Journal of FINANCE & ACCOUNTING RESEARCH

BAD DEBT MANAGEMENT OF COMMERICAL BANKS IN VIETNAM DURING THE POST COVID-19 PERIOD

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Abstract: *This article provides an overview of the current situation of bad debts and the measures taken by the banking system to tackle bad debts in the period of 2020-2022, a time heavily impacted by the Covid-19 pandemic for both commercial banks and the entire economy. Consequently, it proposes solutions to enhance the current management of bad debts for Vietnamese commercial banks.*

• Keywords: *commercial banks, state bank, bad debts, debt restructuring, bad debt resolution.*

Introduction

From 2020 to 2022, the Covid-19 pandemic had various adverse effects on the business activities of commercial banks, as well as economic growth. Many measures to control and resolve bad debts were implemented, particularly debt restructuring and maintaining debt groups as guided by the State Bank of Vietnam (SBV). Thanks to these efforts, bad debts and the bad debt ratio of the system, while increasing, still remained within the permissible limits set by the SBV. However, currently, potential bad debts have become a concern for Vietnamese commercial banks. As the solutions for debt restructuring and maintaining debt groups recommended by the SBV expire, coupled with the sluggish recovery of the economy, commercial banks may face a significant increase in bad debts. This reality demands that commercial banks take even more proactive steps in managing bad debts based on their capacities.

Research content and results

1. The Situation of Bad Debts in the Banking System during the Period of 2020-2022

Figure 1. Ratio of on-balance sheet bad debt and gross bad debt of the banking system (%)
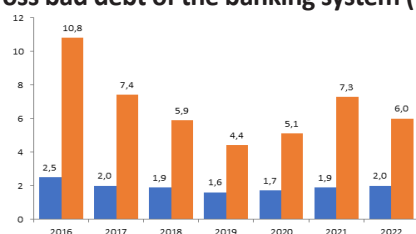
Source: Compiled from banks' annual report for the period of 2016-2022

In 2020, Vietnam's economy and its banking sector faced the negative impacts of the Covid-19 pandemic for the first time. The situation of domestic and global isolation due to the pandemic created significant challenges for business operations. In 2020, it marked the moment when the bad debt ratio started to rise again, following two phases of bank restructuring that had led to a continuous decrease in bad debt ratios. The bad debt ratio within the entire system reached 1.7%, and in 2021 and 2022, it correspondingly increased to 1.9% and 2%.

Analyzing each individual bank, in 2020, among the 27 banks for which data were collected, only 3 banks exceeded the safe threshold for bad debts as regulated by the State Bank of Vietnam (SBV). In 2021, 19 out of 27 banks experienced an increase in bad debts. Among them, many banks saw a substantial rise in the scale of bad debts, such as Vietinbank (with bad debts increasing by 49% compared to 2020), Techcombank (up by 77%), VPBank (up by 60%), and ACB (up by 52%). Some banks even saw their bad debts surge by over 100% (Nam A Bank increased by 117%, NCB increased by 105%)...

However, when considering the ratio of bad debts, in 2021, only 12 out of 27 banks experienced an increase in their bad debt ratios. The remaining banks either saw a reduction in bad debt ratios or no change at all. Remarkably, only two banks exceeded the safe threshold for bad debts (BIDV and VPBank), and these were the same two banks with high bad debt ratios in 2020. This indicates that the control of bad debts by commercial banks, based on the government and SBV's intervention measures, was timely and effective in the context of the pandemic situation.

In 2022, although the global and domestic pandemic situation began to be gradually brought under control, the negative impacts of the pandemic still heavily affected businesses and the economy. The incidence of bad debts and the bad debt ratio for many banks continued to increase. The internal bad debt ratio for the entire system

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rose from 1.7% to 1.9%. Among the 27 banks from which data were collected, most banks experienced an increase in the scale of bad debts (with the exception of three banks, namely Bac A Bank, VietAbank, and Sacombank, which saw a reduction in the scale of bad debts).

According to the data collected, NCB bank witnessed a record increase in bad debts, soaring by 585%. Techcombank and VPBank remained the banks with the highest increases in the scale of bad debts in 2022. In terms of bad debt ratios, only Techcombank and NCB had concerning ratios, especially NCB with a bad debt ratio of 17.93%. The majority of other banks, while experiencing an increase in bad debt ratios, saw relatively modest rises that stayed within the SBV's permissible limits.

This analysis indicates that, fundamentally, the internal bad debt ratios of most banks continued to increase but remained within the allowable limits during the 2020-2022 period. However, when considering both internal bad debts and those sold to the Vietnam Asset Management Company (VAMC) that have not yet been resolved, along with potential hidden bad debts from debt restructuring (consolidated bad debts), the bad debt ratio is significantly higher than the published internal bad debt ratio. The consolidated bad debt ratios for banks were 5.1% (3 times higher than the internal bad debt ratio), 7.3% (3.8 times higher than the internal bad debt ratio), and 6% (3 times higher than the internal bad debt ratio) during the 2020-2022 period. Although these consolidated bad debt ratios are much higher than the internal bad debt ratios in the 2020-2022 period, they are still lower than those in 2016-2017 (the period before the implementation of bad debt resolution under Resolution 42/2017/QH 14).

Table 1. Bad debt and bad debt ratio of some Vietnamese commercial banks period 2020-2022

Ngân hàng	Nợ xấu					Tỷ lệ nợ xấu (%)		
	2020	2021	2021/2020	2022	2022/2021	2020	2021	2022
BIDV	21,639	13,245	-38%	17,622	30%	3.41	4,47	1.16
Agribank	25,717	28,728	11,7%	34,778	21.10%	1.64	1.71	1.64
Vietinbank	9,597	14,300	49%	15,706	10%	0.95	1.96	1.24
VCB	5,230	6,121	17%	7,808	28%	0.62	0.64	0.68
MB	3,248	3,268	1%	5,030	54%	1.09	0.9	1.09
Techcombank	1,295	2,294	77%	3,818	66%	0.47	0.66	0.66
VPBank	9,924	16,244	60%	25,137	55%	3.41	4.47	573
ACB	1,840	2,799	52%	3,045	9%	0.59	0.77	0.74
Sacombank	5,780	5,721	-1%	4,299	-25%	1.70	1.47	0.98
SHB	5,599	2,915	-48%	9,740	59%	1.83	0.8	2.53
HDBank	2,357	3,360	43%	4,404	31%	1.32	1.65	1.67
VIB	2,957	4,670	58%	5,687	22%	1.74	2.32	2.45
TPBank	1,420	1,157	-19%	1,357	17%	1.18	0.82	0.84
LienvietPosbank	2,527	2,775	10%	3,427	20%	1.43	1.33	1.49
SeABank	2,022	2,105	4%	2,460	17%	1.86	1.65	1.6
MSB	1,558	1,769	14%	2,055	16%	1.96	1.74	1.7
OCB	1,508	1,350	-11%	2,671	98%	1.69	1.32	2.23
Eximbank	2,534	2,247	-11%	2,347	4%	2.52	1.96	1.8
Nam A Bank	744	1,613	117%	1,611	0%	0.83	1.57	1.35
ABBank	1,324	1,423	7%	2,366	46%	2.09	2.06	2.88
Bac A Bank	628	655	4%	500	-24%	0.79	0.77	0.53
VietABank	1,112	1,012	-9%	955	-7%	2.30	1.86	1.53
KienLongBank	1,883	726	-61%	845	16%	5.42	1.89	1.89
Bản việt	1,111	1,176	6%	1,419	21%	2.79	2.53	2.79
NCB	609	1,249	105%	8,556	585%	1.51	3	17.93
PG Bank	626	617	-1%	745	7%	2.44	2.24	2.56
SaigonBank	223	325	46%	398	22%	1.44	1.97	2.12

Source: Compiled from banks' annual report for the period of 2020-2022

One concerning issue is that the bad debt ratio of 2022 increased at a significantly higher rate compared to the lending growth rate. Additionally, bad debts in category 5 (potentially irrecoverable debts) increased at most banks, with some experiencing substantial increases, such as NVB bank (up by 605.71%), VPBank (259.84% increase), MBB (179.85% increase), SHB (116.82% increase) and others.

Table 2. Classification of loan quality of banks as of December 31, 2022 (Billion VND)

Ngân hàng	Phân loại nợ xấu 31/12/2022						Nợ xấu		Dư nợ cho vay		Tỷ lệ nợ xấu/Dư nợ	
	Dư nợ			+/- (%)			31/12/2022	+/-(%)	31/12/2022	+/-(%)	31/12/2022	31/12/2021
	Nhóm 3	Nhóm 4	Nhóm 5	Nhóm 3	Nhóm 4	Nhóm 5						
NVB	1,028	4,248	3,281	70.43	2,240.15	605.71	8,556	584.83	47,722	14.68	**17.93%**	3.00%
VPB	7,945	10,031	7,160	19.26	33.13	249.84	25,137	54.75	438,338	23.38	**5.73%**	4.57%
VBB	182	327	1,815	(44.94)	(44.70)	96.84	2,324	25.97	63,633	25.93	**3.65%**	3.65%
BaoVietBank	254	109	746	35.91	(29.70)	(17.60)	1,109	(11.09)	33,196	31.53	**3.34%**	4.94%
ABB	541	421	1,404	61.59	0.50	62.61	2,366	46.32	82,011	18.88	**2.88%**	2.34%
BVB	149	408	862	(10.25)	119.79	4.54	1,419	20.63	50,859	9.64	**2.79%**	2.53%
PGB	62	119	563	(29.13)	(2.53)	16.40	745	7.29	29,051	5.64	**2.56%**	2.52%
SHB	1,522	1,645	6,574	2.84	2.72	116.82	9,740	59.35	385,633	6.41	**2.53%**	1.69%
VIB	1,541	1,710	2,436	(11.82)	6.61	84.70	5,687	21.77	231,944	15.10	**2.45%**	2.32%
OCB	671	626	1,375	105.70	115.43	87.52	2,671	97.92	119,803	17.40	**2.23%**	1.32%
SGB	76	87	234	82.52	(18.01)	32.33	398	22.23	18,714	13.40	**2.12%**	1.97%
KLB	75	122	648	(23.49)	27.18	21.79	845	16.37	44,703	16.45	**1.89%**	1.89%
EIB	265	451	1,632	(18.86)	(20.20)	20.27	2,347	4.42	130,506	13.81	**1.80%**	1.96%
MSB	612	440	1,005	77.30	(6.31)	5.33	2,057	16.28	120,644	18.79	**1.70%**	1.74%
HDB	1,848	1,415	1,141	15.48	61.09	29.48	4,404	31.07	263,856	29.84	**1.67%**	1.65%
SSB	454	220	1,787	31.27	(33.80)	25.19	2,460	16.89	153,956	20.67	**1.60%**	1.65%
VAB	13	31	911	(88.07)	433.76	0.05	955	(7.06)	62,508	14.78	**1.53%**	1.89%
LPB	1,070	1,005	1,353	132.39	(6.08)	1.43	3,427	19.67	235,507	12.71	**1.46%**	1.37%
NAB	160	132	1,320	(50.31)	(31.64)	20.10	1,611	(0.12)	119,538	16.45	**1.35%**	1.57%
CTG	7,305	2,256	6,235	2.95	12.62	19.86	15,796	10.46	1,274,822	12.75	**1.24%**	1.26%
BID	3,219	2,643	11,760	16.75	(24.61)	61.47	17,622	30.09	1,522,229	12.37	**1.16%**	1.00%
MBB	1,517	1,221	2,293	5.84	20.26	179.85	5,031	53.95	460,574	26.69	**1.09%**	0.90%
STB	561	731	3,007	(0.60)	8.04	(32.88)	4,299	(24.86)	438,628	13.07	**0.98%**	1.47%
TCB	1,686	1,131	1,000	148.55	31.49	32.42	3,818	66.42	420,524	21.07	**0.91%**	0.66%
TPB	385	467	505	(24.58)	33.85	69.93	1,357	17.34	160,993	14.00	**0.84%**	0.82%
ACB	442	437	2,165	(17.76)	(50.43)	56.98	3,045	8.77	411,658	15.26	**0.74%**	0.78%
VCB	406	772	6,597	(45.41)	(20.07)	49.55	7,775	27.02	1,136,204	18.26	**0.68%**	0.64%
BAB	39	44	416	(35.94)	10.79	(24.93)	500	(23.77)	94,121	11.26	**0.53%**	0.77%

Source:: VietstockFinance

2. The current state of bad debt management in commercial banks during the 2020-2022 period

Immediately after the outbreak of the pandemic, significantly impacting the business operations of enterprises, the banking sector promptly implemented various measures. From 2020 until now, the State Bank of Vietnam (SBV) continuously issued and implemented circulars allowing Credit Institutions (CIs) to restructure loan repayment terms, exempt, reduce interest rates, fees, and maintain debt groups to support customers affected by the Covid-19 pandemic (Circular No. 01/2020/TT-NHNN dated March 13, 2020, Circular No. 03 amending some provisions of Circular No. 01/2020/TT-NHNN dated April 2, 2021, Circular No. 14/2021/TT-NHNN amending and supplementing some provisions of Circular No. 01/2020/TT-NHNN). These circulars provided a legal framework for CIs to restructure loan repayment terms, exempt, reduce interest rates and fees, and maintain debt groups, thereby alleviating difficulties for borrowing customers affected by the Covid-19 pandemic across all industries and sectors, creating a legal corridor and breakthrough mechanism for CIs to resolve capital borrowing difficulties for customers.

Based on the SBV's operational measures, as of December 31, 2021, CIs had restructured loan repayment terms, maintained debt groups, with an accumulated loan value of approximately 607,000 billion VND since the outbreak of the pandemic. Currently, there are approximately 775,000 affected customers who have had their debts restructured, with a total outstanding debt of over 296,000 billion VND. Additionally, interest rates have been waived, reduced, or lowered for over 1.96 million affected customers, with

a total accumulated interest amount waived, reduced, or lowered for customers of approximately 34,900 billion VND. In addition, new loans have been provided with lower interest rates compared to pre-pandemic levels, with a cumulative volume from January 23, 2020, to the end of December 2021, reaching over 7.4 million billion VND for approximately 1.3 million customers.

As of the end of June 2022 (the end of the policy period), credit institutions had implemented the restructuring of loan repayment terms and maintained debt groups with an accumulated loan value of 722,334 billion VND for over 1 million customers.

In parallel with the debt restructuring measures as per SBV regulations, commercial banks proactively set aside risk provisions to handle arising credit risks. The coverage ratio of bad debts for the CI system was high and increased in 2020-2021 (the coverage ratios for bad debts in 2020-2021 were 105% and 141%, respectively). In 2022, although the coverage ratio for bad debts decreased compared to 2021, it remained higher than in 2020 and previous years (Figure 2).

Figure 2. Bad debt coverage ratio of the system of credit institutions (%)
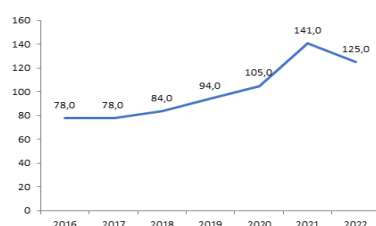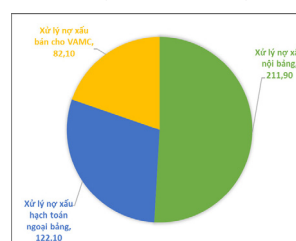

Source: SBV

It is worth noting that some banks have actively and proactively set aside risk provisions for all restructured debts ahead of schedule, such as Vietcombank and BIDV. The consolidated bad debt coverage ratio has reached record levels at some banks, such as VCB (achieving 424% in 2021 and 317% in 2022), BIDV (reaching 219% in 2021 and 245% in 2022), ACB (achieving 210% in 2021 and 155% in 2022), and so on. This enhances the overall system's resilience against unforeseeable pandemic developments.

However, despite the relatively high bad debt coverage ratios of banks, this is not necessarily an entirely positive sign. This is because the bad debt coverage ratio is calculated based only on internal bad debts, without accounting for bad debts sold to VAMC that have not been resolved, and potential hidden bad debts from debt restructuring. Additionally, there is a possibility of transitioning debts from groups 1 and 2 to bad debts due to unfavorable business conditions for enterprises in the near future.

In addition to implementing preventive measures and constraints on bad debts, banks are also actively taking measures to address bad debts. During the period of 2020-2022, the handling of bad debts arising before August 15, 2017, and bad debts arising within the effective period of the resolutions of Credit Institutions (CIs) continued to be carried out in the spirit of Resolution 42/2017/QH14 and Resolution No. 63/2022/QH15 (extending the application period of all provisions of Resolution No. 42/2017/QH14 of the National Assembly on the pilot resolution of bad debts of CIs from August 15, 2022, to the end of December 31, 2023). As of early 2023, CIs have processed 416.1 trillion VND, including 211.9 trillion VND of internal bad debts, 122.1 trillion VND of internal bad debts accounted for, and sold to VAMC 82.1 trillion VND (Figure 3).

Figure 3. Cumulative results of bad debt handling according to Resolution No.42 until January 2023 (Trillion VND)

Source: SBV

More than half of the bad debts have been handled through methods such as customers repaying their debts, credit institutions accepting collaterals in lieu of debt repayment, and selling or auctioning off collaterals. However, during the 2020-2022 period, the pace of bad debt resolution according to Resolution 42 slowed down. If we calculate from August 15, 2019, to December 31, 2019, the total amount of bad debts processed was 305.7 trillion VND, averaging about 10.5 trillion VND per month for the entire system. In contrast, the amount of bad debts processed during the 2020-2022 period was 110.4 trillion VND, averaging over 3 trillion VND per month, significantly lower than the period before the pandemic.

