Total Benefits - Total Costs) to know a project is profitable or not. NPV is the cumulative net profit which depends on the discount factor and time. Normally, at the start period, NPV has the sign (-) or NPV < 0 (meaning the cost is greater than the profit), at some point NPV = 0 and > 0; NPV > 0, the project is deemed to be profitable or payback.

* Project's relative profit (benefit/cost ratio: B/C)

By the time, at B/C = 1, accrued profit equals accrued costs, then B/C > 1 and increases. At this point, the project has paid off and is profitable.

3.2. Sampling method

The study used a non-probability sampling method called the snowball method to identify 50 respondents in Binh Thuan and Vinh Phuc province. Besides, some of them were selected to carry out a case study method to discover, compare and re-test market costs with the actual costs that farms have to pay. Primary data was collected through questionnaires, in-depth interviews, and group discussions. Data were processed by using Excel software.

3.3. Research hypothesis

The research hypothesis is that applying sharing economy to develop the connection between cultivation partners can bring economic benefits to dragon fruit farmers.

3.4. Research assumptions (conditions)

- Business As Usual Scenario

Binh Thuan dragon fruit growing farms were selected as the case study for cost and benefit analysis.

As the Dragon Fruit Research Center of Binh Thuan (2019), features of the Binh Thuan dragon fruit chain are consumed through two main channels as shown.

Besides, organizations play the role of supporting and developing dragon fruit value chains such as state management agencies, associations, People's Committees of districts, cities, communes, wards, and towns…

Therefore, the input information matrix is calculated for dragon fruit farms or households including the cost of cultivation without transportation logistics costs because traders buy dragon fruit at the gardens

- Sharing Economy Scenario

Sharing economy scenario is building an information technology platform that white dragon fruit farms can connect with each other to apply the sharing economy includes research assumptions.

4. Results

4.1. Input matrix for the cost and benefit analysis of white dragon fruits farms

Before collecting data, farmers received detailed information of the hypothetical scenario. The possible costs and benefits from the scenario are shown in the input matrix. The input matrix of the farm scenario when applying the sharing economy includes costs and benefits as in the table below. Thus, the benefit costs of the sharing economy scenario will be equal to the business as usual scenario **(**the traditional farm scenario) plus additional benefit costs incurred after applying the sharing economy.

Table 1: Cost-benefit of the farm in sharing economy scenario

NI.	Costs before applying sharing economy	Benefit before applying sharing economy
	Calculated for 1 hectare (1,100 pillars)/1 year	Revenue from selling white dragon fruit
II.	**Production cost for 1 ha**	
1.1	**Fixed costs (20-year amortization)**	
	Planting land (if rented)	
	Seedlings, Pillars	
	Build a transformer to serve the lamps	
	Wiring and Irrigation System	
	The average number of bulbs for 1 ha	
1.2	**Annual cost**	
	Straw, Manure	
	Inorganic fertilizer for root fertilizer, Foliar fertilizer	
	Pesticides, Irrigation water	
	Growth stimulants	
	Electricity for irrigation and lights	
	Other supplies (lawn mower…)	
1.3	**Labor cost (labor)**	
	Watering and weeding work	
	Fertilizer application, spraying	
	Pruning old branches and young shoots works, and clawing tree ears work	
1.4	**Bank loan interest expense for 1 year**	
IIII.	**Additional costs after applying the sharing economy**	Additional benefits after applying sharing economy
2.1	**Fee of joining sharing economy platform**	-Increasing revenue due to more complete supply and demand information, so they can sell products at a higher price than before -Increase production when accessing advanced production techniques and updating technical weather information through sharing agricultural monitoring stations - Reduce damage caused by not being able to recruit seasonal workers
2.2	**Costs of standardizing operations to meet sharing economy services**	
	-Training and recruiting staff in charge of sharing economy	
	- Invest in equipment and machinery for sharing economy applications	

4.2. Cost-benefit analysis for the sharing economy scenario in connecting white dragon fruit farms

4.2.2. Business As Usual Scenario

Binh Thuan dragon fruit farms were selected as the case study for cost-benefit analysis.

Table 2: Economic efficiency of white dragon fruit farms

No.	Items	Unit	On season	Off-season
I	**Calculated for 1 ha (1,100 pillars)/ year**		**75.760.250**	**218.850.250**
	Production cost for 1 ha		72.010.000	198.850.000
1.1	**Fixed costs (20-year amortization)**		**75.005.000**	**400.005.000**
	Planting land (if rented)	VND	5.000.000	20.000.000
	Stem seed	VND	5.000	5.000
	Pillars	VND	50.000.000	50.000.000
	Build a transformer to serve the lamps	VND		200.000.000
	Electrical wiring	VND		50.000.000
	Bulb for 1 ha	VND		40.000.000
	Watering system	VND	20.000.000	40.000.000
1.2	**Annual cost**	**VND**	**35.010.000**	**117.850.000**
	Straw	VND	6.000.000	9.000.000
	Manure	VND	15.000.000	35.000.000
	Inorganic fertilizer for root fertilizer	VND	7.000.000	40.000.000
	Foliar fertilizer	VND	360.000	1.000.000
	Pesticides	VND	1.000.000	2.000.000
	Growth stimulants for plants	VND	300.000	500.000
	Irrigation water	VND	1.350.000	1.350.000
	Irrigation electricity	VND	2.000.000	2.000.000
	Electric for lamp	VND		24.000.000
	Other supplies	VND	2.000.000	3.000.000
1.3	**Labor costs**	**VND**	**30.000.000**	**61.000.000**
	Watering work	VND	8.000.000	8.000.000
	Weeding work	VND	10.000.000	10.000.000
	Fertilizing, and spraying works	VND	5.000.000	25.000.000
	Work of pruning old branches, clove.	VND	3.000.000	12.000.000
	Other works…	VND	4.000.000	6.000.000
1.4	**Bank loan interest expense each year**	**VND**	**7.000.000**	**20.000.000**
II	**Effective investment/1ha**	**VND**		
1	Total expenditure (1 ha)	VND	75.760.250	218.850.250
2	Total Production (1 ha)	Kg	10.000	20.000
3	Total Revenue (1 ha)	VND	110.000.000	376.000.000
4	Total Profit (1 ha)	VND	34.239.750	157.149.750

Source: The Dragon Fruit Research Centre (2019).

4.2.2. Sharing economy scenario

- Costs collected by the market method

The Market Cost Method explores current prices when purchasing goods or services in the market.

- Construction cost (depending on many factors). This scenario assumes that a simple platform's price is about VND 100 million

+ Research costs to build a platform system

- Platform maintenance costs:

+ System hardware: 10 million/year

+ Human resources: salary for 5 people is about 420 million/year

- Using service costs:

+ Cost of machinery (computer/smartphone): 12 million VND/computer equipment (depreciated over 6 years) for a white dragon fruit farm with average hectares about 5 ha. Thus, a smart application device to participate in the Sharing Economy costs 400,000 VND/hectare/year.

+ Human resource costs: salary for 1 employee is 60 million dong/year (this employee can be used as general office staff) in a company. However, if the farm is a household, the owner will be the person in charge of sharing economy application, so this salary is considered as 0 dong/ha.

- Training cost: No fee to attend online training every year.

- Costs collected by using Randomized Evaluation method

Before conducting the survey, researchers provided to the respondents who are farm owners, and agribusiness owners about the scenario and analyze the benefits they can get in the cost-benefit analysis framework. This study surveyed respondents' willingness to pay to use sharing economy services.

The costs and benefits that increase/decrease compared to the business as usual scenario (without applying sharing economy) are calculated in table 3:

Table 3: Estimated benefits and costs incurred by applying the sharing economy

II	Costs incurred by applying the sharing economy (1 ha)	Unit	Estimated
21	Joining costs		
22	Costs of Standardizing operations to meet sharing economy services		
	Training and recruiting staff in charge of sharing economy	VND/Ha	0
	Invest in equipment and machinery for sharing economy applications	VND/Ha/year	400.000
III	**Additional benefits by applying sharing economy (1 ha)**		
	-Increasing revenue because of receiving more market information, so farmers can sell products at a higher price than before	VND/Ha/year	80.000.000
	-Increase production due to accessing advanced production techniques and updating technical weather information through sharing agricultural monitoring stations	VND/Ha/year	Unknown
	- Reduce losses caused by not being able to recruit skilled workers with productivity is only 50% compared to other workers	VND/Ha/year	60.000.000
IIII	**Total additional profit by applying sharing economy (1 ha)**	VND/Ha/year	119.600.000

Source: Survey data of project on "Application of the sharing economy in the development of connection of the supply chain of Vietnamese fruit and vegetable exports under the impact of the 4th industrial revolution, (2019).

Before applying sharing economy, total profit of a white dragon fruit farm was only VND 157,149,750/hectare/year. After applying sharing economy, a white dragon fruit farm earned an additional amount of VND 119.6 million/hectare/year. Thus, economic efficiency of applying sharing economy is obvious. Specifically, the following case studies show benefits of applying sharing economy to both households and farms.

5. Conclusions and recommendation

5.1. Conclusion

The cost-benefit analysis of applying sharing economy in Vietnamese white dragon fruit supply chain reveals many new findings.

Compared with previous studies of Wolfert (2017), Chen (2003) and Grigoras (2016), this study has contributions in analyzing benefits and ability to participate in sharing economy services of famers in Vietnamese white dragon fruit supply chain. Farmers and other entities involved in white dragon fruit cultivation of this research

sample have positive perceptions towards sharing economy and have the ability to apply sharing economy if access is convenient. *In this study,* the benefits from applying sharing economy in white dragon fruit farm are clear. Specifically, after applying the sharing economy, dragon fruit farmers earn an additional amount of VND 119.6 million/hectare/year. The demand of applying sharing economy to improve efficiency of white dragon fruit production and consumption in this study's sample shows that developing a sharing economy platform to build connection between the farmers in Vietnamese white dragon fruit supply chain is necessary.

5.2. Recommendations

Applying sharing economy in developing connection of white dragon fruit chain is a new issue in Vietnam. However, applying sharing economy is beneficial and could solve long-standing problems in white dragon fruit supply chain. In order to implement the sharing economy in Vietnam, the following measures need to be taken.

Government's role is very important in creating a legal and sanctioning corridor, supporting for applying sharing economy in white dragon fruit supply chain. The Ministry of Agriculture and Rural Development needs to have a plan on planting areas where apply modern methods on large-scale (applying technology to whole region, standard procedures, and pest prevention....). The Ministry of Industry and Trade needs to coordinate with the Provincial departments of Industry and Trade to coordinate organization and support promotion to create a national brand for white dragon fruit.