3. Solutions to Enhance Bad Debt Management for Vietnamese commercial banks in the coming time

The risk of increasing bad debts has been forecasted since the beginning of 2023, given the global economic downturn, slower economic growth in Vietnam, narrowed production and business conditions, and enterprises facing many difficulties. Additionally, a significant amount of bad debt has been "hidden" through a circular that allows Credit Institutions to restructure repayment terms and keep the debt category unchanged to support customers facing difficulties. Therefore, in the coming period, Credit Institutions need even more proactive solutions to manage bad debts. Specifically:

Continue to implement measures to increase credit growth alongside prevention, minimizing the occurrence of bad debts, and improving the quality of credit.

Up to now, the profits of Vietnamese Credit Institutions still largely depend on net interest income from capital mobilization and lending activities. Therefore, promoting credit growth is the general direction of Credit Institutions, with the aim that businesses recover and develop, enabling Credit Institutions to achieve their operational goals. Hence, commercial banks also need to establish policies for businesses to have convenient access to credit. The current credit policy must create favorable conditions for businesses and individuals to access bank credit. Continue to implement, with the highest determination, the policy of supporting interest rates at 2% for enterprises, cooperatives, and individual businesses in certain industries and sectors according to Decree 31/2022 of the Government.

However, creating opportunities for businesses to access credit to recover after the pandemic does not mean that Credit Institutions will pursue credit growth at any cost, especially in the context where Credit Institutions are burdened with accumulated bad debts from the period before the pandemic and bad debts arising from the negative impact of the pandemic. Banks still have to ensure safe and effective credit operations, tightly control credit in potential risk areas, and have policies to screen customers that are suitable for each period. Banks must comply with the credit conditions of support policies as regulated by law, resolutely not lowering credit standards or loosening lending conditions, because chasing short-term net interest income will potentially lead to bad debts later. This is also an appropriate time for banks to re-screen their customer portfolios to select customers who are sincere, honest, and have a healthy financial situation.

Evaluate the quality and recovery capacity of debts to implement appropriate measures of debt settlement.

Banks must proactively and resolutely control credit quality, closely monitor customers, assess their repayment capacity, classify customers appropriately, and minimize the occurrence of bad debts. Additionally, they should proactively handle recovery, closely monitoring the customer portfolio structure according to Circular 01/2020/TT-NHNN and related documents (Circular 03;14). Banks should actively increase risk provisions for bad debts, debts with the potential to turn bad, and classify customers into higher-risk debt groups based on the actual status of the debt. Moreover, banks need to assess the recovery level of each sector after the pandemic to establish suitable lending policies for customers.

Banks should build and implement a management system, and monitor, and evaluate it in line with the bank's operational situation and orientation. They should thoroughly research the portfolio of bad debts and the causes of bad debts to develop effective handling methods and policies to screen customers suitable for each period.

Banks should focus on classifying customers based on their willingness to cooperate and the source of debt repayment from customers to apply appropriate debt handling measures. For customers facing difficulties in production and business activities but still have the ability to recover, banks should coordinate with customers to restructure debts. This may involve extending repayment periods, adjusting repayment terms, and considering interest waivers or reductions, while lowering interest rates for loans in a reasonable manner to help customers overcome financial difficulties. For customers with reduced repayment capacity and also difficult to recover, banks must quickly develop a negotiation plan. This might include negotiating the handling of collateral or mediating in court to shorten the litigation period, aiming to minimize credit losses.

Banks should proactively implement the provisionining and use of risk provisions to handle bad debts in accordance with legal regulations and the actual risk situation.

Credit risk provisions serve as a financial cushion for bad debts within Credit Institutions. The establishment of these provisions aims to ensure the stability and sustainability of a bank's business operations, preparing for worst-case scenarios such as customers being unable to repay their debts or not adhering to repayment schedules. This practice is not just a prudent measure for individual banks; it is also a mandatory requirement for safe operation, as stipulated by regulatory authorities like the State Bank of Vietnam.

Since 2020, the State Bank of Vietnam (SBV) has issued several directives allowing Credit Institutions to restructure debts for customers facing pandemic-related difficulties, keeping them in their original debt categories. However, these measures are temporary and urgent, designed to alleviate immediate business challenges. Ultimately, the risks associated with these debts still fall on Credit Institutions. In addition to meeting prerequisite conditions for debt restructuring that signal operational recovery capabilities, Credit Institutions must proactively set aside credit risk provisions based on the actual risk level. Despite current regulations specifying the minimum provision for restructured debts, as mandated by the SBV, Credit Institutions that haven't adequately prepared for credit risk provisioning may need to allocate these provisions in the near future. Therefore, in 2023-2024, depending on their financial capacity, Credit Institutions should proactively allocate provisions for both restructured

debts that haven't been recognized as bad debts and to prevent a situation where bad debts worsen. This is crucial to avoid financial shocks to Credit Institutions in the future, even though increasing provisions will directly impact the bank's profit.

Continuing the restructuring process linked to bad debt resolution in the 2021-2025 period and implementing measures to enhance the financial capacity of commercial banks.

On June 8, 2022, the Prime Minister issued Decision No. 689/2022/QD-TTg, approving the plan "Restructuring the system of credit institutions associated with bad debt resolution in the 2021-2025 period." Therefore, starting in 2012, this marks the approval of the third plan. While the restructuring process of the banking system in the 2011-2020 period achieved some remarkable successes, such as no bank failures, ensured payment ability, and tightened discipline in banking operations, fundamental goals of restructuring, such as permanently resolving bad debts and creating a truly healthy banking system according to international standards with a diverse ownership structure based on advanced technology, have not been fully addressed.

In line with the government's direction, Credit Institutions continue to develop and implement the restructuring plan for the third phase to enhance risk resilience and control bad debts. Depending on specific conditions, Credit Institutions should devise and implement suitable measures, including increasing charter capital, raising capital adequacy ratios to strengthen financial capacity and ensure banking operation safety, as well as enhancing credit quality.

Effectively implementing bad debt resolution measures.

A concerning issue for banks in recent times has been the increasing trend of bad debts, which is projected to continue in 2023-2024. The persistence of bad debts makes it difficult for Credit Institutions to have enough resources to invest in technology, improve service quality, reduce lending interest rates, and keep credit risk within permissible limits. Therefore, to expand the credit scale and improve credit quality, a necessary measure that commercial banks must continue to implement is to address the bad debts that they are holding.

Firstly, Credit Institutions should continue to review and clearly identify the status of bad debts of the bank in accordance with the spirit of Resolution 42/2017/QH 14 and restructured debts affected by the pandemic to apply appropriate measures to handle bad debts. For businesses with feasible production and business plans, and assessed as having the ability to repay according to the restructuring plan, the bank may consider allowing

debt restructuring. This measure helps businesses rearrange their sources of debt repayment based on factors affecting their cash flow for debt repayment. Based on debt classification, banks need to make efforts to increase risk provision and use risk provisions to handle bad debts.

In addition to internal measures for bad debt resolution, Credit Institutions need to continue reviewing eligible Group 5 bad debts for sale to VAMC. To carry out debt sales, banks should compile information on bad debts and customer borrowing for the debts that the bank proposes VAMC to purchase. Following the guidance of the asset management company of credit institutions, Credit Institutions should promptly complete the procedures to propose debt purchases. Banks still need to regularly report to VAMC on the application plan, progress, and results of recovering the bad debts sold to VAMC. Additionally, banks need to cooperate with VAMC to agree on measures to overcome difficulties and issues in handling bad debts and collateral assets of the debts sold to VAMC. Actively seek partners to buy debts for the debts sold to VAMC and be authorized by VAMC to sell debts. Focus resources to expedite the provision process for bad debts sold to VAMC, paid with special bonds, to carry out early or on-time bond settlement as prescribed. Currently, many bad debts sold to VAMC have reached the time for repurchase, so banks should proactively carry out the repurchase as previously committed.

Lastly, credit Institutions must actively coordinate with local authorities and competent state agencies, especially the police, courts, and enforcement agencies at all levels during the process of bad debt recovery, and collateral assets handling to maximize the recovery value of secured assets and bad debts.

Conclusion

Non-performing loans are one of the negative factors affecting the operations of commercial banks, especially in Vietnam where credit still accounts for the highest proportion of total assets, providing the largest source of income for banks. Therefore, to develop safely and efficiently, commercial banks need solutions to enhance the management of non-performing loans, especially in the context of numerous negative impacts causing an increasing trend in non-performing loans in banks at present.

References:

https://baodauthau.vn/co-cau-lai-thoi-han-tra-no-giu-nguyen-nhom-no-hon-607-nghin-ty-dong-post118299.html

Cấn Văn Lực- Chuyên gia kinh tế trưởng BIDV- Bức tranh nợ xấu của ngành Ngân hàng và một số kiến nghị.

Thông tư 01/2020/TT-NHNN

Thông tư 03/2021/TT-NHNN

Thông tư 14/2021/TT-NHNN

Thông tư 02/2023/TT-NHNN

THE SAFETY OF PERSONAL INFORMATION IN THE VIETNAMESE COMMERCIAL BANKING

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Abstract: *Personal data security is the primary goal in the operation of the Vietnamese commercial banking system today. When personal information is strictly protected, it will reduce the losses of personal assets or commercial banks' assets participating in the digital market of the current digital economy. The purpose of this article is to reflect the current situation of customer information security in the commercial banking system in Vietnam. This article focuses on researching, systematizing, and contributing to clarifying theoretical issues about personal data security in commercial banks. The author uses qualitative research methods such as analysis, comparison, and synthesis of information as a basis for making comments and evaluating the current situation of personal data security based on secondary data sources, such as research works, related research documents, and professional reports from state management agencies and other commercial banks. At the same time, the author combines primary data such as information collected through direct interviews or through survey questionnaires.*

• Keywords: *safety, security, personal data.*

Introduction

Personal data is crucial and highly valuable information, playing a decisive role in the success of the Vietnamese commercial banking system. As commercial banks accelerate the diversification of digital services to better serve customers in today's digital economy, the digital transformation is closely linked to the safety of customers' personal data, whether successful or not. However, personal data presented on online services is also the targeted prey of cybercriminals who are becoming more developed, complex, and sophisticated. In 2022, Vietnam recorded 12,935 cases of phishing, with 75% of frauds involving financial information and 25% involving personal data related to finances. There are three main groups of common forms of fraud: (i) Account hijacking: In this form, criminals mainly hijack social network accounts such as Zalo, Facebook, TikTok, to send fraudulent messages, money transfer scams, and swindle victims into accessing/clicking links with very high-interest rates for black credit loans; (ii) Scamming reputable commercial banks: Criminals send fraudulent text messages and emails, scam commercial bank websites to solicit customer information, conduct transactions on the web, and install malicious code through links; (iii) Scamming authorities' offices: Criminals make fraudulent phone calls, create fake accounts, scam e-commerce platforms, and virtual currency exchange platforms to swindle investors' money.

In addition to these three main groups, criminals also use other fraud techniques widely in Internet Banking, such as: (i) Scamming banks to swindle winning prizes to obtain bank accounts and OTP (One-time password); (ii) Scamming police officers to request account information for investigation or to transfer money to a fake police account; (iii) Scamming relatives to receive or borrow money.

Given the increasingly complex and unstable real situation of personal data, the author chose the topic "The safety of personal information in the Vietnamese commercial banking" for this paper, aiming to limit the losses of customers using digital banking services in today's digital economy. This paper focuses on researching the following issues:

Firstly, data is the core of digital transformation. The more intensive the digital transformation, the greater the amount of data required by commercial banks, the higher the data processing requirements, thus the higher the risk of data security.

Secondly, data breaches in Vietnam and around the world are rapidly increasing.

Thirdly, the damage to the economy from the costs of dealing with data breaches is significant and increasing.

Overview of previous research works and legal documents related to personal data security

Personal data security is consistently a crucial issue in the information security efforts of commercial banking

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systems. Managers in any commercial bank prioritize personal data security as a top concern, understanding that only by scientifically securing personal information can they protect customers' data safety and the assets of the bank itself. Particularly, commercial banks, under pressure from increasing incidents of personal data theft due to the promotion of digital banking in today's digital economy, clearly recognize the imperative for robust personal data system security. This data system is deemed the most critical asset as it determines the survival of commercial banks.

Given its significance, numerous studies have been conducted related to personal data security, including: Hoang Trong Ngai's (2015) work on "Research on Information Security Cryptography," which addresses the secure storage of DICOM images in databases. Trinh Xuan Hoang's (2012) research on "Research Solutions for Authentication and Security in Document Exchange in the Network Environment between State Agencies," presenting document security in document exchange within network environments among state agencies, successfully applied in Thai Binh province. Than Trong Ngoc Tram's (2019) topic on "International Law and Practice in Dealing with High-Tech Crimes - Experience for Vietnam," which systematizes theoretical and practical issues in dealing with international high-tech crimes, offering insights for Vietnam to enhance personal data security.

In Vietnam, the government recently issued Decree 13/2023/ND-CP dated April 17, 2023, on the protection of personal data. This Decree clearly outlines the obligations of data controllers and processors, including obtaining explicit, voluntary, and informed consent from data subjects, notifying data processing, implementing measures to prevent illegal collection, transfer, buying, and selling of personal data, obtaining data subject consent when providing data to commercial banks or other individuals, deleting personal data upon request, and transferring personal data according to legal provisions when dividing, separating, or merging.

From the above research and legal documents, it is evident that personal data security in the Vietnamese commercial banking system has not been thoroughly researched to safeguard customers' assets adequately. Therefore, the authors have chosen the topic "The Safety of Personal Information in the Vietnamese Commercial Banking" for their paper. Through this topic, the authors aim to make theoretical and practical contributions and propose solutions to enhance personal data security.

Research methods

To obtain practical assessments of personal data security in the commercial banking system, the authors conducted surveys involving several commercial banks and customers in Ho Chi Minh City. This city serves as the country's major economic center and is where personal data risks most frequently occur, thus representing the commercial banking system nationwide. Through this survey, the authors collected information about the current state of personal data security using methods such as distributing questionnaires, conducting face-to-face interviews, and utilizing communication channels like phone and email. In addition to primary data sources, the authors also utilized secondary data, primarily from published reports and other relevant sources.

This paper integrates theoretical research with practical surveys and employs flexible qualitative research methods such as analysis, comparison, and synthesis of information. These methods serve as the basis for making judgments and assessing personal data security to fulfill the objective of enhancing personal data security in the commercial banking system. Additionally, the paper proposes solutions to improve personal data security.

Current situation of personal data security in Vietnam commercial banking system

Over the last period of time, the situation of personal information being leaked in Vietnam, particularly, and in the world, in general, is very alarming, and commonly takes place in cyberspace. Information leaks mainly occur from two angles: first, because users lack a sense of protection, and can easily reveal personal information or accidentally disclose it due to non-compliance with regulations. Second, it is because commercial banks violate regulations in the use of subjective personal information, such as using personal information for unauthorized purposes or not complying with legal regulations. This can involve intentional misuse by commercial banks or individuals, or it may be due to a lack of understanding and incomplete awareness among commercial banks and individuals, as well as a lack of specific rules, regulations, instructions, supervision, inspection, and sanctions to ensure implementation.

Personal data is not only the property of individuals and the commercial banks that manage and use that information, but also the property of the nation. When personal information is leaked or disclosed in cyberspace, it will cause extremely dangerous risks for users as well as for the commercial banking system that has the function of managing and using that information. These risks can be expressed through forms such as identity theft for borrowing money, fraud, unauthorized money withdrawal, kidnapping, and blackmail. The loss of personal data not only complicates the digital transformation process and leads to asset losses for users,

but also imposes additional burdens on commercial banks due to the costs of remediating personal data breaches.

To evaluate the current state of personal data security in the commercial banking system in Vietnam, the authors conduct an assessment through the following perspectives:

Firstly, data is the core of digital transformation. The more intensive the digital transformation, the greater the amount of data required by commercial banks, the higher the data processing requirements, thus the bigger risk of data security

The digital transformation revolution in the world from the 15th century until now has gone through many stages, specifically: (i) in 1440, the printing industry began to appear and lasted for 310 years, (ii) in 1750, the mechanization revolution broke out, changing the world's industry. This revolution lasted 155 years. (iii) in 1905, the electrification industrial revolution promoted scientific development, and it lasted for 77 years, (iv) in 1982, the world had invented automation technology, offering many advanced technology system solutions to promote economic development. (v) in 2020, Artificial intelligence has gradually replaced humans.

As artificial intelligence continues to develop rapidly, data and data processing have become the essence of artificial intelligence in the digital age, or in other words, data is the core of digital transformation. Therefore, any commercial bank aiming for successful digital transformation must prioritize attention to data and data security. Currently, many digital banking activities rely on personal data or data owned by commercial banks, such as opening accounts, authenticating transactions, identifying customers, analyzing risks, and providing financial services. To reduce operating costs, reach more customers, and enable faster and more accurate decision-making based on timely reporting systems, as well as to optimize employee productivity to support the sustainable growth and development of commercial banking systems, both the digital banking system and the commercial banking system as a whole must undergo more profound transformation. Digital transformation is one of the foremost concerns for commercial banks today. When digital transformation is prioritized, it contributes to promoting a positive change in work culture, operational methods, leadership, and work processes. However, as commercial banks intensify their digital transformation efforts, they require increasingly larger amounts of data, leading to higher data processing requirements and consequently greater risks in terms of data security.