For the Provincial People's Committees, it is necessary to select reputable enterprises and official export enterprises as a center to pilot in participating in sharing economy and then attract other chain's members take part in. These central enterprises will also support businesses and farms to conduct export orders to bring benefits to sharing economy participants. Thereby, ensuring capital recovery enough for farmers to reproduce. Moreover, the Provincial People's Committees also need to coordinate with other departments to convince people to comply with the committed goods standards after participating in sharing economy. It's a vital solution that to invest materials and good conditions for people who are passionate about working to connect parties, businesses, associations and governments and support stakeholders in technical infrastructure to participate in sharing economy.

For associations, their roles should be promoted as a bridge between businesses and farmers. The exporter is specialized in doing the merchant's job rather than being responsible for the entire supply chain. And the Association needs to provide information to support producers and farmers in standardizing the cultivation process to participate in the sharing economy.

References:

Chen, F., 'Information sharing and supply chain coordination', in Graves, S.C. and Kok, A.G.d. (Eds.): Handbooks in Operations Research and Management Science, Elsevier, Amsterdam, The Netherlands, Vol. 11 (2003) 341-421.

Christian D., Martin B., Leonardo Weiss F. Chaves, Michael B., Daniel R., Till R., Monty B., Thomas H. and Daniel H., "Cost-Benefit Model for Smart Items in the Supply Chain,"The Internet of Things, Vol 4952 (2008) 155-172.

Grigoras, O. A., Farming And The Sharing Economy: A Match Made In Heaven. Business excellence, 2016

Hamari, J., Sjöklint, M., Ukkonen, A., 2015. The sharing economy: why people participate in collaborative consumption. J. Assoc. Inf. Sci. Technol., Journal of the Association for Information Science and Technology (06/2015)

Nguyen Bich Thuy, Nguyen Nguyet Nga et al., Ministry project "Application of sharing economy in developing supply chain connection of Vietnamese fruit and vegetable exports under the impact of the 4th industrial revolution". 2019 (in Vietnamese)

Nguyen Nguyet Nga, "A Research on Applying Sharing Economy to Connecting the Supply Chain of Vegetables and Fruits in Vietnam", VNU Journal of Economics and Business, Vol 1, No.3 (2021) 36-44 (in Vietnamese)

Nguyen Thu Huong et al., Summary report: The Fourth Industrial Revolution: Some aspects, impacts and policy implications for Vietnam, 2016 (in Vietnamese).

Schor, C. Fitzmaurice, W. Attwood-Charles, L. Carfagna, E. Poteat, Paradoxes of openness and distinction in the sharing economy, Poetics, 54 (2016), pp. 66-81Schor.

The Dragon Fruit Research Centre - Department of Agricultural and Rural Development of Binh Thuan Province, Survey on Agricultural, Rural and Seafood, Report about the Value Chain of Dragon Fruit, 2019 (in Vietnamese).

Vietnam Ministry of Planning and Investment, Report on The Project of Promoting the Sharing Economy Model in Vietnam, Hanoi, 2019(in Vietnamese).

Watkins, T., From ownership to access: farming businesses and the sharing economy, Business Excellence. - BNP Paribas Leasing Solutions UK, Insights 2017/05 (2017)

Wolfert, S., Cor Verdouw, L., and Boggardt, M., Big data in smart farming - A review. Agricultural. System. 153 (2017) 69-80

THE IMPACT OF COVID-19 PANDEMIC ON THE OPERATIONAL EFFICIENCY OF BUSINESSES LISTED IN VIETNAM

PhD. Nguyen Thi Hong Nham* - Tran Minh Hieu*

Abstract: ***The out break of the new corona virus (Covid-19) is one of the most prominent problems that scientists are studying and finding solutions to overcome its consequences. In this study, the authors examine the impact of Covid-19 on the performance of listed companies in Vietnam in the period 2016 to 2020, specifically those in the VN100 index. To find out the specific impacts that Covid-19 has caused, the study uses the quantitative Difference in Difference (DID) method to estimate the variables of the research model. The authors found evidence for the negative impacts of Covid-19 on firm performance in both industry and regional dimensions. Businesses in the industry and region that the research team hypothesizes to be highly impacted are negatively affected. From there, the article offers some recommendations and solutions to improve business performance during the Covid-19 period and post-Covid-19 recovery.***

• Keywords: *Covid-19, performance, listed companies, DID method.*

Date of receipt: 10th December, 2022

Date of delivery revision: 15th December, 2022

Date of receipt revision: 15th Jannuary, 2023

Date of approval: 30th Jannuary, 2023

Tóm tắt: *Sự bùng phát của virus corona mới (Covid-19) là một trong những vấn đề nổi cộm mà các nhà khoa học đang nghiên cứu, tìm giải pháp khắc phục hậu quả của nó. Trong nghiên cứu này, nhóm tác giả xem xét tác động của Covid-19 đến hiệu quả hoạt động của các công ty niêm yết tại Việt Nam giai đoạn 2016 đến 2020, cụ thể là các công ty trong chỉ số VN100. Để tìm hiểu những tác động cụ thể mà Covid-19 gây ra, nghiên cứu sử dụng phương pháp định lượng Sự khác biệt trong sự khác biệt (DID) để ước lượng các biến của mô hình nghiên cứu. Các tác giả đã tìm thấy bằng chứng về những tác động tiêu cực của Covid-19 đối với hiệu quả hoạt động của công ty ở cả quy mô ngành và khu vực. Các doanh nghiệp trong ngành và khu vực mà nhóm nghiên cứu đưa ra giả thuyết chịu tác động lớn đều bị ảnh hưởng tiêu cực. Từ đó, bài viết đưa ra một số khuyến nghị và giải pháp nhằm nâng cao hiệu quả hoạt động kinh doanh trong giai đoạn Covid-19 và phục hồi sau Covid-19.*