Secondly, data breaches in Vietnam and around the world are increasing rapidly

In recent years, there have been many major cases of disclosure, theft, and trading of personal data in the world, specifically:

- In 2013, Yahoo experienced a breach affecting 3 billion user accounts.

- In 2016, Uber had the information of 57 million users stolen and paid $100,000 to hackers to delete the stolen data and conceal the breach.

- In 2017, Friend Finder Networks had 412 million user accounts stolen.

- In April 2021, Facebook had the personal data of 533 million users exposed.

- In September 2022, Optus (Australia) experienced a breach affecting personal data of 9.8 million customers, accounting for 40% of the population.

- In October 2022, Singapore's e-commerce platform Carousell had the data of 1.95 million users exposed.

In Vietnam, there are also many major cases of leaks, theft, and trading of personal data:

- Vietnam's leading Internet and Technology Company (VNG) exposed more than 163 million customer accounts.

- Mobile World and Dien May Xanh exposed more than 5 million emails and tens of thousands of payment card information

- Vietnam Airlines revealed 411 thousand Golden Lotus member accounts

- A Vietnamese bank leaked information of 2 million customers

- Facebook exposed information of 50 million Vietnamese users.

According to the Ministry of Public Security, in 2019-2020, 1,300 GB of personal data of billions of Vietnamese individuals were illegally bought and sold on the black market. Mr. Ngo Tuan Anh, General Director of SCS Cyber Security Company, stated, "This is just the tip of the iceberg because, in reality, there are still many undiscovered cases." These data leaks mainly originate from cyber attacks aimed at stealing valuable assets, which seriously affect the reputation or brand of the commercial banking system. Customers lose trust due to lack of protection, resulting in substantial financial losses for both customers and commercial banks. Additionally, commercial banks' operations may be disrupted, and they can face legal action for information disclosure or leakage.

Thirdly, the damage to the economy from the costs of dealing with data breaches is huge and increasing.

On an average in the world, the cost to handle a data breach tends to increase between 3.5 and 4 million USD as shown in Figure 1.

Figure 1. Average data breach handling costs globally in the period 2014 - 2019
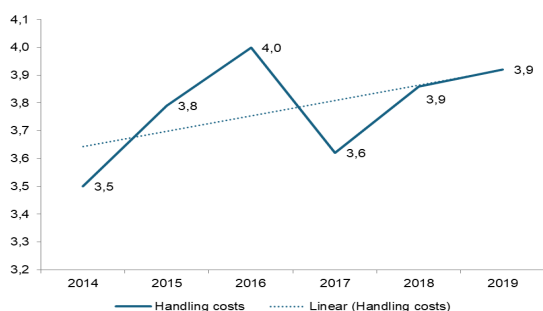
Source: Ponemon 2019 data breach costs report

In Vietnam, there are no statistics available on the average cost to handle a data breach. However, in recent years, there have been situations where information has been leaked, resulting in the loss of assets for individuals and commercial banks. This inevitably leads to data breach handling costs for the affected commercial banks. In any commercial bank, the aim is to optimize costs at the lowest level to achieve the highest profit performance. However, this becomes challenging when commercial banks have to bear additional costs associated with handling data breaches. These costs significantly impact business performance and affect all aspects of the business situation. The competitiveness of commercial banks experiencing data breaches is reduced, leading to a loss of trust from customers, a decrease in market share, and in some cases, closure.

Causes of personal data being violated and stolen

Firstly, the causes due to non-technical factors (this cause often accounts for a large proportion) are specifically expressed as follows:

+ Commercial banks collect a lot of data but do not invest in security software enough to protect its safety.

+ Information leaked from data management staff, stolen for personal purposes, illegally traded; the third party colludes with the commercial bank's data management staff to illegally share data.

+ Online fraud aims to collect personal information, collected through the creation of websites and social network accounts.

+ Awareness of users' personal information protection is still low; Information subjects are careless and arbitrarily provided, especially on social networks.

Secondly, the cause is due to technical factors, shown through:

+ Information systems have not yet approved and fully implemented plans to ensure information security by level.

+ Information systems are not invested in appropriate solutions to ensure network safety and security, leading to attacks, exploitation, and data theft.

+ Low awareness of controllers, data processors and system administrators, non-compliance with regulations leads to attacks, exploitation and data theft.

Some solutions to secure personal data

Firstly, users - data subjects need to protect and preserve personal information to limit risks in the network environment, through doing the following:

+ Understand and exercise the rights of data subjects regarding their personal information.

+ Be wary of fake links, emails, strange messages, websites that ask to fill in personal information; Only provide personal information to trusted and truly needed commercial banks.

+ Do not access, download files, or provide personal information on websites of unknown origin.

+ Use strong passwords for all accounts, strong passwords (long enough, have a variety of characters, do not overlap across services, change periodically).

+ Use multi-layer authentication if possible, 2-layer authentication via email, phone number, authenticator to generate OTP.

+ Do not log in your account number on public devices or strange devices capable of attaching key loggers. Be wary of free wifi.

+ Install anti-virus software on your computer (you can use Windows' default defender) and on your phone to avoid malware infection.

+ Do not install applications or crack software of unknown origin.

+ Be wary of online scams.

Secondly, commercial banks - data controllers protect the most important and valuable asset, which is personal data, through performing the following tasks:

+ Compliance with legal regulations: commercial banks need to carefully study to comply with the legal regulations in Decree 13/2023/ND-CP on personal data protection, especially the requirements for system safety, processes, impact assessment records... At the same time, fully implement measures to ensure

information security by level (ND85/2017/ND-CP; Circular 12/2022 /TT-BTTTT and TCVN 11930).

+ Promulgate specific and clear information security and personal data protection regulations and policies; through the full promulgation of rules and regulations to protect personal information; processes, procedures, and instructions for exploiting personal information; widely announced, trained and have mandatory sanctions; Establish policies and procedures for managing access and data exploitation rights for each employee; classify personal data and implement protective measures corresponding to the level of sensitivity.

+ Training and raising awareness for employees and customers, by regularly training and raising awareness; training on regulations, requirements in handling personal data, security procedures and legal regulations; ensure all employees are fully aware, receive detailed instructions, understand and comply with personal data protection regulations; Strengthen communication and connect information to customers about personal data protection.

+ Invest in system security and data protection solutions, such as: deploying safe technical solutions, strong security and appropriate organization to ensure a level of personal data security and safety for commercial bank information systems; Strengthen security techniques, encryption, authentication systems, limit access and monitor the system; enhancing customer-friendly solutions for online services: SMS OTP, Soft OTP, Token OTP, Biometrics, Digital Signature; Periodic software updates to protect against cyber threats and hackers.

+ Assess, manage risks and prepare to respond: need to regularly assess risks and have risk management solutions related to personal data; Regularly analyze potential threats, identify weaknesses in the system and ensure the implementation of ready response solutions; develop plans to inspect and monitor personal data protection; building backup data centers, modern data storage and recovery solutions; Prepare incident response plans: prevent denial of service attacks (Dos, DDos), APT attacks, anti-malware, botnet,...; Join the national network security incident response network. Enhance coordination and rescue capabilities, and be ready to participate in incident resolution when required.

Thirdly, implement the process of ensuring information security and data protection through the development of policies, risk management, and standards at commercial banks, and data security should be implemented. individuals according to the following process:

Infrastructure security -> Application security -> Data security -> customers

Fourthly, focus on harmonizing three key elements: process - technology - customers

The weakest of the three factors above is the customer factor, because customers are often subjective, which can lead to careless behaviors such as: weak passwords; poor awareness of information security and data protection; Staffs in commercial banking systems have weak protection skills; outdated policies and regulations; lack of funding for updates and upgrades; lack of attention, inspection, and urging from superiors.

Conclusion

Personal data security is not only a crucial asset for commercial banks but also for the country as a whole. Therefore, it is imperative for the commercial banking system to prioritize the absolute security and safety of personal data in order to safeguard customers' financial well-being. When personal data is securely protected, banks can optimize their operating costs by avoiding the expenses associated with handling information breaches. Consequently, this enhances the operational efficiency of banks, facilitating their sustainable development and growth. To achieve this goal, banks need to advise users-the data subjects-on the importance of protecting and preserving personal information to mitigate risks in the cyber environment. Additionally, commercial banks should regularly monitor data to safeguard their most valuable assets-personal data. Implementing processes to ensure information security and data protection involves the development of policies, risk management, and standards at commercial banks. This requires a focus on harmonizing three key factors: processes, technology, and customer engagement.

References:

Ministry of Public Security

Ministry of Information and Communications

Lary Ponemon (2019), Cost ò Data breach report, (https://securityintelligence.com/series/2019-cost-of-a-data-breach-report/#articles)

Hoang Trong Ngai(2015), "Research on information security cryptography" (Master thesis, University of Engineering and Technology, Vietnam National University Hanoi) (https://repository.vnu.edu.vn/bitstream/VNU_123/5164/1/00050006176.pdf).

Trinh Xuan Hoang (2012), "Research solutions for authentication and security in document exchange in the network environment between state agencies" (Master thesis, University of Science, Vietnam National University - HCM), (https://repository.vnu.edu.vn/bitstream/VNU_123/7967/1/01050000815.pdf)

Than Trong Ngoc Tram (2019), "International law and practice on handling high-tech crimes - Experience for Vietnam" (University of Law) (https://lib.hul.edu.vn/bitstream/123456789/147/1/Baocao-%20 NGOCTRAM2019.pdf)

The Government of VietNam, Decree 13/2023/ND-CP dated April 17, 2023 on protection of personal data, (https://thuvienphapluat.vn/van-ban/EN/Cong-nghe-thong-tin/Decree-No-13-2023-ND-CP-dated-April-17-2023-on-protection-of-personal-data/564343/tieng-anh.aspx

Thuy An (2024) "Gần 1.300 GB dữ liệu cá nhân bị thu thập, mua bán trái phép" (Vietnam Television) (https://vtv.vn/cong-nghe/gan-1300-gb-du-lieu-ca-nhan-bi-thu-thap-mua-ban-trai-phep-20240111113730914. htm).

D. Kim Thoa (04/10/2017), "3 ti tài khoản Yahoo bị rò rỉ dữ liệu năm 2013", Tuoitre News, (https://tuoitre. vn/3-ti-tai-khoan-yahoo-bi-ro-ri-du-lieu-nam-2013-20171004091457362.htm).

The Vinh (24/07/2022) "Uber thừa nhận che giấu vụ lộ lọt thông tin 57 triệu người dùng" Vienamnet News, (https://vietnamnet.vn/uber-thua-nhan-che-giau-vu-lo-lot-thong-tin-57-trieu-nguoi-dung-2042783. html).2019 Cost of a Data Breach Report

DIGITAL TRANSFORMATION FOR THE LOGISTICS INDUSTRY IN VIETNAM

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Abstract: *Logistics is a service chain activity from the pre-production stage until the goods are distributed to the consumer. Today, the development of the digital economy leads to strong competition between businesses. Especially due to the impact of the COVID-19 pandemic and the Russia - Ukraine conflict, the supply chain was disrupted and reversed. Many logistics businesses have difficulty and have a negative impact on the economy. This cause required promoting the digital transformation process in the logistics industry in general and logistics businesses in particular to take advantage of scientific and technological achievements to improve corporate management, and competitiveness, reduce cost, and bring high efficiency to businesses.*

• Keywords: *digital transformation, logistics, COVID-19, Russia-Ukraine conflict, Vietnam.*

1. Introduction

Due to the impact of the COVID-19 pandemic, along with global risks, and economic and political instability in recent years, both domestic and international trade have faced difficulties. In response to the challenges posed by the recent epidemic and to capitalize on the ongoing digital revolution, Vietnamese logistics services need to undergo a swift digital transformation. This revolution presents both challenges and opportunities for businesses, urging them to transform traditional production organization methods.

The article focuses on researching digital transformation in the logistics industry in Vietnam using qualitative methods through document research. The data used in the article is compiled from secondary sources, including Government decisions and plans, logistics reports from the Ministry of Industry and Trade, Vietnam Report, and other relevant sources.

2. Literature review

2.1. An overview on logistics and digital transformation

An overview on logistics

Christopher (1997) defined logistics as the strategic management of the procurement, transportation, and storage of raw materials, parts, and finished goods inventory, along with the flow of related information through an organizational process. It involves the organization and implementation of marketing channels. Logistics extends beyond handling or transportation; it also encompasses a combination of activities such as communication, customer service, localization, and logistics (M. Christopher, 1997, and M. C. Cooper, 1997) and is closely related to trade and production planning (Lambert, 2008).

In 2001, the Council of Supply Chain Management Professionals introduced a precise and comprehensive concept of logistic as a part of the supply chain cycle, including the processes of planning, implementing and controlling effectively the storage and flow of goods and services, two-way communication between the point of origin and the point of consumption to meet customer needs.

The Commercial Law in 2005, for the first time introduced the concept of logistics as commercial activities, followed by traders carry out one or more task including receiving goods, transporting goods, storage, customs clearance, other paperwork, customer consulting, packaging, marking, delivery or other services related to goods according to negotiate with customers to receive remuneration. Logistics services are transliterated in Vietnamese as logistics services (Article 233).

Although there are many different perspectives, concepts of logistics services can be divided into two groups:

(i) The first group (narrow definition) considers logistics to be almost similar to goods transportation activities.

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(ii) The second group (broaden definition) considers that logistics has an impact from the pre-production stage until the goods reach the final consumer. Accordingly, logistics services are associated with the process of importing raw materials as inputs for the production process, producing goods, and putting them into circulation and distribution channels to the final consumer. Thus, a professional logistics service provider requires expertise to provide "full package" services to manufacturers. This is a highly specialized job.

Digital transformation in logistics

Logistics digital transformation is the process of applying digital technology to activities in the supply chain with the aim of overcoming stagnation, creating breakthroughs to enhance competitiveness, reducing logistics costs, expanding customer base, and achieving maximum profits superior to those before the digital transformation.

According to the Ministry of Planning and Investment (2021), digital transformation in businesses is defined as "the integration and application of digital technology to improve business efficiency, management efficiency, and competitiveness." of businesses, creating new values".

In conclusion, digital transformation in Vietnamese logistics businesses is the process of logistics businesses applying digital technology and exploiting the digitalization process to improve corporate management, innovate operating methods and service quality, develop relationships between partners with businesses, customers, value chains, and business ecosystems to adapt to the changing requirements of the market and the economy.

2.2. Benefits and platform technology in digital transformation for the logistics industry

2.2.1. Benefits of digital transformation for the logistics industry

* Increased Efficiency

Digital transformation in the logistics field will help improve efficiency in transformation activities. Real-time shipping rates, paperless orders, and maximum automation of processes will significantly improve operational efficiency. To do this, logistics businesses need cloud-based software from vendors that allows for centralized tracking and recording of transactions. With the help of this technology, logistics companies can provide customers with detailed progress information to ensure the best performance and quality.

* Facilitates Trust Among stakeholders

The logistics industry is taking a big step forward by integrating blockchain-enabled digital shipping solutions within companies. This move builds trust between partners and helps the industry realize its ambitions for greater technological advancement.

Digital transformation in the logistics sector has made it possible for customers to track their orders from start to finish, delivering the benefits of saving both time and money. When people want to know when they can expect their shipment or if any changes have occurred, they don't need to ask anymore; they can go online or receive automated messages with all the relevant information. Additionally, when all parts of the process are fully informed, everyone benefits: trust increases and obstacles decrease.

* Enhanced Routing

Investment in advanced software has led to a major change in the logistics industry - improving routing. Thanks to digital transformation in supply chains and logistics, drivers can easily identify the most efficient routes with minimal navigation risk and delays. If there are congestion issues such as road works or traffic accidents, alternative routes will be suggested to reach your destination without delay. Financially, this technology helps logistics companies save money by allowing vehicles to use shorter routes, drive fewer kilometers, and consume less gasoline.

* Intelligence in Transportation

Logistics processes have seen an increase in data since the digitization of operations. Therefore, businesses should consider investing in advanced analytical techniques to make better decisions in the logistics industry. AI and Cognitive Computing software development services are necessary to make informed decisions about marketing strategies. However, they can also provide supply chain management services, process optimization, cost savings, improved customer experience, and enhanced end-to-end communication.

* Preventive Fleet Supervision

AI-powered predictive maintenance in supply chain and logistics is a boon for companies. It allows them to identify vehicle problems and take preventative measures remotely. By identifying vehicles in need of repair early, teams can quickly

respond to minimize downtime, significantly reducing costs. It brings cost benefits and customers know that the logistics company provides reliable services giving them peace of mind.

2.2.2. Platform technology in digital transformation for the logistics industry

Digital transformation in logistics businesses depends on scientific and technological advances. Currently, depending on the scale, needs and capabilities, businesses apply technology at different levels, which may be related to popular arts such as: Blockchain, Internet of Things. (IoT), Artificial Intelligence (AI), Cloud Computing, Big Data and Data Analytics, Warehouse Automation (Warehouse Automation) and Robotics. This shift helps logistics businesses speed up innovation, make better decisions, engage customers throughout their journey, incorporate organizational agility, and increase automation.

3. Results and Discussions

*3.1. Achievements in logistics digital transformation in Vietnam*

The logistics industry has long been a key service industry with high added value, serving as a foundation for trade development and improving the competitiveness of the economy. According to the Vietnam Logistics Service Business Association (VLA), the growth rate of the logistics industry in Vietnam in recent years has reached about 14%-16%, with a scale of about 40-42 billion USD/year. However, the ratio of logistics costs to Vietnam's national GDP is 18% of GDP, while this figure in developed countries is only 9-14%. That just shows that Vietnam's logistics costs are still quite high compared to other countries in the region such as China, Thailand… The reason may come from limitations in seaport infrastructure associated with post-port services; Logistics infrastructure planning, including seaports, inland ports, logistics centers, depots, truck parking lots, container trucks... is not effective.

Therefore, applying digital technology is a necessary requirement to cut costs. Additionally, logistics digital transformation will help improve efficiency in transportation processes. Real-time freight rates, paperless bills of lading, and maximum automation of processes will significantly enhance operational efficiency. Digitalization in the logistics industry is a transparent and effective solution to help reduce difficulties caused by supply chain disruptions since the outbreak of Covid-19 and the Russia-Ukraine conflict.

Logistics businesses have correctly recognized and appreciated the importance of digital transformation for production and business activities. According to Vietnam Report (2022), 100% of logistics businesses have increased investment in digital transformation, of which 86% of businesses expect the application of digital technology and digital transformation will bring significant benefits in terms of productivity and business performance in the future, 36% of businesses believe that introducing technology into the logistics journey will enhance global customer experience. The level of application of digital technology in logistics businesses is increasing and becoming a key trend in businesses' strategies. Logistics businesses have made certain progress in the digital transformation process. Specifically, in addition to technology platforms that have been around for a long time and are commonly used in the activities of logistics businesses, emerging technology platforms have been applied by businesses, of which there are about 68% of logistics businesses have deployed digital transformation platform technology applications in business operations such as IoT (19.4%), cloud computing (18.4%), artificial intelligence (18.4%), blockchain (14.3%), big data and analytics (7.1%), warehouse automation (10.2%) and Robotics (12.2%).

Information technology applications and application trends in logistics businesses
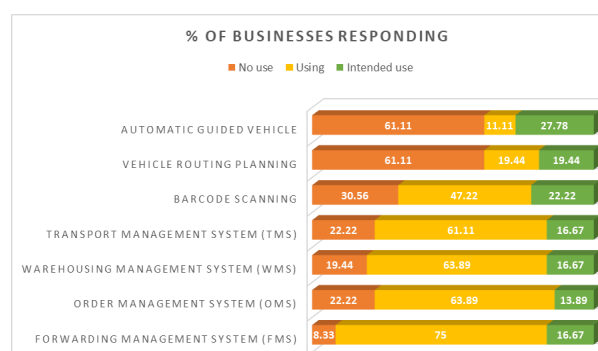
Source: Vietnam Report, 2022

With the unwanted effects of the COVID-19 pandemic and the Russia-Ukraine conflict, 58% of logistics service providers have shortened their technology roadmap, the proportion of businesses with high and very high levels of technology application is increasing rapidly in many fundamental technologies, of which robotic process automation (RPA) reaches 100%, big data reaches 80%. All stages of logistics business operations

have also begun to apply digital technology, of which 75% of businesses are using FMS (freight management software); 63.89% of businesses are using OMS software (order management software) and WMS (warehouse management software); 61.11% of businesses are using TMS (transportation management software); 47.22% of businesses use barcode scanning; 19.44% of businesses use Vehicle routing planning and 11.11% of businesses use Automatic Guided Vehicle.

According to the Vietnam Logistics Service Business Association (VLA 2022), the application of science and technology to logistics activities is not synchronous, but is initially effective. Vietnamese logistics businesses are providing from 1-17 different types of logistics services according to regulations in Decree No. 163/2017/ND-CP. The main services are forwarding, transportation, warehousing and customs declaration. About 46% of businesses are applying different types of technology, depending on the scale and nature of each business's service, bringing high efficiency in business. Notable among them are customs declaration services (almost 100% electronic), tax payment (100% electronic invoices), seaport operation management services, and freight vehicle itinerary management, warehouse management,... However, digital transformation in the logistics field is still facing many difficulties such as lack of connectivity in the system, lack of information about digital technology, lack of digital technology infrastructure and lack of internal human resources to apply digital technology, difficulties in investment costs, application of digital technology, difficulties in changing habits and business practices, low service quality... In addition, about more than 90% of small and medium-sized enterprises have difficulty choosing technology suitable for their service activities.

3.2. Challenges in logistics digital transformation in Vietnam

In the effort to digitally transform logistics, many difficulties and challenges still exist. In particular, we must mention:

• *Finance*

Financial potential is one of the challenges in logistics digital transformation in Vietnam today. According to a report by the VLA, 90% of Vietnamese logistics businesses have capital of less than 10 billion VND, 5% have capital of 10 - 20 billion VND. With such a capital scale, investing in expensive digital technology solutions is very difficult.

Digital technology solutions in logistics often require large investments in infrastructure, equipment, software and human resources. For example, to deploy a smart warehouse management system (WMS), logistics businesses need to invest in barcode scanner systems, handheld devices, WMS software, etc. The cost for these solutions can reach billions of dong. In addition, digital transformation also requires logistics businesses to have a workforce with high professional qualifications and technological skills. However, this human resource is currently still limited in Vietnam. Therefore, financial potential is a big challenge for Vietnamese logistics businesses when implementing digital transformation.

• *Technology*

In general, Vietnam's logistics industry is still quite backward in technology, especially in small and medium enterprises. These businesses often use manual, traditional methods in management and operations, leading to low efficiency, high costs and lack of flexibility.

Having a workforce with technological knowledge and skills is an important factor in the logistics digital transformation process. However, in Vietnam, there is still a shortage of human resources with high professional qualifications and technological skills. This can create challenges in implementing and managing new technology solutions. Besides, the application of new technology also raises issues related to information security and privacy.

• *Human*

Human resource shortage: The demand for logistics human resources is increasing, while the supply cannot keep up. According to a report by the VLA, by 2030, the need for Vietnam Logistics human resources will reach about 200,000 people, while currently only meeting about 10% of the need.

Human resource level does not meet requirements: Most of the current logistics human resources have not been properly trained in digital transformation. They lack knowledge and skills about new technologies, such as artificial intelligence (AI), machine learning (ML), big data,...

Afraid of change: Some logistics employees are afraid of change and afraid of learning new technologies. This leads to them not actively

participating in the digital transformation process of the business.

• *Lack of cooperation between logistics businesses*

Lack of uniformity in applying common standards and protocols can reduce the ability to interact and integrate between systems and platforms of logistics businesses. Impacts the ability to exchange information, manage data and optimize processes.

Logistics businesses can use different systems and technologies, from manual processes to automated distribution or warehouse management systems. This difference makes integration and information sharing complex, requiring a lot of effort to achieve compatibility. Besides, in a competitive environment, logistics businesses may tend to keep information and data to themselves, not wanting to share with competitors. This can cause lost opportunities to create added value through information sharing and multilateral interactions.

• *Highly dependent on old, outdated systems*

Relying too much on old systems is a big challenge in logistics digital transformation. These systems are often inflexible, unable to scale and integrate with new technologies. This over time leads to problems such as:

Lack of efficiency: Legacy systems are often slow, inaccurate, and unable to automate processes. Wastes time, costs and human resources.

Lack of adaptability: Failure to respond to rapid market changes, leading to loss of customers and business opportunities.

Lack of security: Legacy systems are often vulnerable to security attacks, leading to loss of data, assets and business reputation.

4. Recommendations and solutions

4.1. Recommendations

It must be affirmed that the successful application of IT and digital transformation in enterprise logistics is a decisive factor in the development of logistics services to meet the needs of improving the competitiveness of our country's import and export goods. in the context of the current strong development of e-commerce, adapting to the global supply chain being seriously disrupted due to the COVID-19 epidemic, military conflict between Russia and Ukraine as well as climate change causes.

According to the Agility 2022 rankings, Vietnam's logistics market is ranked 11th in the group of 50 global emerging logistics markets. The compound annual growth rate (CAGR) for the period 2022-2027 of Vietnam's logistics market is forecast to reach 5.5%. Vietnam is currently the leading country among ASEAN countries in the number of logistics service businesses licensed by the US Maritime Administration (FMC).

The trend of digital transformation is becoming increasingly popular and accelerated. In particular, in the logistics industry, technology does not stop with "track & trace" - control and monitoring, but many businesses are looking for ways to display their entire supply chain. According to a survey by Alloy Techonologies, 92% of logistics company executives believe that supply chain management ability is an important factor for success. However, only 27% of them have found a way to successfully digitally transform their businesses. This shows that digital transformation is an inevitable trend in the logistics industry, but not all companies are capable of successful digital transformation. So what solution helps digitally transform the Logistics industry in Vietnam?

4.2. Digital transformation solutions for the logistics industry in Vietnam

4.2.1. Solutions from state management agencies

• Propose the implementation of an action program to improve the application of modern Science and Technology. The focus is on investing in digital infrastructure to meet the increasing demand for connectivity and data processing. Stimulate cooperation between Information Technology corporations to build and transfer logistics software to businesses in Vietnam at preferential prices, to create opportunities to use and participate in transformation activities in a fair and comprehensive manner.

• Research and apply advanced technologies and techniques in management, operations and training in the field of supply chain and logistics services. Encourage and guide businesses in a number of industries to apply advanced supply chain management models in production and business.

• Propose to issue preferential policies on taxes, land rental and loan interest rates, to support logistics businesses to invest in warehouse networks and automatic goods classification systems.

• Continue to improve the legal framework on logistics services, especially security issues and cooperation in preventing cybercrime. Integrate network monitoring functions, ensuring network safety and security right from the design and

construction stage. Research, amend and promulgate new policies and laws regulating logistics services, multimodal transport, and cross-border transport in e-commerce.

• Strengthen the connection and cooperation between state agencies, organizations and businesses, including associations and organizations in the Information Technology and Logistics industries, to create synchronous efficiency in comprehensive digital transformation efforts.

4.2.2. Solutions from the businesses

• Change thinking and vision: Businesses operating in the field of logistics need to be clearly aware of the urgency of digital transformation and consider it an inevitable factor if they want to maintain their position in the market. In particular, the most important factors of this great event lie in people, thinking and culture. Changing thinking about digital transformation must start from the leadership level. Coordination between logistics businesses, associations and universities to provide a knowledge base for human resources in the industry is also very important.

• Ensure a clear and appropriate roadmap: Digital transformation needs to be implemented firmly and follow a roadmap suitable for each specific business. This transformation process takes place from digitizing data, to digitizing processes, changing business models to digital platforms suitable for automation processes. In each stage, businesses need to plan carefully, choose appropriate processes, find reliable suppliers in terms of reputation, quality and financial capacity to build a linked digital system with common standards and easy data retrieval.

• Investing in technology, changing management methods: Investing in technology and changing management methods will help logistics businesses compete fairly with foreign competitors, even have an advantage. For small logistics businesses, they can participate in niche markets, small scale and simple product categories, to serve retail businesses, individuals doing business online on social networks or mobile application platforms. The niche market will be consistent with the scale and quality requirements of logistics services of these businesses.

• Building human resource strategies: Logistics businesses need to develop strategies and plans for training, recruitment, and use of human resources appropriate to the conditions of the business, through building a system of criteria, cooperating,

linking, and sharing resources with training facilities in the logistics industry to recruit and order training according to business needs. In addition, businesses proactively build facilities, implement internal training programs, and encourage officers and employees in the business to self-study and accumulate knowledge and experience in applying information technology into practice.

• Research thoroughly and seek advice: Logistics businesses need to research meticulously and thoroughly to choose the appropriate digital transformation model. This includes learning about new technologies and seeking advice from digital transformation service providers to determine the best direction. The ability to interact closely with businesses in the logistics industry and seek cooperation from partners with strong financial backgrounds can help improve the financial viability of businesses. Thereby providing stable resources to develop technology and attract high-quality human resources.

• Synchronization and flexibility: During the digital transformation process, businesses need to transform in a consistent and flexible way. This helps connect stakeholders in the chain, including ports, carriers, agents, forwarding companies and warehouses, to share data and increase chain efficiency. At the same time, prioritize investment in necessary modules that allow the integration of digital technologies, to comprehensively synchronize business systems in a sustainable manner.

References:

D.M. Lambert, S.J. García-Dastugue, K.L. Croxton (2008), "The role of logistics managers in the cross-functional implementation of supply chain management", Journal of Business Logistics, 29(1), pp.113-132

Government of the Socialist Republic of Vietnam (2020). Decision 749/QD-TTg dated June 20, 2020 Approving the "National Digital Transformation Program to 2025, with Orientation to 2030". Hanoi.

Government of the Socialist Republic of Vietnam (2021). Decision 221/QD-TTg dated February 22, 2021 of the Prime Minister Amending and Supplementing Decision No. 200/QD-TTg dated February 14th 2017 on Approving the Action Plan, Improving Competitiveness and Developing Logistics Services in Vietnam to 2025. Hanoi.

https://appinventiv.com/blog/digital-transformation-solutions-in-logistics/

M. Christopher (1997), Logistics and Supply Chain Management: Creating value-adding networks, Pearson Education.

M.C. Cooper, D.M. Lambert, J.D. Pagh (1997), "Supply Chain Management:more than a new name for logistics", International Journal of Logistics Management, 8(1), pp.1-14.

Ministry of Industry and Trade (2020). Vietnam Logistics Report 2020. Industry and Trade Publishing House, Hanoi.

Ministry of Industry and Trade (2021). Vietnam Logistics Report 2021 - Logistics Human Resource Development. Industry and Trade Publishing House, Hanoi.

Ministry of Planning and Investment (2021). Guidelines for Digital Transformation for Vietnamese Enterprises in the Period of 2021-2025.

Quốc hội (2017). Luật số 05/2017/QH14: Luật Quản lý Ngoại thương, Điều 105, ban hành ngày 12 /6/2017.

Vietnam Logistics Business Association, Vietnam Logistics Research and Development Institute (VLI 2022).

Vietnam Report (2021). Vietnam Economic Growth 2021: Vietnam's Enterprises on the Road of Digital Transformations. Thanh Nien Publisher, Hanoi.

Vietnam Report (2022). Vietnam Annual Economic Report, Economic Growth Scenarios and Adaptation Strategies in the Next Normal. Thanh Nien Publisher, Hanoi.

IMPACTS OF CENTRAL BANK DIGITAL CURRENCY ON MONETARY POLICY

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Abstract: *This research discusses Central Bank Digital Currency (CBDC) and its impacts on monetary policy (MP) through assumptions made on three CBDC issuance scenarios. Experts believe that CBDC can support MP and provide real-time access to relevant data. Additionally, CBDC, managed directly by central banks, allows for faster, auditable, and transparent interbank payment systems based on blockchain technology. Overall, central banks influence MP by adjusting short-term interest rates. Furthermore, monetary authorities reduce long-term interest rates by purchasing long-term government bonds, known as quantitative easing, increasing the money supply. CBDC can support the goal of increasing the money supply by providing direct access to the central bank's digital currency for citizens. Moreover, CBDC enables governments to access real-time currency demand data.*

1. Introduction

There has been extensive discussion in recent years regarding the role of Central Bank Digital Currency (CBDC) in economies and whether cash should be eliminated. Some central banks have initiated the decision-making process on whether to introduce CBDC into their respective economies. For instance, officials at the People's Bank of China expressed the desire to issue their own digital currency to support their digital economy.

When central banks issue CBDC, several important questions arise: Should central banks eliminate physical cash from circulation? How will optimal monetary policies be shaped? What benefits can be maximized if commercial banks and individuals can choose between physical cash and CBDC? Quantitatively, what are the welfare benefits of introducing CBDC?

2. Digital currency

2.1. Concept

Digital currency (DC) or cryptocurrency is seen as a combination of two elements: an asset factor and a mechanism allowing payment through distributed ledger technology (DLT). DL is a shared accounting ledger system updated in real-time through a secure network of computer nodes.

Digital currency is created through complex cryptographic algorithms, traded, and exchanged entirely over the Internet and currently not managed by any individual or organization (unless directly issued by central banks). Examples include Bitcoin and Ethereum. While cryptocurrencies have virtual origins, they are evolving to possess characteristics of traditional currencies, such as convertibility, payment capabilities, with less emphasis on being a stable store of value due to high volatility.

Despite its virtual nature, digital currency still has a long way to go before becoming widely recognized as legal tender. The crucial reason for this is the lack of recognition by national central banks. Without this recognition, digital currency lacks assurance and cannot be widely exchanged like traditional currencies. Currently, digital currency is being developed to harness the advantages and benefits of blockchain technology, such as low transaction costs, high security, convenience, and speed, rather than functioning as actual currency.

The term "digital currency" in the publications of the Bank for International Settlements (BIS) is used narrowly, referring to cryptocurrencies. This definition excludes physical currency like banknotes and coins and excludes electronic

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currency stored on other devices, even though both are held as digital currencies in digitized form.