• Từ khóa: *Covid-19, hiệu suất, công ty niêm yết, phương pháp DID.*

1. Introduction

The Covid-19 pandemic has severely impacted healthcare, the economy, transportation, and other sectors across different industries and regions. Because of the isolation policy, population mobility plummeted, which had a negative impact on consumer spending and caused the economy to stagnate. The Covid-19 epidemic brought about the worst worldwide recession since 1930, when the economy was booming, on a macro level. Vietnam is one of just a few nations with a positive GDP growth rate in 2020, but that growth rate has significantly dropped compared to 2019 (7.02% to 2.91%). Regarding the research of Fu and Shen in 2020, China's GDP shrank by 6.8% compared to 2019, resulting in significant bankruptcies and job losses in numerous nations. A number of different research also discussed that at the corporate level, the spread of the Covid-19 pandemic may have an impact on:

• The stock market (Iyke - 2020; Liu et al - 2020; Narayan and Phan - 2020),

• Businesses' performance in the energy industry (Fu and Shen - 2020)

• Other aspects (Hagerty and Williams - 2020).

Given that listed firms are a crucial part of the national economy, it is vital to evaluate how such significant public health emergencies would affect company operations in these trying times.

** College of Business, UEH University*

Surveys show that the financial system's internal issues may be the biggest contributor to the recent economic slump (Zubair et al., 2020).

However, exogenous forces, primarily the policy of forced closure following the Covid-19 epidemic, are to blame for the recession by the pandemic. Therefore, methods of analyzing and measuring the economic impact of financial crises cannot be applied during the Covid-19 outbreak. There are currently few tools available to evaluate how catastrophes, particularly the Covid-19 pandemic, affect the economy, industry, and businesses. The influence of the Covid-19 pandemic on business operations and its mechanisms are thoroughly covered in this study report, which focuses on corporate-level performance. The authors also further discuss the impact of the pandemic in two respects: industries with severe impacts and regions severely affected.

2. Literature review

The impact of the Covid-19 pandemic on the operational efficiency of businesses

In 2021, Sunday et al conducted a survey to estimate the impact Covid-19 has had on businesses in Uganda. The results indicate that small and medium enterprises (SMEs) have been more affected by the Covid-19 epidemic than large enterprises. According to Shiwei Hu, and Yuyao Zhang (2021), the Covid-19 pandemic decreased the company's operational effectiveness. In nations with more developed financial systems, better institutions, and better healthcare systems, the negative impacts of Covid-19 on business operations are less noticeable. Contrarily, Fu et al (2020) use first-quarter data for the years 2014-2020 to assess the performance of energy companies in China during the Covid-19 outbreak. The Covid-19 pandemic has had a considerable negative influence on the performance of businesses in the energy industry, according to analysis using an integrated DID regression model. Shen et al (2020) believe that Covid-19 has a detrimental effect on business operations. When a company's investment or sales revenue is less and Covid-19 has a negative effect on the company's operations, the negative effect of Covid-19 on operational efficiency is more considerable than on enterprises in areas and fields with significant influence.

The impact of the Covid-19 pandemic on different industries

In the national economy, the industry is a finely divided organizational structure of firms or people engaged in uniform output (Phan et al., 2015). The stage of an industry's development and its place in the national economy can be understood through the classification of the industries. Previous research has looked at how that nation and the stock market responded to Covid-19 (Narayan and Phan 2020), as well as how Covid-19 affected the United States' political conflict index (Apergis and Apergis, 2020). The assumption of a uniform influence on industry performance, i.e. that Covid-19 has an equal impact on all sectors, is a limitation of research on pandemic consequences at the aggregate market level. Narayan and Sharma (2011) argue that sectors are heterogeneous and therefore have the ability to respond to market shocks differently. Phan et al (2015) also found strong evidence that return predictability is associated with certain industry characteristics. Therefore, the supply-demand relationship changes according to the characteristics of the industry during the pandemic.

Which industries have been severely affected by the outbreak? According to statistics from the World Bank in Vietnam (WB) in collaboration with the Vietnam Chamber of Commerce and Industry (VCCI), industries such as apparel, information and communication, tourism, and electrical equipment manufacturing are the most affected industries in Vietnam. Following the Government of Vietnam's restrictive regulations, businesses in the apparel sector are struggling with a broken supply chain and a shortage of raw materials. The raw material supply from China was severely impacted starting in the first quarter of 2020, which is when this occurred. The issue, however, goes beyond a simple supply issue. Due to a significant reduction in the number of imports from important trading partners like the US, Japan, Korea, and the EU, consumption demand started to drastically decline to start in

the second quarter of 2020. The decrease in sales in the second quarter of 2020 was up to about 27%, and in some months down to 36%. Over the past 25 years, Vietnam's garment industry has continuously grown strongly, but 2020 is an exception. Tourism has also been severely affected by the pandemic. In 2020, the pandemic has made the number of international visitors to Vietnam expected to reach only about 7 million and the number of domestic tourists to only about 50 million. Tens of trillions of dong were lost by the tourism sector this year. While there were 2.9 million people working in the tourism business in 2019, 90% of employees have left their jobs or temporarily ceased working since the Covid-19 epidemic began. About 60% of firms in the tourism sector were forced to cease operations as a result of Covid-19 in an effort to preserve money and hold out until the situation with the epidemic was more under control. Currently, only 5% of enterprises employ people on a regular basis. Numerous tourist attractions in Vietnam have been forced to close as a result of the quarantine policy, along with international flights being canceled and immigration restrictions.