2.2. Some limitations of digital currency

Firstly, digital currencies currently operate poorly and do not fulfill the fundamental roles of currency. It is crucial for the public to note that current digital currencies perform inadequately, failing to truly exhibit the three main functions of currency: serving as a medium of exchange (circulation medium), a means of payment, and a store of value. Few merchants accept them as a medium of exchange, and retailers often adjust prices in digital currencies based on their exchange rate fluctuations, indicating that digital currencies are not widely used as a unit of payment. Lastly, their prices compared to fiat currencies are much more volatile, making them less suitable for storing value.

Secondly, technical issues such as scalability, security concerns, interactivity, and transaction reversibility pose significant challenges. For instance, in fraud cases, transaction reversibility is not compatible with the typical function of Blockchain, and the high energy consumption associated with transaction confirmation processes is a significant concern. It is believed that these technical flaws are challenging to overcome. However, consumers are willing to embrace payment innovations with limited applications as long as these applications have clear and attractive functions. In this context, several factors can support public demand for digital currency.

2.3. Some factors driving the use of digital currency

Firstly, digital currency allows for pseudonymous transactions, thereby preserving privacy. However, for face-to-face transactions, cash transactions remain preferable, leaving no traces. Ultimately, if digital currencies are widely used, governments need to take steps to limit negatives stemming from the anonymity of transactions.

Secondly, digital currency can be purchased for speculative purposes. This is a key motive supporting the demand for digital currency, with Bitcoin being the most popular (Bohme et al., 2015). However, this argument is based on the scarcity of the supply, a factor in complete contrast to the widespread use of digital currencies as a medium of exchange, demanding an elastic

supply. Additionally, changing regulatory rules for supplying digital currency may be challenging in current systems, as such decisions would have to be made by users and could harm their interests, potentially causing a decrease in the value of digital currencies.

Lastly, digital currency can be used for quick and cost-effective global payments. For example, in remittances, the cost with Bitcoin support is lower than ten times compared to using traditional services, and payments can be executed in minutes instead of days.

3. Scenarios for the proliferation of digital currency and the impact of digital currency on monetary policy

3.1. Scenarios for the proliferation of digital currency

Three scenarios using digital currency are described in the following table:

Script		Probability of occurrence Central Bank Reserves	Impact on demand			Impact on the size of the balance sheet	
			Cash	Deposits	Central Bank	Commercial Banks	
A- Internal use		High	-	Not applicable	Not applicable	-	-
B- Convergence	B1: Minimum banking services	Low	-	-	Not applicable	-	+
	B2: Full services	Very Low	-	-	-	-	+
C- Central bank digital currency	C1- No community access	HIgh/Everage	-/=	Not applicable	Not applicable	-/=	-
	C2- Minimum services	Low	?	-	-	?	?
	C3- Maximum services	Very Low	?	-	-	?	?

Source: Christian Pfister (2017)

Note: *Symbols (+, -, or =) indicate the expected impact. A question mark implies the expected impact could be either positive or negative.*

In the first scenario, labeled A, financial institutions will only use Digital Currencies (DC) internally, within private DC programs. As a result of the liquidity savings enabled by using Distributed Ledger Technology (DLT), banks will require fewer central bank reserves to settle final transactions. Given the technical issues are addressed (as mentioned in section 2.2), this scenario could be considered feasible.

In the second scenario, labeled B and potentially encouraged by regulatory authorities if DC usage is for community circulation, there will be a convergence of DC banking programs and activities, with DC deposit-taking initiatives and credit distribution and/or bank-issued DC

projects. In the first case, DC programs at certain points will be submitted to regulatory agencies under the same requirements as banks; in the second case, DCs will be supported by an issuing organization (bank), thus differing significantly from current DCs like Bitcoin. In both cases, the monetary consequences will vary depending on the services provided by the DCs: with minimal payment services offered, DCs could replace cash and unseen deposits (Scenario B1); if Distributed Ledger (DL) technology allows interest payments for DCs, they could also replace interest-bearing deposits and fixed-term deposits (Scenario B2 including B1). However, due to the superiority of cash-like DCs in preserving privacy mentioned above, Scenario B1 is considered unlikely or at least not desirable for everyone to have access to DL for use that someone has created from DCs. Therefore, Scenario B2 is more challenging to occur than Scenario B1.

In the third scenario, labeled C, the central bank will issue a Central Bank Digital Currency (CBDC). Assuming that Scenario C can materialize in two situations: following the central bank's initiative and simultaneously with or following A (cyber-attack strategy) or to meet Scenario B (defensive strategy).

The main advantage of Scenario C will lie in the high credibility of the central bank. Only the central bank can ensure a fixed exchange rate between CBDC and legal tender, as it can create both without limit. The consequences of Scenario C will at least partially and at most reverse Scenarios B. If access to CBDC is reserved for banks in private DC programs (Scenario C1), the decrease in reserve demand will be smaller than in Scenario A to the extent that Scenario A is considered possible, and Scenario C1 may also be considered possible. If access is opened to the public (Scenario C2 is assumed to include C1 in the latter part, as it will be odd and probably also difficult, to allow the public, and not the banks, to use CBDC), then CBDC can also replace cash, including bank deposits. In fact, Scenario C2 can be understood as part of a plan, along with withdrawing large-denomination banknotes, to gradually reduce the use of traditional cash to make funding for illegal transactions more difficult and lower the operating costs of managing currency. Scenario C2 is seen as the most that can

be like Scenario B1. One last possibility (Scenario C3 is assumed to include both C2 and therefore also C1) can be seen as a contrast to Scenario B2 with central banks. Replacing Commercial Banks and DC Projects: Access to CBDC for Central Banks. In scenarios involving the use of CBDC, it is assumed that CBDC will earn interest and be used for credit. This is considered less likely than scenario B2 due to factors related to both supply and demand. In scenario C3, the central bank would directly compete with commercial banks, a departure from their historical role to avoid unfair competition and benefit from sovereign revenue. Regarding demand, in typical cases without private DC activities, it is unclear why the public would prefer CBDC from a government agency instead of private DCs and borrow from the central bank rather than their usual lenders.

3.2. Impact of digital currency on monetary policy

3.2.1. Monetary policy strategy

A significant challenge is the limited supply of DC, potentially causing deflation in a growing economy if widely adopted. In a scenario where the shift to DC is extensive, and the connection between sovereign currency users and DC users is weak, MP may lose effectiveness. This is only anticipated if there's a substantial loss of trust in sovereign currency, affecting all major currencies.

In scenario C3, the central bank may target a zero average long-term inflation rate. The issuance of CBDC with interest could facilitate negative interest rates. However, challenges such as low constraint-effective zero lower bound and lack of optimization in permanent price levels could hinder the achievement of positive inflation. Assuming CBDC issuance resolves these issues, a slight adjustment of the inflation target seems feasible. Individuals with central bank accounts would ensure strict privacy protection, resembling a central bank digital currency issuance rather than a CBDC plan.

3.2.2. Monetary policy adjustment**

Widespread use of DC can only occur if DC closely replaces or represents fiat currency. This leads to an essential MP: the central bank can set a specific, often short-term, interest rate suitable for the economy, including DC users. This holds true even if DC usage eliminates the need for fiat

currency or central bank reserves. The central bank may face challenges in covering costs, potentially compromising its independence.

3.2.3. Monetary policy implementation

Four issues arise:

- In terms of MP indicators, there will be no aggregate currency (cash and credit) information due to the shift from deposits to DC. This may be a temporary situation, but it diverges from the standard approach to dealing with financial innovations.

- Regarding transmission mechanisms, the use of Distributed Ledger Technology (DLT) by financial institutions should modify the role of bank capital and funding costs in the credit channel of MP. Consequences include releasing pledged assets, potentially reducing liquidity insurance fees, resulting in higher market interest rates. Finally, in scenarios C2 and C3, the transmission mechanism may become faster if central bank capital injections increase (the opposite conclusion applies to all other scenarios where reserve demand decreases).

- Regarding Interest Rate Establishment: Will CBDC allow central banks to implement significant negative interest rates? This seems plausible in the case of widespread DC usage, provided that Distributed Ledger Technology (DLT) allows for transactions with negative interest rates. However, the efficiency of paper currency creates a high-effective, lower-limit issue for negative interest rates where credit institutions become effective. In scenarios C2 and C3, where CBDC replaces cash in exchange, or if an exchange rate is established for paper currency, the problem persists.

- Concerning the role of the central bank as the Lender of Last Resort (LoLR), in scenario B, convergence of banks and DC programs may grant access to LoLR. However, in scenarios C2 and C3, recapitalization by the central bank may constitute a significant portion of banks' liabilities. If the public does not widely adopt CBDC, replacing private DCs and deposits, CBDC issuance reduces friction related to money flowing to the central bank, increasing liquidity risk. For these reasons, it might become challenging for the central bank to deny LoLR support for commercial banks, posing the risk of an excessive LoLR.

3.2.4. Monetary policy tools

MP tools include reserve requirements to accommodate reserve demand expansion and interest rate tools (open market operations and standing facilities) to signal the stance in MP.

In the case of a significant reduction in reserve demand (scenarios A, B1, and especially B2), central banks may respond in several ways:

- Expand the base of reserve requirements to include DC. This would be logical in scenario B, facing convergence between banks and DC programs.

- Increase the reserve ratio.

- Expand reserve demand by issuing CBDC (scenario C), as it has been suggested for issuing digital currency to replace private digital currency with cash.

- Lastly, the central bank might choose to implement MP by withdrawing money instead of providing liquidity, although this might pose difficulties in covering costs and maintaining independence for the central bank.

4. Conclusion

Digital currency is considered the currency of the future, with various private organizations and central banks worldwide participating in testing this new form of currency. For instance, China is reportedly testing its digital currency on the blockchain platform. While Vietnam has not yet joined digital currency experiments, the significant impacts of CBDC on the overall financial system and MP call for a comprehensive perspective to chart the course for the future.

References:

State Bank of Vietnam (2019), Consolidated Document No. 10/VBHN-NHNN, Decree on Non-Cash Payments.

Christian Pfister (2017), Monetary Policy and Digital Currencies: Much Ado about Nothing?, Banque de France Working Paper #642, <https://publications. banque-france.fr/sites/default/files/medias/documents/dt-642.pdf >.

Emir Hrnjic (2020), "Digital currency can impact monetary policy", <https:// www.businesstimes.com.sg/opinion/digital-currency-can-impact-monetary-policy>

Michael Bordo and Andrew Levin (20170, Central Bank Digital Currency and the Future of Monetary Policy < HYPERLINK

https://www.hoover.org/sites/default/files/bordolevin_bullets_for_hoover_ may2017.pdf tại:

https://www.hoover.org/sites/default/files/bordo-levin_bullets_for_hoover_ may2017.pdf >

Michael Bordo and Andrew Levin (2017), Central Bank Digital Currency and the Future of Monetary Policy.

S. Mohammad R. Davoodalhosseini (2018), "Central Bank Digital Currency and MonetaryPolicy", Bank of Canada Staff Working Paper 2018-36, <https:// www.bankofcanada.ca/wp-content/uploads/2018/07/swp2018-36.pdf >.

CIRCULAR ECONOMY AND GREEN ECONOMY: DIVIDEND POLICIES OF LISTED WASTE MANAGEMENT AND REMEDIATION SERVICES COMPANIES IN VIETNAM

PhD. Pham Thi Van Anh* - PhD. Nguyen Thi Thuy Dung**

Abstract: *The article analyzes the dividend policies of Waste Management and Remediation Services companies, which are part of both the Circular Economy and Green Economy, listed on the Vietnam stock exchange for four years from 2019 to 2022. The research examines the differences in dividend rates and dividend ratios based on enterprise size, testing these differences through econometric models using the Independent Samples T Test. Additionally, the article analyzes the characteristics, advantages, and disadvantages that affect financial gain activities through dividend policy and provides recommendations to enhance capital gain activities in these companies in the future.*

• Keywords: *green economy, circular economy, waste management and remediation services companies, dividend policies.*

1. Introduction

There are many reasons why economies around the world need to transition from a brown economy to a green economy as a critical way to achieve sustainable growth (Licastro and Sergi, 2021).

In the case of a "brown economy," it relies on activities that harm the environment, such as using fossil fuels for transportation, energy production, and manufacturing. Heavy reliance on fossil fuels, environmental neglect, and resource extraction and exploitation are the three main noticeable aspects of the brown economy (Sabat et al., 2022).

Because many economic activities have negative impacts on the environment, there is a need to transition to an economic model that supports protecting, preserving, and conserving the environment. The green economy leads to increased happiness, ensures everyone has a fair chance, and significantly reduces environmental risks. Efficiency of energy/material usage, regenerative growth, environmental friendliness, and reduced exploitation are the three main noticeable aspects of the green economy (Pearce et al., 2013).

The concept of a "green economy" integrates and balances economic, social, and environmental goals, which can be pursued by the private sector, local or central governments, and individuals. Governments, economists, environmentalists, businesses, and global organizations are all interested in the green economy due to the growing threat of environmental issues such as climate change, global food insecurity, and environmental degradation.

The circular economy, a component of the green economy, is an economic model based on the principle that resources should be used in closed-loop systems, where things and materials are durable, reusable, manufacturable, and recyclable (Ren et al., 2023). Efficiency of energy/material usage, extended product lifetimes, and waste treatment are considered the three main noticeable aspects of the circular economy.

In contrast to the circular economy, the traditional linear model involves extracting resources, using them, and disposing of them. Conversely, the circular economy keeps resources in continuous cycles and derives value from them perpetually. The concept of a circular economy offers an organized approach to effectively and efficiently achieve multiple goals at once (Hilson and Hu, 2022). Resource extraction and exploitation, disposal of used products, and environmental neglect are considered the three main noticeable aspects of the linear economy.

The circular economy provides a robust response to resource scarcity by transforming how we produce and consume goods, making them last longer. For an economy to be sustainable, it must transition from having limited resources to having an abundance,

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which can be achieved by using natural resources more efficiently and increasing their supply.

The four main terms, "green economy," "brown economy," "circular economy," and "linear economy," are illustrated in the following diagram:

Diagram 1. Green-Brown-Circular-Liner Economy
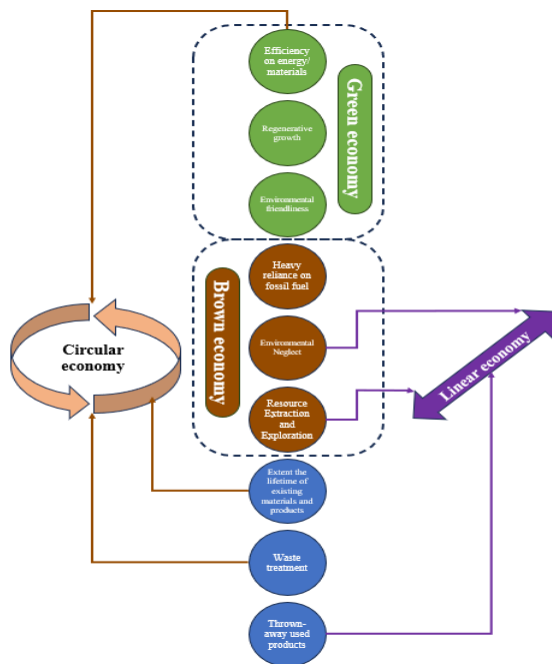
Source: Designed by the authors

Businesses that contribute significant value to development are Waste Management and Remediation Services. However, these businesses need help in capital gaining and developing their businesses.

There are many channels to attract capital, of which attracting capital in the stock market through signalling to investors with dividend policy is considered one of the effective channels for developed countries and foreign investors when the stock markets develop stably.

Waste Management and Remediation Services is one of the industries entirely focused on and developed in developed countries but has yet to receive proper attention in Vietnam.

Therefore, an assessment of the dividend policies of these groups of businesses will partly reflect the attractiveness of investing in stocks of this group of businesses.

Dividend policy was supposed to be affected by scale; large businesses always have advantages in resources and are more developed, with more stable and superior dividend policies and can have more stability in both dividend rate and dividend Ratio.

The investors, therefore, can make a better investment decision based on the business size and predict the potential dividend pattern.

The article will use the T-Test to evaluate the difference in the average value of businesses in the industry when divided by size and when divided by year. The research hypotheses set out here are as follows:

H1: The Dividend Rates of large and small groups are statistically different in 2019.

H2: The Dividend Ratios of large and small groups are statistically different in 2019.

H3: The Dividend Rates of large and small groups are statistically different in 2020.

H4: The Dividend Ratios of large and small groups are statistically different in 2020.

H5: The Dividend Rates of large and small groups are statistically different in 2021.

H6: The Dividend Ratios of large and small groups are statistically different in 2021.

H7: The Dividend Rates of large and small groups are statistically different in 2022.

H8: The Dividend Ratios of large and small groups are statistically different in 2022.

Structure of the research paper: After part 1 is the abstract, part 2 will come in the Literature Review, part 3 is research methods and data, part 4 is research status and results, part 5 is Conclusions and recommendations.

2. Literature review

Many dividend models are applied worldwide, including in Vietnam. Some models prioritize the stability of cash dividends paid, while others emphasize stable interest rates. Additionally, some models focus on the company's plans, where a percentage of retained earnings is paid out.

Rajan and Zingales (1995) argue that larger companies are generally more diversified than smaller ones, making them less likely to go bankrupt. Consequently, there should be a positive correlation between the size of a company and its dividend ratio.

Harris and Raviv (1991), along with Rajan and Zingales (1995), and Boot, Aivazian, Demirguc-Kunt & Maksimovic (2001), have demonstrated an inverse correlation between the size of a firm and its level of earnings.

However, Titman and Wessels (1988) validated the inverse correlation between the size of a company and its leverage ratio. They elucidated it based on the pecking order idea. Large corporations can quickly

obtain funds from capital markets and are more inclined to provide dividends (Ho, 2003; Aivazian, Booth, and Cleary, 2003).

The dividend policy is designed to maintain the interest of management, shareholders, creditors, and academics. Its significance lies in its interconnectedness with other corporate decisions, such as investment and financing, and its influence on shareholders' wealth and the overall economy. According to Allen and Michaely (1995), dividend policy impacts the firm's investing and financing practices, as well as other aspects of corporate finance. Multiple studies have documented the influence of dividend policy on stock prices by examining the informational value of dividend decisions. These studies include the works of Black and Scholes (1974), DeAngelo and DeAngelo (2006), Grullon et al. (2002), and Walter (1956).

Due to the reluctance of both management and insiders to disclose the actual economic situation of their firms (Leuz et al., 2003), investors value significant cash signals that provide essential information and reduce uncertainty in their estimations. Because of the significant impact of dividend policy on investors' choices, management carefully focuses on this crucial responsibility of establishing the dividend policy (Allen and Michaely, 1995; Baker and Powell, 1999; Baker et al., 1985).

Moreover, dividend income is a crucial component of national income, providing valuable insights into overall economic performance (Papadopoulos and Charalambidis, 2007).

In conclusion, further research will be necessary to confirm the impact of firm size on dividend policies within this industry, how businesses are implementing their dividend policies, and what can be done to further develop businesses.

3. Methodology

- Data on the Vietnamese stock market in Waste Management and Remediation Services is listed in the Stock Market. Because there are only 19 businesses that are operating stably and paying dividends, the evaluation data sample will revolve around these 19 businesses. Financial data is taken from balance sheets and reports on enterprises' production and business results.

- Dividend Rate: the company's declared annual dividend rate per share

- Dividend Ratio: The dividend Ratio is evaluated as the percentage between the total dividends paid to shareholders and the total profits of each enterprise. The dividend ratio reflects the priority given to dividends over total profit after tax. The higher this ratio means

the business uses more profits for shareholders and vice versa.

- Testing method: A T-test is used to evaluate the difference in the average value of groups of large and small businesses when considering two indicators: dividend rates and dividend ratios.

4. Empirical results

Financial data were collected from the firms' financial statements on the stock market. All the related calculations were taken in Excel, and the average values are shown in the tables below. The samples were divided into two separate groups of small firms and large firms to research.

Figure 4.1. Current situation of dividend rates
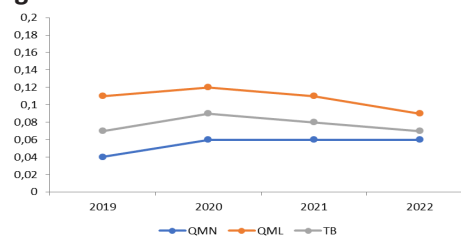
Source: Compiled by the authors

Figure 4.2. Current situation of dividend ratios
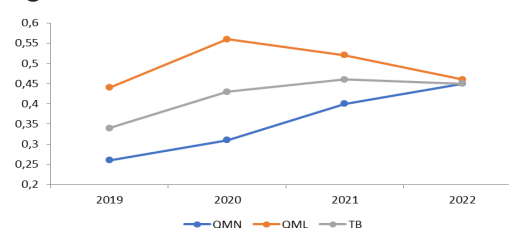
Source: Compiled by the authors

Most other businesses in the industry have a dividend rate of around 6% to 10%, the highest in the past four years. This dividend rate level is relatively similar to other businesses in the economy, indicating that the Environmental Sanitation industry is also likely to yield dividends at market-average levels. Businesses need to use part of the profit for dividend activity to achieve that level of payment, which leads to the dividend ratios mostly being around 40% to 60%, showing that prioritizing after-tax profits for dividends is not a choice of businesses. This may stem from the characteristics of businesses having a stable revenue and cost structure, leading to a stable dividend ratio and payment. Most companies could maintain a stable dividend rate over the 3-4 years of the study.

The trend of the dividend rate and the average dividend rate increased from 2019 to 2020. It began to decline clearly from 2021 to 2022 due to the general recession of the economy. Unlike many business

groups, which will try to maintain a stable dividend rate and must push the dividend ratio up, using most of their after-tax profits for dividend payments, businesses in the industry only maintain a stable dividend ratio of around 40% to 60% and prioritize retaining profits to operate regularly the following year.

Some businesses differ from the whole sample: Enterprises with the stock code MQN always have a dividend rate superior to the whole sample when having a dividend rate of up to 39% in 2019 and 38% in 2019. In 2020, although there has been a decrease in the following years, it is still in the top group of businesses with the highest dividend rates in the sample, with 16% and 9%, respectively. In 2019, the business had to use almost all of its profits, and in 2020, it had to use the previous year's retained profits for its dividend payment strategy. From there, it shows that the strategy of abnormal dividend rate at this stage, and the business cannot maintain that in 2021 and 2022; although it is no longer paid as much as two years before, the dividend rate is not as high as two years before. The company's dividend rate is still in the group of high dividend-paying businesses.

The year 2019 is considered a successful year for the company, with business performance indicators showing outstanding growth compared to 2018, increased revenue, and effective management of costs, helping the company's business operating profit increase sharply by 32.04% over the same period, reaching more than 31 billion VND. With the characteristics of the public service industry, regular service products, and extensive experience in the industry, the company gains a superior competitive advantage over other companies when bidding for public projects. It helps the company maintain a high and stable profit margin. The decrease in dividends for 2021-2022 is due to the severe impact of the Covid pandemic.

MDA does not pay dividends at all. MTB pays at a deficient level, only 1.5% in 2 years of dividend payment, but it also costs more than 50% of profit after tax for this activity. NAU has never paid dividends exceeding 1% in any year and only uses about 30% of its after-tax profits for dividend payments. The group of businesses with the lowest dividend payout in the sample has a significantly low payout level compared to the general market average, showing that the distinction between groups of businesses in the industry is quite significant between the highest group and the lowest group. The reason these companies need help developing is mainly due to the change from being state-owned companies to joint-stock companies and having to compete directly with businesses in the market through the form of joint-stock companies

bidding method. Previously, the state supported the cost of investing in new machinery, but now it will have to be completely autonomous. The previous employee salary source was also supported, and the state proactively allocated resources.

Current status of differences in dividend rates and dividend policies according to scale

Based on the average asset size of enterprises, the 19 listed enterprises in the industry are divided into small-scale enterprises and large-scale enterprises, with the number of small-scale enterprises being 10 and the number of large-scale enterprises being 9.

According to many research theories, the policies of large-scale enterprises are often better and more stable due to better business situations. In contrast, small-scale enterprises often face more difficulties in providing a dividend policy that benefits shareholders. However, there may be different conclusions for each group of businesses with different working characteristics.

Test results are as follow:

Table 4.1. Group statistics

	GROUP	N	Mean	Std. Deviation	Std. Error Mean
Value	TLCT-QMN-2019	10	0.037	0.034976	0.01106
	TLCT-QML-2019	9	0.113056	0.111312	0.037104
Value	HSCT-QMN-2019	10	0.25561	0.230644	0.072936
	HSCT-QML-2019	9	0.439678	0.16552	0.055173
Value	TLCT-QMN-2020	10	0.184	0.2459	0.060812
	TLCT-QML-2020	9	0.118567	0.106729	0.035576
Value	HSCT-QMN-2020	10	0.31205	0.249208	0.078806
	HSCT-QML-2020	9	0.558344	0.26925	0.08975
Value	TLCT-QMN-2021	10	0.0625	0.044049	0.013929
	TLCT-QML-2021	9	0.107567	0.057152	0.019051
Value	HSCT-QMN-2021	10	0.40442	0.237306	0.075043
	HSCT-QML-2021	9	0.521222	0.183655	0.061218
Value	TLCT-QMN-2022	10	0.0614	0.042251	0.013361
	TLCT-QML-2022	9	0.08889	0.055777	0.018592
Value	HSCT-QMN-2022	10	0.4526	0.297475	0.09407
	TLCT-QMN-2022	9	0.457033	0.25133	0.083777

Source: Compiled by the authors as calculation in SPSS

Table 4.2. Independent samples test

			Levene's test for equality of variances		T-test for equality of means							
										95% Confidence interval of the difference	
			f	Say.	t	Df	Say. (2-Tailed)	Mean difference	Std. Error difference	Lower	Upper
tLCT-QMN-2019	Value	Equal variances assumed	2.631	0.113	-2.057	17	**0.055**	-0.0760556	0.0369818	-0.1540804	0.0019693
TLCT-QML-2019		Equal variances not assumed			-1.964	9.419	0.08	**-0.0760556**	0.0387173	-0.1630501	0.010939
HSCT-QMN-2019	Value	Equal variances assumed	2.111	0.214	-1.977	17	**0.064**	-0.1840678	0.0930983	-0.3804881	0.0123525
HSCT-QML-2019		Equal variances not assumed			-2.013	16.258	0.061	-0.1840678	0.0914536	-0.377691	0.0095555
TLCT-QMN-2020	Value	Equal variances assumed	4.085	0.059	0.864	17	**0.4**	0.6954333	0.8050251	-1.0030213	2.3938879
TLCT-QML-2020		Equal variances not assumed			0.913	9.039	0.385	0.6954333	0.7616437	-1.0263818	2.4172485
HSCT-QMN-2020	Value	Equal variances assumed	0.066	0.081	-2.071	17	**0.054**	-0.2462944	0.1189254	-0.4972052	0.0046163
HSCT-QML-2020		Equal variances not assumed			-2.062	16.417	0.055	-0.2462944	0.1194383	-0.4989707	0.0063818
TLCT-QMN-2021	Value	Equal variances assumed	0.209	0.053	-1.937	17	**0.07**	-0.0450667	0.0232669	-0.0941555	0.0040222
TLCT-QML-2021		Equal variances not assumed			-1.91	15.024	0.075	-0.0450667	0.0235998	-0.0953615	0.0052282
HSCT-QMN-2021	Value	Equal variances assumed	1.005	0.09	-1.189	17	**0.251**	-0.1168022	0.0982079	-0.3240028	0.0903984
HSCT-QML-2021		Equal variances not assumed			-1.206	16.663	0.245	-0.1168022	0.0968457	-0.3214443	0.0878398
TLCT-QMN-2022	Value	Equal variances assumed	0.195	0.065	-1.219	17	**0.24**	-0.027489	0.022552	-0.07507	0.020092
TLCT-QML-2022		Equal variances not assumed			-1.201	14.871	0.249	-0.027489	0.022895	-0.076326	0.021348
HSCT-QMN-2022	Value	Equal variances assumed	0.368	0.092	-0.035	17	**0.973**	-0.0044333	0.1271439	-0.2726835	0.2638168
HSCT-QML-2022		Equal variances not assumed			-0.035	16.946	0.972	-0.0044333	0.1259668	-0.270265	0.2613983

Source: Compiled by the authors as calculation in SPSS

Sig value. In the Levene test (F test) > 0.05, the variances of the two populations are not statistically different. We use the t-test results in the Equal variances line assumed ValueSig. (2-tailed) > 0.05 means that there is no statistically significant difference on average between dividend rates and dividend ratios between large-scale and small-scale groups and over years.

From there, it shows that asset size does not have a statistically significant impact on dividend payments of businesses in the industry.

Thus, although the enterprise that does the best job in the industry in paying dividends is MQN, a large-scale enterprise, NAU is also a large-scale enterprise with the lowest dividend payment in the sample. The distribution of the remaining businesses also needs a clear consensus when grouped by size and dividend ratio or by dividend rate. Businesses pay a relatively stable dividend rate and dividend ratio due to the industry's stable nature of products and services provided.

Several advantages help companies maintain a relatively stable dividend policy

+ The law encompasses numerous policies and directives aimed at promoting environmental protection activities and addressing negative ecological impacts. Given the inherent trade-offs between the environment and economics, support policies for companies engaged in this sector are multifaceted, designed to better assist businesses.

+ Economic growth contributes to increased sales: By considering the economic development and industrial production indicators outlined above, it becomes apparent that as the income of individuals in the country rises, the demand for improved standards of living and environmental assurance also increases. Consequently, businesses operating in the environmental service industry, both generally and particularly in ecological services, will encounter more opportunities for growth.

+ Many companies within the environmental sector possess extensive experience accumulated over many years. Given the specialized nature of this field and the specific challenges it presents, effective management and experience are necessary to achieve environmental and economic efficiency.

+ Products, services, and customer bases exhibit high stability and repeatability, facilitating revenue prediction and maintenance without necessitating significant alterations to the products and services provided.

Difficulties force companies to lower dividend policies

+ Legal risks affecting business results: As an enterprise operating mainly in the field of pollution treatment and domestic solid waste management activities, the companies are directly affected by Circulars, decrees, and legal documents regulating the environment and urban areas of Vietnam, such as the Law on Environmental Protection, corporate income tax policy for environmental protection activities (Decree 19 /2015/ND-CP)... Besides, they are also enterprises operating under the public companies model. Therefore, the companies are under the management and impact of general legal regulations such as Enterprise Law, Securities Law, Tax Law, Environmental Protection Law, Commercial Law. Currently, the mechanisms and policies of the state's incentive policies still need to be clarified and attractive enough to attract investors to participate in the environmental industry, and the system of legal documents on ecological protection still needs to be completed. Besides, the sanctions must be more assertive to deter those destroying the environment.

+ Need to prioritize profits to develop better treatment methods that can meet the more serious environmental problems arising from rapid economic growth.

When economic growth is too fast, the risk of environmental pollution is higher; there will be many difficulties in managing the amount of wastewater and emissions released into the environment, which means companies involved must continue to improve.

+ Costs increase without increasing revenue, causing resources to pay dividends to decrease:

Companies operating in the public service industry provide public service products according to orders, including environmental sanitation services, waste collection and transportation, maintenance and care, green flower gardens, maintenance and repairing public lighting, drainage and wastewater treatment. Therefore, the companies' main input costs will include the costs of gasoline, oil, electricity, water, and other costs as labour, which leads to changes in inflation, which will cause the companies' input costs to change, directly affecting the companies' business operations. Enterprise input costs can completely change, but agencies control the output service prices of most public services and depend on the general regulatory framework, leading to trade-offs with revenue and expenditure facing many difficulties.

+ In addition, several other challenging issues make it more difficult for the companies to maintain profits.

- Low awareness of environmental protection increases the time and cost of processing waste: Currently, most people need to pay attention to environmental protection in our country. According to

data from the General Statistics Office, in December 2023, across the country, authorities detected 1,588 cases of environmental violations, of which 1,085 cases were handled.

- Labor risks in operations increase costs: Currently, in our country, although regulations to ensure safety for workers have been given much attention, there are still many things that need to be improved. When companies operate in environmental and public services, most workers must perform outdoor work, so the weather dramatically affects them, often working in harsh environments. There is much toxic waste along busy traffic routes, leading to a very high possibility of accidents occurring to the companies' employees, and once an accident occurs, not only will the workers be affected, but even the companies' image will be negatively affected

+ Competitive risks reduce profits

Several private companies have appeared to operate in the same industry and field. Currently, the government has been encouraging the private sector to participate in performing public services through the application of bidding instead of appointing contractors, as before, and providing public services is no longer an industry of unique *permission*

5. Recommendations and solutions

For a group of waste collection and treatment companies to attract investment capital in the stock market through dividend policies, there need to be many comprehensive solutions from many stakeholders, supporting cost reduction. costs, further improving business efficiency, creating resource conditions for businesses to increase profits, encourage capital, continue to expand and contribute both economically and socially:

+ In terms of policy:

- According to international standards, The State must build a synchronous environmental management system in factories and industrial parks.

- The State continues to improve the legal system on environmental protection, including sanctions that must be strong to deter violators.

- It is necessary to supplement tax and fee policies, environmental funds and policies on applying cleaner technology. The technologies here are low-waste technology and waste treatment technology.

- Increase the use of economic tools. In management, authorities need to combine command management tools. Ensure equitable environmental benefits.

- Organize strict supervision towards a better environment.

+ To promote cooperation from people (customers of businesses)

- It is necessary to promote cultural movements for environmental protection. That is to restore, consolidate, and promote local traditions and preserve the hygiene of wards and neighbourhoods, like the movement to plant clean, beautiful trees.

- Raise awareness about environmental protection, throw trash in the right place, and do not litter indiscriminately.

- Educate and raise children's awareness about environmental protection.

- Encourage people to limit the use of cleaning chemicals when treating clogged drains because doing so will accidentally introduce new hazardous waste into the environment and poison the water source. Instead, use how to unclog a toilet and how to treat clogged drains with microorganisms.

+ Overall planning solution to create operating conditions for businesses

- The problem of population distribution: The overall solution to completely solve the problem of workers migrating to big cities to make a living is to develop big cities - the "destinations" of the population. Migration flows must focus on strongly developing "departure points" - small, peripheral and rural cities.

- The problem of planning waste collection and treatment points: Currently, the formation and development of waste collection and treatment points does not follow any specific planning and

+ Long-term solution:

The long-term and meaningful solution cannot be improving living conditions, employment opportunities and social services in the place of origin to prevent migration to large cities. People care about essential needs, such as employment, education and healthcare. If these concerns are met to a certain extent, it will also reduce the flow of migrants into Hanoi and big cities, hoping for a more secure and better life.