The impact of the Covid-19 pandemic on different regions

The aggregate market is the main subject of all recent studies on the economic effects of Covid-19. Gil-Alana and Monge (2020) investigated the relationship between crude oil prices and Covid-19, discovering a sustained shock to oil prices. Narayan and Phan (2020) also discuss regional and stock market responses to Covid-19. In other words, these studies take a macro perspective in analyzing the role of Covid-19 in determining the volatility of economies. However, the current study has discovered that regions with quicker economic growth rates than regions with low economic growth have an increased impact on the level and pace of activity in a given region, slower expansion (Demirbag et al., 2019). Since growth rates vary by location, it follows that the influence of Covid-19 on the company's operations is undoubtedly regionally diverse. Therefore, operational management and strategy choice are greatly influenced by the region in which the organization works.

After Vietnam launched a full-scale fight against the pandemic in 2021, the northern regions of Vietnam, particularly those bordering China, imposed severe labor restrictions and put off the start of new projects. The time to return to work will be much sooner in cities far from the core with little staff turnover, nevertheless. Early work continuation provides managers with signs about risk reduction and claims signal theory (Fu and Shen, 2020). These businesses will get out of the liquidity pinch faster and put more money into successful ventures. Additionally, risk mitigation signals will have an impact on lenders in these locations, including banks and investment institutions, which will loosen financial restrictions on enterprises operating in these regions. Early operations resume offers these businesses more time and resources to address a fall in corporate performance, which can be quite important.

3. Data, model, and methodology

3.1. Data

In order to determine how the pandemic has affected firm performance from 2016 to 2020, the authors of this study used data from Vietnamese businesses that were part of the VN100 index. For simplicity of comparison, the author has omitted the following information:

• Companies without data include those that have gone bankrupt or been dissolved, as well as other financially problematic businesses.

• The data of companies in the banking, securities, and other financial

industries are not comparable.

• Companies lack data.

Because VN100 is a combined capitalization index of VN30, the research selects companies from that index (the capitalization index measures the growth of the top 30 companies in terms of market capitalization and liquidity in the market). With such a research topic, the authors will be able to use this data sample for an overall evaluation. VNAllshare and accounts for more than 80% of the market capitalization of VN-Index) and VNMidcap capitalization index gauges the growth of 70 medium-sized

enterprises in VNAllshare. Additionally, the study selects the 2016-2020 research period due to Vietnam's GDP growth annually from 2016 to 2019 (from 6.21% to 7.02%) and the year 2020 is considered to be the turning point of the global economy.

3.2. Model and methodology

The authors suggest using the following models in this study, which is based on the work of Shen et al (2020), to explore the effects of Covid-19 on the performance of the company and the mechanisms underlying these effects.

$$RNOA_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 TR_{i,t} + \beta_3 Growth_{i,t} + \beta_4 REV_{i,t} + \beta_5 Industry + \beta_6 YEAR + u_{i,t} \quad (1)$$

$$RNOA_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 TR_{i,t} + \beta_3 Growth_{i,t} * period_{i,t} + \beta_4 REV_{i,t} + \beta_5 Industry + \beta_6 YEAR + u_{i,t} \quad (2)$$

$$RNOA_{i,t} = \beta_0 + \beta_1 SIZE_{i,t} + \beta_2 TR_{i,t} + \beta_3 REV_{i,t} * period_{i,t} + \beta_4 Growth_{i,t} + \beta_5 Industry + \beta_6 YEAR + u_{i,t} \quad (3)$$

The study also suggests the model below in order to compare the effect of Covid-19 on the variations in outcomes at each observation period:

$$RNOA_{i,t} = \beta_0 + \beta_1 treated_{i,t} * period_{i,t} + \beta_2 treated_{i,t} + \beta_3 period_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 TR_{i,t} + \beta_6 Growth_{i,t} + \beta_7 REVi,t + \beta_8 Industry + \beta_9 YEAR + u_{i,t} \quad (4)$$

In which the main variables and definitions of variables used in the models are presented in Table 1.

Table 1: Definition of variables in the model and expected result

Variable	Description	Formula
RNOA	Return On Net Operating Assets	Profit after tax / Net operating assets
Treated	Dummy variable of "outbreak impact"	Treated=1 if the company is located in a high-impact region and Treated=0if by contrast.
Period	Dummy variable of "thời điểm bùng phát"	Period=1 if the period of the outbreak is the next year andPeriod = 0 if by contrast.
SIZE	Firm size	Ln (Total assets)
Growth	Performace growth rate of fixed assets	(Year-end total asset turnover - Total asset turnover at beginning of the year)/ Total asset turnover at beginning of the year
TR	Account Receivable Turnover	Turnover/ Account Receivable
REV	Revenue growth rate	(Year-endRevenue - Revenueat beginning of the year)/ Revenueat beginning of the year
Industry	Dummy variable of "economic sector" used to control for industry fixed effect	Industry = 1 if the respective industry and Industry = 0 if by contrast
Year	Dummy variable of "year" used to control for test time fixed effect	Year = 1 if the respective year and Year = 0 if by contrast

Source: Compiled from the authors

In terms of quantitative methods, this paper is divided into two parts: assessing the impact of Covid-19 on operational efficiency and exploring the dimensions of the impact of Covid-19. First, the study uses financial data from publicly traded Vietnamese companies from 2016 to 2020 to estimate, using the OLS model, the effect of Covid-19 on company performance. The author employs the Difference in Difference (DID) approach to quantify the impact of Covid-19 on the company's operations in two cases: industry and region. The authors concluded that the Covid-19 outbreak had caused a reduction in the company's performance, both by industry size and by geography. The study also uses the fixed-effects DID technique and alternate dependent variables to test the robustness of the estimated parameter.

4. Results

4.1. Results

Based on financial data from 2016 to 2020, Table 2 provides descriptive statistics for the key factors examined in this study. The variable net return on operating assets (RNOA) average value of 0.08 indicates that the overall profitability of publicly traded companies is not high or may be increasing, while the RNOA minimum value indicates that some companies in certain years are not efficient, leading to a negative return on active assets.

Table 2: The statistical description of variables utilized in the model

Variable	Observation	Average	Standard deviation	Min	Max
RNOA	430	0.08	0.08	-0.59	0.54
SIZE	430	29.37	1.25	26.61	33.30
REV	430	0.44	0.18	0.02	0.82
Growth	430	0.61	4.29	-12.18	52.36
TR	430	8.57	15.59	-0.03	149.00

Source: Authors' calculation

The experimental results are listed in Table 3. The pandemic's effects on business operations are reported in the results table of the model (1). At 1%, the coefficient of growth is positive and significant. As a result, businesses that want to raise their profit margins without a period dummy must actively boost the efficient utilization of fixed assets. The effective use of an organization's assets is demonstrated by the way the organization makes use of its resources to guarantee that its business and production processes run smoothly and without interruption, resulting in economic efficiency and meeting the demands of the various stakeholders at the highest level. Therefore, improving the efficiency of using fixed assets means improving the efficiency of capital use of the enterprise. Enterprises should limit the expansion of the company's scale in difficult times.

In addition, the receivable turnover variable has a positive estimate and statistical significance at 1%, which is consistent with the study of Deloof (2003), and Pedro (2007), showing that the collection period firm's average has a relationship with profitability. According to this research, if the products are not sold on credit, the sales opportunity would be lost, resulting in a loss of profit. As predicted by this study, boosting the effectiveness of receivables collection to boost the turnover of receivables will help businesses function better, especially during times of crisis because during this time enterprises have a robust and sufficient cash flow are two requirements for businesses. Because liquidity is a major priority in a recession, businesses require a "strong" and "adequate" cash flow to be able to pay back creditors or investors. This will aid in the increase of their liquidity.

The profitability of the business is negatively impacted by both the company's size and its pace of revenue growth, which emphasizes the urgency and significance of the operating cash flow nature. business activities during a crisis When a firm is having trouble, the first thing to do is to cut costs because every dollar of the cost that is reduced results in an increase in cash flow. Now management must come up with cost-cutting measures. even if the closure of a subsidiary is profitable for the company, the charges should be appropriate.

As can be seen from the model (2), the coefficient of period*Growth is 0.0216, significant at 1% proving that when the pandemic negatively impacts the company, the investment in fixed assets will lessen the severity of that damage. The two variables' indicators diverge, indicating that substantial fixed asset investment will mitigate the pandemic's detrimental effects on businesses' activities. The coefficient of REV*period in the model (3) is not significant at the 10% level, but the sign of the predicted coefficient of the variable indicates that, if an enterprise is afflicted by Covid-19, efforts to boost revenue will unintentionally make Covid-19 more severe for the company.

Table 3: Estimation results of research models

RNOA	Model (1)	Model (2)	Model (3)
period*Growth		0.0216***	
		0.0000	
period*REV			- 0.0335
			0.1062
Growth	0.0216***		0.0216***
	0.0000		0.0000
REV	-0.1527***	-0.1571***	
	0.0417	0.0331	
SIZE	-0.0166***	-0.0138***	-0.0238***
	0.0048	0.0043	0.0051
TR	0.0010***	0.0009***	0.0009***
	0.0003	0.0002	0.0002
Industry	YES	YES	YES
Year	YES	YES	YES
Adjusted R^2	100%	100%	100%

*The significance levels of 10%, 5%, and 1% correspond to the symbol *,**,*** respectively*
Source: Author's calculation

In addition, the examination of enterprises was classified using the level of Covid-19 impact by industry and region. Table 4 lists DID's predictions of Covid-19's effects on operational efficiency.

The results for high-impact industries and high-impact regions are shown in Tables A and, respectively. Although not statistically significant, Table B's regression coefficients for the period and treatment variables demonstrate that Covid-19 has a detrimental effect on performance, which lowers profit margins. The Covid-19 pandemic has had a considerable adverse effect on the performance of the company, as indicated by the regression coefficient of the period*treated variable, which is -0.005 and significant at the 10% level.