References:

Aivazian, V., Booth, L., Cleary, S., 2003. Do emerging market firms follow different dividend policies from U.S. firms? J. Financ. Res. 26, 371–387.

Allen, F., Michaely, R., 1995. Dividend policy. In: Handbooks in Operations Research and Management Science, vol. 9., pp. 793–837.

Baker, H.K., Farrelly, G.E., Edelman, R.B., 1985. A survey of management views on dividend policy. Financ. Manag. 14, 78–84.

Baker, H.K., Powell, G.E., 1999. How corporate managers view dividend policy. Q. J. Bus. Econ. 38, 17–35.

Boot, L., Aivazian, V., Demirguc-Kunt, A., Maksimovic, V., (2001). Capital Structure in Developing Countries. Journal of Finance, 1, 87-130.

Harris, M. & Raviv, A., (1990). Capital structure and the informational role of debt. Journal of Finance, 45, 321-49.

Hilson, G., Hu, Y., 2022. Changing priorities, shifting narratives: remapping rural livelihoods in Africa's artisanal and small-scale mining sector. J. Rural Stud. 92, 93–108. https://doi.org/10.1016/j.jrurstud.2022.03.010.

Ho, H., (2003). Dividend Policies in Australia and Japan. International Advances in Economic Research, 9 (2), 91-100.

Papadopoulos, D.L., Charalambidis, P.D., 2007. Focus on present status and determinants of dividend payout policy: Athens stock exchange in perspective. J. Financ. Manag. Anal. 20 (2), 24–37. Licastro, A., Sergi, B.S., 2021. Drivers and barriers to a green economy. A review of selected balkan countries. Cleaner Engineering and Technology 4, 100228.

Pearce, D., Markandya, A., Barbier, E., 2013. Blueprint 1: for a Green Economy

Rajan, R.G., Zingales, L., (1995). What do we know about capital structure? Some evidence from international data. Journal of Finance, 50,1421-1460.

Ren, X., Shao, Q., Zhong, R., 2020. Nexus between green finance, non-fossil energy use, and carbon intensity: empirical evidence from China based on a vector error correction model. J. Clean. Prod. 277 https://doi.org/10.1016/j. jclepro.2020

Sabat, K.C., Krishnamoorthy, B., Bhattacharyya, S.S., 2022. Green drivers and green enablers in pharmaceuticals supply chain: in the context of an emerging economy. renthttps://doi.org/10.1108/TQM-11-2021-0333

Titman, S., Wessels, R., (1988). The Determinants of Capital Structure Choice. The Journal of Finance, 43 (1), 1-19

IS POP-UP BANNER STILL WORKING?
THE IMPACT OF MULTITASKING ON CONSUMERS' RETENTION OF ADVERTISED CONTENT

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Abstract: *Multitasking and ill-adapted design are among the main reasons why mobile ad banner does not work. In this study, the authors manipulate the visual appearance of mobile ad banners to try to improve their performance. Cognitive theory of multimedia learning was employed to conduct an experiment with smartphone users. The results suggested that making the banner bigger and simpler would impair brand recall and recognition the most. It works the best with either simplified banner or complex larger banner. It seems that a slight mobilization of cognitive resources aids the processing of advertising information and boost recall and recognition. The usual small and cluttered banner suffered from the limited cognitive capacity during multitasking activities. This effect is moderated by age, with people over 30-year-olds being the most affected.*

• Keywords: *advertising, mobile, banner, visual, information processing, multitasking.*

1. Introduction

In 2016, 1.5 billion smartphones were delivered to the consumers, most of whom use the phone extensively along other activities. While this trend is unlikely to halt, the popular approach of the advertisers is still spray and pray. The whole functioning online advertising model is brought to the mobile, but at poorer level in terms of scale and complexity. With interfering activities competing for cognitive resources, processing performance suffers. Plenty researches have suggested that multitasking is in general detrimental to advertising success (Angell et al., 2016), which may explain why only few advertisers' clients are satisfied with their results. The only way to get the ad through the audience is to target the ad to highly involved consumer, or that the audience is motivated to process the ad (Angell et al., 2016; Bart et al., 2014). What about the other ad that directed to low involved and non-motivated one? Do they deserve to be left aside from the mobile rush?

With the large percentage of the market goods being unable to join the game, the mobile platform suddenly seems less attractive than it is supposed to be. Considering that industry experts are quite vocal on the desktop approach of advertising on mobile, the advertisers' way of handling banners is more likely to blame. This study explores a new mechanism to improve the advertising effect of banner in multitasking condition. This insight might aid the advertisers in designing and selecting the most appropriate format for specific medium and/or audience.

2. Theoretical background and hypotheses development

2.1. The cognitive theory of multimedia learning

The cognitive theory of multimedia learning is first proposed by Mayer and Moreno (2003). The theory is based on three assumptions of how the human mind process coming information: dual channel, limited capacity, and active processing. The first assumption is constructed based on the dual-coding theory and the theory of working memory, which states that the auditory and visual processor works separately and simultaneously. The second assumption, which is based on the cognitive load theory and working memory theory indicates that each information processing channel has limited capacity. The final assumption is based on the generative-learning theory and selecting-organising-integrating theory of active learning. It states that effective learning outcomes are the results of substantial cognitive processing in both verbal and visual channel, in which the received

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information is organised into a coherent structure and integrated with existing knowledge.

The cognitive model of multimedia learning is used by Mayer and Moreno (2003) to explain the phenomenon of Cognitive Overload, which is described as when the processing demands evoked by the presenting task exceed the processing capacity of the cognitive system. Mayer and Moreno (2003) categorised these processing demands into three kinds: essential processing, incidental process, and representational holding. Essential processing: the cognitive processes dedicated for making sense of the presented content, such as words, images, and their presentations. Incidental processing is the cognitive process used not on the main content but on the design and decorating parts of it, such as the narration, the decorating details, or the background music. And finally, representational holding is initiated to retain a mental representation of the material in the working memory, with the purpose of connecting several information at a time. The outcome of this process is the sum of these three: essential processing, incidental processing, and representational holding. Cognitive overloading occurs when the demand for processing exceeds the current available cognitive capacity (Mayer and Moreno, 2003), thus reduce the effectiveness of the processing outcome. Many studies (Mayer and Moreno, 2003) have shown that anything that adds demands on working memory (cognitive load) and is not essential for the general purpose will reduce the overall effectiveness of processing such information, even the artistic background graphics and peripheral interesting factors or stories.

2.2. Dual processing mode

A popular approach in describing how human process information is to category the function into a dual processing mode, or two different routes of processing. For instance, William James's theory of double processing basically proposes that the human brain is consisted of two separate processing system: System 1 for quick, intuitive reactions and System 2 for analytic, deliberate decisions. This has been the foundation for multiple studies attempting to explain how people behave, such as Chaiken's Heuristic Model or Petty and Cacioppo's Elaborated Likelihood Model. Accordingly, the interaction between the two systems is restricted in the case where system 2 is activated to interfere with the perceived faulty output from System 1. Consequently, the brain engages in a more effortful and analytical processing of the presenting stimuli. This mechanism is described as

a protective mechanism of the brain and is either deliberately activated based on motivation, self-evaluation or cognitive fluency (Alter et al., 2007).

In the latter case, fluently perceived information is more likely to be processed by the System 1, while the difficulty to process acts as a cue for the brain to activate System 2 for more elaborating thought (Alter et al., 2007). According to neuroscientist (Boksman et al., 2005), the disfluency triggers a part in the brain called the anterior cingulate cortex, which in turns activates the prefrontal cortex in charge of deliberative and effortful processing. This disfluency is also found to be more negatively judged than fluency. The participants exposed to less disfluency stimuli believe that they are more difficult and thus engage in analytical processing (Alter et al., 2007), which is more likely to correct their intuitive solutions and rely on the more elaborate and systematic thinking.

2.3. Proposed hypotheses

2.3.1. Theoretical Framework

Figure 1. Proposed theoretical framework
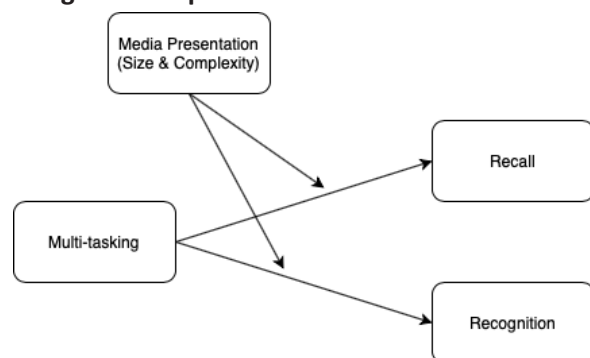
In the mobile advertising context, consumers are likely to span their resources on at least two things: a primary task, such as reading news or watching video, and a secondary task, the advertising banner itself. Previous research has found that engaging in more than one task at the same time will be detrimental to the effectiveness of the banner (Angell et al., 2016), unless there is a deliberate effort to process from the viewers such as high involvement to product (Bart et al., 2014). The author suspects that this ineffectiveness comes from the lack of sufficient cognitive resources to process the banners, most of which have already been spent on the primary task. The fact that advertisers still approach mobile banners in the same way as with desktop (Del Rey, 2012) implies an abundant of extraneous details on these banners, which demands way more cognitive resources than what is available. According to the

cognitive theory of multimedia learning, cognitive overloading is surely happening here and strongly impairs the overall impact of mobile banners. Based on the framework of Cognitive Theory of Multimedia learning, we propose a modified framework to better adapt to the advertising context.

2.3.2. Hypotheses

The author proposes that by weeding the extraneous details to limit the incidental processing and encourage essential processing (Mayer and Moreno, 2003), more cognitive resources can be spent on the actual banners content and thus, improve the overall processing output. Since this output cannot be measured directly, but indirectly via asserting its impact on the audience's memory, such as brand recall and recognition of details, the first hypothesis is as follow:

H1: Respondents will perform better in recall and recognition with simple banner with a smaller number of elements than with complex banner with a smaller number of elements in multitask condition.

In accordance with the cognitive fluency literature and the theory of double channels, the author also proposes that the size of the banner also play an important part in determining the processing outcome of the audience. Although there has been no study on the visibility of mobile banners, in which participants' distance to the screen varies greatly depending on individuals and situations, it is suspected that the small screen of the smartphone act as a cue for cognitive fluency, similar to the role of font size in Alter et al. (2007)'s first experiment. Hence, the brain probably perceives the smaller banner as harder to process and engage in a more systematic processing. The bigger banner, on the other hand, is more cognitive fluent and is handled by a more intuitive and less effortful processing. Consequently, its audience is subjected to a worse memory performance, notably in brand recall and recognition of details. Therefore, in current condition, the participants are expected to perform similar in recall and recognition regardless of banner size.

H2: There is no difference in ad recall between bigger ad banner and smaller ad banner in multitask condition.

Furthermore, when considering the two manipulations together, the author proposes that increasing cognitive loading in the disfluency condition further impair the processing of the banner. Because most cognitive resources are already spent on the primary task, the one that can be mobilized for

systematic processing should be very few. The limited nature of the cognitive resource pool does not allow additional resource to be generated. Furthermore, reallocation of resource is a heavy task and requires great flexibility, which degrades with age (Malcolm et al., 2015). In the big banner, having fewer details lowers the load on the cognitive capacity, as most resources would be focused on essential processing. Consequently, the audience is expected to score very well in terms of brand recall and recognition. Hence, we propose the third hypothesis:

H3: Respondents will perform better in ad recall and recognition with big - simple banner than with small - complex banners in multitask condition.

3. Methodology

This study employed a 2 (large vs small) x 2 (simple vs complex) between subject factorial design. Four experimental stimuli were created for the experiment based on one original banner from Colgate. Table 1 illustrates the four conditions, with the sizes of the banners being proportionally presented to the actual ad shown to the respondents.

Table 1. Experimental design

3.1. Pre-test

The author collected the high-resolution version of multiple Colgate mobile advertising banners from Google Image. In the first pre-test on Qualtrics, participants were asked to indicate their first viewing points, up to three. The results were generated into a heatmap. The chosen banner is the one that have no dominating attraction point, which can make the respondents ignore the other part of the banner due to inattentional blindness effect. The selected banner was then reverted colour and changed name from Colgate to Smile to avoid any residing attitude to influence the result such as loyalty. To create the simple version, we

removed the lower half and the text under the logo.

3.2. Measurement

To measure brand recall, we asked the respondents to type the brand name into a blank text box without any aid. Each response is then rated by the author to determine whether the respondent has correctly recalled the brand. For recognition, we show the full version of the banner to the respondents and asked them to click on the elements that they remembered seeing it. This produces a heatmap that shows which elements get the most attention, as well as more likely to be recalled and recognized by the respondents. Since our pre-test indicated that the banner's elements get equal attention, any change recorded will reflect how our manipulations influence the overall performance of the banner. We also measure the three variables: attitude toward the ad, attitude toward the brand, and intention to purchase to as control variables to make sure that the difference in memory performance was not caused by a variation of attitude and intention (Thorson et al., 1992). The measurements were adopted from previous studies, such as Attitude toward the Ad (MacKenzie and Lutz, 1989), Attitude toward the brand (Homer, 1990) and Intention to purchase (Karson and Fisher, 2005). The respondents end the pre-test by filling in the questionnaire asking for their biographical information, such as birth year and gender. By finishing the survey, each respondent is given a unique validation code to submit to the requester for payment.

3.3. Experimental procedure

The respondents are briefly introduced to the study and instructed to finish watching a video clip. All four versions are distributed equally and randomly across the sample population. The advertising banner popped up at the 14th second into the video and remain visible for a duration of 1.5 second then dissipate away. A hidden timer was set to ensure that the respondents see the ads and not skipping forward. Since the study is meant for smartphone users, an initial device checking and an explicit warning was set up with Mechanical Turks to filter out cheaters, who pretend to be on the phone to get the rewards and contaminate the database.

4. Results

4.1. Sample

The experiment was built upon Qualtrics platform and accessed the participants pool of Amazon Mechanical Turks. Previous findings (Paolacci et al., 2010) suggests that Amazon's workers are equivalent to the traditional participants in terms of behaviours, which make them suitable for cognitive experiments. With each worker having his/her unique ID, we can easily identify ones that already took part in the study and thus minimize the risk of contaminating the results. We selected only the workers from native English-speaking countries, eliminating the need of translating the questionnaire and the stimulus. One other advantage of using Mechanical Turks population is that they relatively represent the Internet users in the United States.

Out of more than 400 submissions to the Mechanical Turks' system, we collected in total 223 valid responses, with more than 60% being male. The sample covers the range of age from 18 to 68 years old. The dominant group of participants is in their 20s and early 30s (more than 60% was born after 1987). Most respondents identified themselves as salary person (75%), which fit the general description of Turks workers using the side to gain a complementary income (Paolacci et al., 2010). The sample characteristics are presented in Table 2.

Table 2. Sample characteristics

		Frequency	% of Total
Gender	Male	137	62.6
	Female	82	37.4
Age group (years)	≤ 30 (born in and after 1987)	78	36.8
	> 30 (born before 1987)	141	63.2
Occupations	Student	36	16.4
	Salary person	164	74.9
	Others	19	8.7

4.2. Scale reliability and control variables
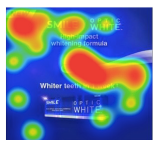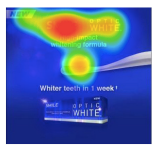
The author asserts the reliability of our scales by examining their Cronbach alpha values. Statistical results show that all three scales have their scores ranging from 0.849 to 0.917. This demonstrates a necessary level of reliability with alpha coefficient exceeding 0.7 (Hair et al., 1998). We follow Thorson and colleagues 's suggestion (Thorson et al., 1992) and run an ANOVA between four conditions to control whether the brand in the advertising banner has any influence on our respondents' attitude and intention. The result indicates no significant difference in attitude toward advertising, attitude toward the brand and purchase intention between the four conditions (p-value > 0.05). This ensures our respondents' recalls are not under influence of a positive attitude and intention.

4.3. Results

In big banner category, the more cluttered and complex design scores better in recognition than the

simple design. On the other hand, a simple design only works better in smaller format. Changing in ad size, as expected, gives a boost in brand recall with complex ad design, with nearly more 10% of exposed respondents correctly report the advertised brand. However, when scaling the simple ad down, we witness a 100% increase in brand recall (p-value < 0.01). The t-test results also suggest similarly when scaling down simple ad (p-value = 0.001) and adding elements to big ad (p-value = 0.014). This effect is not universal for all age group. When we control age group, in big ad banner, increasing the complexity of the design work better for young respondents under 30 years old (born after 1987). Reversely, simplifying the design only matters for the younger respondents, while having no obvious effect on the older respondents.

Table 3. Recognition results

	Small	Big
Complex		
Simple		

In the recognition task, the performances between big and small format seem to divert. In the small size, a complex design would attract the respondents' attention in the middle and top left section, which was not given the same attention in the simple design. Instead, the logo took almost all of respondents' attention. In the big size ad banner, we observed similar results. Most of respondents' attention was distributed to the centre and the top section. The respondents exposed to the complex design mostly ignored the Smile logo, and focused on the Optic White part, while the reversed happened with those saw the simple design. Interestingly, the lower part of the banner is almost invisible in the heat map in its small banner format but gained some attention when in the bigger size. We do not include this detail in the simple design, but nevertheless, a considerable number of respondents mistakenly recognized it in the bigger format. Table 3 summarizes the recognition results.