Based on the circumstances and facts of Vietnam's economy in 2020, the study will explain the Covid-19 pandemic's influence trends. First, because China is the primary source of raw materials for the majority of this manufacturing industry, manufacturing sectors like garment and electrical equipment manufacturing have direct ties to Chinese businesses. However, as a result of the epidemic coming from China, the Vietnamese government has taken steps to stifle trade between the two nations and cut off the main supplier of raw materials at fair prices. raw materials from other regions raise business expenses, causing enterprises to experience challenges at this time. Second, businesses in the social media-heavy travel, journalism, or film sectors. Since people have more free time during spring festivities like Tet, these businesses should have seen growth. The Covid-19 preventative measures, such as the execution of directives to limit people's contact, and the ban on international travel, however, should require theaters to close for a prolonged length of time, which will hurt business. reduction in revenue Additionally, the signal theory states that when manufacturing or service businesses are having financial difficulties, the signal will reach businesses in the media sector and cause them to want to avoid financial difficulties or to increase Bankruptcy costs and force discounts in partner advertising contracts, which has a negative impact on operations in these industries and leads to Covid-19.

The education sector follows, and Covid-19's appearance has had a significant impact on it. These two industries are both service and social in nature, thus when Vietnam released its directions, this had a direct impact on both of these sectors. Due to restrictions on people's freedom of movement and contact, schools are forced to actively plan their curricula using online software. Additionally, schools are required to have policies that reduce tuition fees in order to share hardships with students, which have had a direct impact on the industry's revenue. The health sector is similarly the most adversely affected industry. It can be seen that not only Vietnam but also other countries around the world promote the prevention of epidemics quickly and effectively, which affects the cost of the health sector a lot, especially research and development manufacturing or importing vaccines from other countries to prevent Covid-19 whose costs are mainly borne by the health sector and the Vietnamese government.

Additionally, in 2019, Vietnam received a massive wave of FDI for the real estate industry. The projects receiving these FDI flows were forced to stop or delay the construction progress due to Covid-19, workers suffered a significant reduction in income, and psychological trends have affected the real estate market. Finally, since the outbreak started in the northern provinces of Vietnam, many areas have been blocked off and implemented social isolation.

In table B, the core variable treated*period's regression coefficient is -0.0513 and significant at the 10% level. The pandemic had a major negative impact on places that were badly hit, which was reflected in the fall in company performance using the region as the evaluation criterion. Local governments in these regions have implemented measures to restrict population movement in an effort to stem the spread of the epidemic. This resulted in lower consumption and the closure of numerous businesses in areas with high effect. While fixed expenses remained constant, both production and consumption decreased or stayed unchanged. The result is a deterioration in the company's performance in high-impact sectors.

As a result, the pandemic is the key element that dramatically lowers the performance of high-impact sectors. The Vietnamese economic system has not generally been directly impacted by Covid-19, but Covid-19 preventative efforts are to blame for this decline.

Table 4: Table of estimation results

RNOA	Model (4)	
	Table A	Table B
Period*treated	-0.0500*	-0.0513*
	0.0301	0.0282
Period	-0.0020	-0.0011
	0.0144	0.0136
Treated	-0.0013	-0.0049
	0.0132	0.0099
SIZE	-0.0162***	-0.0163***
	0.0047	0.0048
TR	0.0011***	0.0011***
	0.0003	0.0003
REV	-0.1510***	-0.1505***
	0.0423	0.0003
Growth	0.0216***	0.0216***
	0.0000	0.0000
Industry	YES	YES
Year	YES	YES
R hiệu chỉnh	100%	100%

*Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.*
Table A shows variables treated according to industry criteria, Table B shows variables treated according to regional criteria
Source: Author's calculation

4.2. The result of the robustness test

The author checked the robustness of the above research results by the fixed effect DID quantitative method. As suggested by Shen et al. (2020), the author uses the return on equity variable as a substitute for the return on total net operating assets. The test results are shown in Table 5.

Table 5: Table of estimation results

ROE	Model (4)	
	Table C	Table ngt41 D
Period*treated	-1.1806**	-1.1822**
	0.5581	0.5478
Period	0.9230**	0.9231**
	0.3877	0.3878
Treated	-0.0853	0.5679
	0.6139	0.0000
SIZE	0.9281	0.9318
	0.9744	0.9731
TR	-0.0072	-0.0072
	0.0171	0.0169
REV	-3.1870	-3.1891
	3.0119	3.0481
Growth	0.5679***	0.5679***
	0.0000	0.0000
Industry	YES	YES
Year	YES	YES

*The significance levels of 10%, 5%, and 1% correspond to the symbol *,**,*** respectively*
Table A shows variables treated according to industry criteria, Table B shows variables treated according to regional criteria
Source: Author's calculation

Table 5 demonstrates that the core variable treated*period has a negative and statistically significant impact in both cases at the 5% level. This shows that the pandemic's influence on business performance in high-impact industries has been significantly unfavorable. Production and sales have been severely limited by the epidemic, which has eventually reduced the company's operational effectiveness. This research demonstrates the stability of model (4)'s estimated findings.

5. Conclusions

The findings of the study evaluated the effects of the Covid-19 pandemic on business performance and its mechanism in two areas: industries that were badly impacted and regions that were substantially affected. important. According to research, the Covid-19 epidemic has significantly harmed the operations of listed Vietnamese companies by decreasing asset efficiency and revenue development. The first quarter of 2020 saw a severe drop in corporate performance for sectors hit by the epidemic, such as tourism, and the media. The pandemic had a detrimental effect on these industries' operations, sales, and output, which finally showed up as negative returns. Along the regional dimension, the negative impact is much more pronounced in the highly affected regions as strict quarantine

measures restrict consumption and production, sending negative signals to regulators and related parties.

From there, the authors offer the following suggestions for enhancing the business performance of firms both during and after the Covid-19 pandemic:

Saving money and reducing expenses: When deciding whether to close down a parent company's subsidiaries or outlets, business managers must take the cost of contribution into account. In order to cut expenses, permanent assets like machinery and equipment can also be operated as efficiently as possible. Another strategy is to maximize warehouse space.

Concentrate on liquidity goals, and minimize the pursuit of profit maximization: this can be considered as a useful strategy for enterprises to sustain their operations during a recession.

Choose suppliers wisely to maximize savings: this tactic will enable firms to significantly reduce their material prices. The business will choose and keep one or more essential suppliers who have a history of working with it, and it will quit doing business with the other suppliers. As a result, companies can bargain with suppliers for a discount that is more advantageous to them.

Participation in and improvement of e-commerce operations: E-commerce is regarded as the key that unlocks a successful route for firms to sell goods. Businesses should take part and boost their e-commerce activities in response to local governments' orders or actions that socially isolate and blockade parts of Vietnam provided to prevent inventory from being stored in the warehouse for too long, which would lower the company's operational effectiveness.

Promote vaccination for all employees: The best method for containing pandemic crises is vaccination. One of the most important aspects of an enterprise's profitability is its human resources. Accelerating the enterprise's vaccination process for all employees will restore human resources and enhance efficiency as opposed to cutting personnel to save expenses, however, after the pandemic, business performance is worse than before the pandemic greatly increase a company's productivity.

References:

Apergis, N., and Apergis, E. 2020. Can the Covid-19 pandemic and oil prices drive the US partisan conflict index. Energy Research Letters, 1(1):13144. doi:10.46557/001c.13144.

Deloof M. .2003. Does Working Capital Management Affect Profitability of Belgian Firms?. Journal of Business, Finance and Accounting, 30(3-4):573-587.

Demirbag, M., Glaister, K. and Sengupta, A. 2019. Which regions matter for MNEs? The role of regional and firm level differences. Journal of World Business, 55(1):101026. doi:10.1016/j.jwb.2019.101026.

Fu, M., and Shen, H. 2020. Covid-19 and corporate performance in the energy industry - Moderating effect of goodwill impairment. Energy Research Letters, 1(1):12967. doi:10.46557/001c.12967.

Hagerty, S. L., and L. M. Williams. 2020. The impact of Covid-19 on mental health: The interactive roles of brain biotypes and human connection. Brain, Behavior, & Immunity -Health, 5:100078. doi:10.1016/j.bbih.2020.100078.

Iyke, B. N. 2020. The disease outbreak channel of exchange rate return predictability: Evidence from Covid-19. Emerging Markets Finance and Trade, 56(10): 2277-2297.doi:10.1080/1540496X.2020.1784718.

Gil-Alana, L. A., and Monge, M. 2020. Crude oil prices and Covid-19: Persistence of the shock. Energy Research Letters, 1(1): 1-4. doi:10.46557/001c.13200.

Hu, S. and Zhang, Y. 2021. Covid-19 pandemic and firm performance: Cross-country evidence. International Review of Economics & Finance, 74(C): 365-372. doi: 10.1016/j.iref.2021.03.016.

Liu, L., Wang, E.-Z. and Lee, C. C. 2020. Impact of the Covid-19 pandemic on the crude oiland stock markets in the US: A time-varying analysis. Energy Research Letters, 1(1):13154. doi:10.46557/001c.13154.

Narayan, P. K., and Phan, D. H. B. 2020. Country responses and the reaction of the stock market to Covid-19 - A preliminary exposition. Emerging Markets Finance and Trade.56(10): 2138-2150. doi:10.1080/1540496X.2020.1784719.

Narayan, P., and Sharma, S. 2011. New evidence on oil price and firm returns. Journal of Banking & Finance, 35(12): 3253-3262. doi:10.1016/j.jbankfin.2011.05.010.

Pedro, J. G. T. and Pedro M. S. 2007. Effects off working capital management on SEM prof-itability. International Journal of Managerial Finance, 3(2):164-177.

Phan, D. H. B., Sharma, S. S. and Narayan, P. K. 2015. Stock return forecasting: Some new evidence. International Review of Financial Analysis, 40: 38-51. doi:10.1016/j.irfa.2015.05.002.

Shen, H., Fu, M., Pan, H., Yu, Z., & Chen, Y. 2020. The Impact of the Covid-19 Pandemic on Firm Performance, Emerging Markets Finance and Trade, 56(10): 2213-2230, doi:10.1080/1540496X.2020.1785863.

Sunday. N., Sserunjogi. B., Kahunde. R. and Paul Lakuma. C. 2021. The Plight of Micro Small and Medium Enterprises Amidst Covid-19: A Post-lockdown Analysis Based on Business Climate Survey. Special Issue No. 02 March, 2021, Kampala: Economic Policy Research Centre.

Zubair, S., Kabir, R. and Huang, X. 2020. Does the financial crisis change the effect of financingon investment? Evidence from private SMEs. Journal of Business Research, 55(1): 456-463. doi:10.1016/j.jbusres.2020.01.063.