From the observed results, we can conclude that:

H1 is only partially supported. Under heavy cognitive loading condition, simplifying the banner only gave positive improvement on brand recall for smaller size banner, while deteriorated the impact of larger banner. However, we observed somewhat similar level of recognition on smaller banner, as the respondents correctly identified most of the displayed elements.

H2 is not supported. Since size manipulations clearly had observable effects on respondents' brand recall and ad recognition across all cases.

H3 is not supported. Quite the contrary, applying both manipulation results in the lowest percentage of respondents recalling the correct brand name. It appears that simplifying design only works in small size banner. Having fewer decorating details reduces the banner's recall rate when it is enlarged.

5. Discussion

Previous studies have found a detrimental effect on consumers' ability to recall brand while multitasking, caused by cognitive processing ability depletion in high demanding situation. By altering its visual characteristics, we found a way to improve the banner performance in terms of brand recall and ad recognition. Our findings complement those of Angell et al. (2016) on advertising in multitasking conditions in exploring how visual elements of the advertisement can influence its effectiveness in terms of retention and recognition. Even though previous studies agree on the detrimental effect of multitasking, our study suggests multiple directions for improvements.

Firstly, our results confirm that only manipulating size or complexity does not have any effect on its effectiveness (Varan et al., 2013). We observed contradicting effects of size on recall rate, in which shrinking the simple design brought a 100% increase but doing the same for the complex design resulted in a slight decrease. Similarly, reducing the number of visual elements did not always result in a boost in recall. Weeding the decorating elements of the small banner improved its brand recall from 45% to 61% but doing the same for the big banner led to a severe drop. Strangely, it goes against the principle of the theory of multimedia learning (Mayer and Moreno, 2003), which dictates that reducing the cognitive load via discouraging incidental processing of the decorating visual elements and encouraging the essential processing will result in better decoding of the message. At this point, it is obvious that mobile advertising banners' effectiveness depends on the combined impact of both banner's size and its number of visual elements.

On the other hand, downsizing the complex banners has detrimental effect on its recall rate. Following the same principle of cognitive disfluency (Alter et al., 2007), issue in viewability probably trigger a reaction in the prefrontal cortex, whose function as an alarm leads the brain to engage in a more systematic processing. Consequently, more cognitive resources are drawn toward the processing of the small-complex banner, most of which are already spent on the primary task, the video. This limited resources, again, must be dissipated among the essential processing, incidental processing and representational holding processing, in order to make sense of the banner (Mayer and Moreno, 2003). Thus, each individual stimuli were processed less than if there were fewer of them, leading to a shallower process and weaker memory retention (Craik and Tulving, 1975). Our recognition results also suggest that in the small-complex design, the hot zone in the brand region has a lighter colour than in the big-complex design. In fact, it seems that the "New" tag at the left side of the banner has drawn away the attention and processing resources of the respondents from the brand logo. This situation could have been avoided if there were fewer competing elements included in the design.

Furthermore, this effect is not significant for the respondents of under 30-year-olds. Considering that older adults are slower than the younger in multitasking and aging is negatively correlated with ability to allocating attention across multiple domains (Malcolm et al., 2015), it makes senses that older people show less flexibility in adapting to cognitively demanding tasks during multitasking. It is also possible that the respondents under 30 years old are more familiar with using mobile devices in parallel with other tasks, since the smartphone is only proliferated in the recent years. Multitasking can be very inefficient during non-familiar task (DeShon et al., 1996), thus giving the young respondents an upper hand in this situation.

The higher recall rate and its correlation with the concentration of red zone suggest that our respondents process these parts more, due to perceived cognitive disfluency mobilizing the available resources, optimized with an appropriate visual design. This finding confirms that of Alter et al. in mobile advertising context, in which perceived processing difficulty in stimuli's viewability serves as the cue to engage in deeper reasoning. They suggest the failure of hedonic and low involvement products' banners in mobile (Bart et al., 2014) is due to automatic engagement of system 2, which annule the intuitive and associative decisions of system 1. The study contributes to the understanding of how advertising effectiveness can vary between different formats and of potential improvements.

6. Conclusion

The current study explores the mechanism in which advertising banner's size and complexity influence consumers' perception and judgement. Based on the cognitive theory of multimedia learning, our results show that increasing the size of advertising banner does not help consumers process its content. Decreasing a detail-packed banner induces the consumers to allocate processing resources, thus improve the outcome of the advertisement. Our results enable advertising practitioners to actively adjust their advertising banner to fit the situation or the display medium. For instance, an advertisement meant for small handheld devices should be packed with more details. Or a bigger device, like an iPad, would be a better advertising environment for simpler design. Despite the significant contribution, our study still contains inevitable limitations. Firstly, the complete advertising banner used for respondents to pinpoint the remembered details may be used as a cue for recall. Secondly, online survey environment is not as tightly controlled as in the laboratory. Certain respondents could have been interrupted during the recall task.

References:

Alter, A.L., Oppenheimer, D.M., Epley, N., Eyre, R.N., 2007. Overcoming Intuition: Metacognitive Difficulty Activates Analytic Reasoning. Journal Of Experimental Psychology: General 136, 569–576.

Angell, R., Gorton, M., Sauer, J., Bottomley, P., White, J., 2016. Don't Distract Me When I'm Media Multitasking: Toward a Theory for Raising Advertising Recall and Recognition. Journal of Advertising 45, 198–210. https://doi.org/10.1080/00913367.2015.1130665

Bart, Y., Stephen, A.T., Sarvary, M., 2014. Which Products Are Best Suited to Mobile Advertising? A Field Study of Mobile Display Advertising Effects on Consumer Attitudes and Intentions. Journal of Marketing Research 51, 270–285. https://doi.org/10.1509/jmr.13.0503

Boksman, K., Théberge, J., Williamson, P., Drost, D.J., Malla, A., Densmore, M., Takhar, J., Pavlosky, W., Menon, R.S., Neufeld, R.W.J., 2005. A 4.0-T fMRI study of brain connectivity during word fluency in first-episode schizophrenia. Schizophrenia Research 75, 247–263. https://doi.org/10.1016/j.schres.2004.09.025

Craik, F.I.M., Tulving, E., 1975. Depth Of Processing And The Retention Of Words In Episodic Memory. Journal Of Experimental Psychology: General 104, 268–294.

Del Rey, J., 2012. Will Mobile's Massive Growth Ever Equal Real Revenue?

DeShon, R.P., Brown, K.G., Greenis, J.L., 1996. Does self-regulation require cognitive resources? Evaluation of resource allocation models of goal setting. Journal of Applied Psychology 81, 595–608. https://doi.org/10.1037/0021-9010.81.5.595

Hair, J.F., Anderson, R.E., Tatham, R.L., Black, W.C., 1998. Multivariate Data Analysis, 5th ed. Prentice-Hall, New Jersey.

Homer, P.M., 1990. The Mediating Role Of Attitude Toward The Ad: Some Additional Evidence. Journal Of Marketing Research 27, 78–86.

Karson, E.J., Fisher, R.J., 2005. Reexamining and extending the dual mediation hypothesis in an on-line advertising context. Psychol. Mark. 22, 333–351. https://doi.org/10.1002/mar.20062

MacKenzie, B.S., Lutz, R.J., 1989. An empirical examination of the struc- tural antecedents of attitude toward the ad in an advertising pretesting context. Journal of Marketing 53, 48–65.

Malcolm, B.R., Foxe, J.J., Butler, J.S., De Sanctis, P., 2015. The aging brain shows less flexible reallocation of cognitive resources during dual-task walking: A mobile brain/body imaging (MoBI) study. NeuroImage 117, 230–242. https://doi.org/10.1016/j.neuroimage.2015.05.028

Mayer, R., Moreno, R., 2003. Nine Ways To Reduce Cognitive Load In Multimedia Learning. Educational Psychologist 38, 43–52.

Paolacci, G., Chandler, J., Ipeirotis, P.G., 2010. Running experiments on Amazon Mechanical Turk. Judgm. decis. mak. 5, 411–419. https://doi.org/10.1017/S1930297500002205

Thorson, E., Chi, A., Leavitt, C., 1992. Attention, Memory, Attitude, And Conation: A Test Of The Advertising Hierarchy, in: John F. Sherry, J. & Sternthal, B. (Eds.). Presented at the Na - Advances In Consumer Research, Association For Consumer Research, Provo, UT.

Varan, D., Murphy, J., Hofacker, C.F., Robinson, J.A., Potter, R.F., Bellman, S., 2013. What Works Best When Combining Television Sets, PCs, Tablets, or Mobile Phones?: How Synergies Across Devices Result From Cross-Device Effects and Cross-Format Synergies. JAR 53, 212–220. https://doi.org/10.2501/JAR-53-2-212-220

THE POWER OF SCALE MODERATES FACTORS AFFECTING LIQUIDITY RISK: EVIDENCE FROM AN EMERGING ECONOMY

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Abstract: The article examines the impact of factors affecting liquidity risk, explicitly exploring how bank size moderates this relationship. Employing SGMM regression on panel data encompassing 25 Vietnamese commercial banks from 2010 to 2022, the analysis reveals that bank size, credit risk, and reliance on external funding sources elevate liquidity risk levels. Conversely, equity, profitability, and liquid assets mitigate liquidity risks for banks. Notably, the moderation effect of scale demonstrates that bank size plays a crucial role in liquidity risk management, exerting a substantial influence on other factors. The effect of scale overwhelms the impact of profits, capital, credit risk, and external financing on liquidity risk and strengthens the power of liquid assets to reduce liquidity risk. These findings suggest implementing management policies to curb liquidity risks in the bank's operational endeavours.

1. Introduction

Customer deposits constitute a significant portion of a bank's total asset. When a bank cannot fulfil its debt obligations as they come due or meet its debt obligations at a cost higher than the market average, it faces liquidity risk (Joel, 2015). The danger lies in the fact that when liquidity risk materializes, it can likely lead the bank to bankruptcy and create a crisis within the banking sector. Realities from the global financial crisis of 2007-2009, the Euro area crisis, and the recent banking crisis in the United States have highlighted the importance of liquidity in financial markets and the banking sector. These events serve as a stark reminder to banks with inadequate liquidity that they must revise their policies to become more adept at minimizing or evading the risk of bankruptcy during similar crises. Regulatory bodies in various countries have introduced numerous banking management regulations to mitigate liquidity risk damaging depositors, the state, and society. In line with this spirit, the Basel Committee on Banking Supervision introduced Basel III, a set of enhanced regulations on liquidity management designed to guide banks to prioritize liquidity risk management because a liquidity shortfall at a single bank can trigger systemic repercussions. In extreme scenarios, a collective surge in liquidity demand can trigger bank runs by depositors, posing a systemic collapse risk (Diamond & Dybvig, 1983). Research by Aiyar

(2012) underscores the severe impact of liquidity risk on bank viability.

Numerous factors contribute to liquidity risk, encompassing bank-specific elements like total asset size, capital, credit quality, deposits, and industry-related factors such as industry size and banking concentration. Additionally, macroeconomic factors like economic growth, inflation, and money supply play a role. Various studies, including those by Leykun (2016), Zaghdoudi & Hakimi (2017), and Mohammad et al. (2020), delve into the level and direction of influence exerted by these factors on liquidity risk. Among these factors, scale is considered pivotal. Rose (2008) notes that banks tailor their liquidity management strategies according to their scale, with larger banks often favour borrowing-based approaches while smaller banks opt for asset liquidity management. This article contributes to the ongoing research on liquidity risk factors by investigating how bank size moderates the impact of these factors on liquidity risk. Drawing on data from an emerging economy like Vietnam, the study reveals that bank size profoundly influences the effects of capital, credit risk, profits, liquid assets, and external financing on liquidity risk.

2. Literature review

The academic literature has conducted many studies examining liquidity factors. Goddard et al. (2009)

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argue that larger bank size will reduce bank liquidity. Large-scale banks often tend to be more adventurous, boldly accepting investments in profitable assets with high risk and the expectation of increasing profits. Venture investment leads to potential risks, especially banks' liquidity risk. However, the study of Akhtar et al. (2011) had the opposite result, showing that bank size positively correlates with creating liquidity, implying that the larger the bank's total assets, the more liquidity and reduced liquidity risk. Like this argument, Mugenyah's (2015) study of liquidity in Kenyan banks found that bank size negatively influences liquidity risk. The more significant the asset scale, the more competitive advantages the bank has in the market that reduce liquidity risk. Zaghdoudi & Hakimi (2017) used data from 10 Tunisian banks observed between 1990 and 2015 to study the determinants of liquidity risk. The estimation results show that the size of Tunisian banks has a negative and significant impact on liquidity risk. Large banks face less liquidity risk than small banks. The larger the scale of banks, the better their liquidity position and the lower their liquidity risk (Ahamed, 2021). Another line of argument is the study of Jedidia et al. (2015), which studied the determinants of Islamic banks' liquidity risk in MENA and Southeast Asian countries from 2004 to 2012. This study argued that bank size probably does not matter because Islamic banks, large and small, face difficulty managing liquidity risks.

Between profits and liquidity, Berger's (1995) research shows that banks with low profits will focus on investing in high-risk portfolios to improve profits. They have the motivation to reduce the proportion of liquid assets, increase the proportion of earning assets and accept high liquidity risks. Meanwhile, banks with high profits will focus on safety and limit excessive credit growth, enhancing more liquid assets (Bunda & Desquilbet, 2008). The bank's equity is guaranteed to build customer trust, promote Public Confidence, provide Funds for Growth, and give a Cushion Against the Risk of Failure. Vodová's (2011) study identifies the determinants of liquidity of commercial banks in the Czech Republic from 2001 to 2009, showing that bank liquidity increased with higher capital adequacy. Mugenyah (2015) examined the factors determining liquidity risk for 43 commercial banks in Kenya from 2010 to 2014. The regression analysis results show that the capital adequacy ratio positively impacts liquidity. Leykun's (2016) study on the determinants of liquidity risk of commercial banks in Ethiopia provided analytical results showing that capital adequacy ratio, loan scale and mobilization negatively

affect liquidity risk. These variables are considered the most critical factors determining the liquidity position of commercial banks. Studies argue that if banks maintain stable equity capital, that guarantees the bank's liquidity, and a decline in equity capital can cause a lack of liquidity and lead to failure. In addition to factors demonstrating financial capacity, loan scale greatly influences liquidity. If banks focus a lot on lending and seeking profits, they are ready to lower credit conditions when they expand the loan scale. The significant credit growth leads to encountering more bad customers, thereby increasing credit risk. In addition, excessive lending expansion, taking off all mobilized sources, causes a liquidity shortage. Some studies have recommended that banks have measures to balance mobilization, credit, and profit goals (Goddard et al., 2009; Plochan, 2007; Goodhart, 2008).

The macroeconomic environment has a significant impact on bank liquidity. Lucchetta (2007) analyzes how interest rates affect banks' risk-taking and liquidity-holding decisions in European countries. The financial crisis on the liquidity of commercial banks in Latin American and Caribbean countries suggests that cyclical downturns will reduce banks' expected demand for transaction funds and thus lead to reduced liquidity (Moore, 2009). On the contrary, in a booming economy, the demand for loans from individuals and businesses increases. Banks expand their credit scale to increase their opportunities to seek profits, which will cause them to face liquidity problems (Al-Homaidi, 2019; Gautam, 2016; Vodova, 2011). A study by Sheefeni & Nyambe (2016) on the macroeconomic determinants of commercial bank liquidity in Namibia found a negative relationship between inflation and liquidity, while the relationship between gross domestic product and liquidity is positive. Results imply that economic development increases the mobilization capacity of banks to provide capital for the needs of the financial market (Naoaj, 2023). On the contrary, high inflation causes banks to reduce rates of return in terms of money and asset holdings. Inflation causes a redistribution of income that favours borrowers and disadvantages lenders. Inflationary pressures make banks limit credit and hold more liquid assets, reducing the bank's liquidity risk (Zaghdoudi & Hakimi, 2017; Tan & Kong, 2018; Ahamed, 2021).

Empirical studies show that bank-specific and macro factors affect bank liquidity, but studies have not considered the impact of scale on this relationship. The research results presented below show exciting things about the regulation of scale. Bank size can change the influence of profits,

capital, credit risk, and external funding sources on liquidity risk.

3. Research models

First, the article examines internal and external factors affecting bank liquidity using equation (1). The next step is to perform the role of scale as a moderate variable in the relationship of factors with liquidity using equation (2).

$$FGAP_{it} = \lambda_0 + \lambda_1 SIZE_{it} + \lambda_2 ROE_{it} + \lambda_3 CAP_{it} + \lambda_4 LTR_{it} + \lambda_5 LAR_{it} + \lambda_6 EFD_{it} + \lambda_7 GDP_t + \lambda_8 INF_t + e_{it} \quad (1)$$

$$FGAP_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 ROE_{it} + \beta_3 CAP_{it} + \beta_4 LTR_{it} + \beta_5 LAR_{it} + \beta_6 EFD_{it} + \beta_7 SIZE*ROE_{it} + \beta_8 SIZE*CAP_{it} + \beta_9 SIZE*LTR_{it} + \beta_{10} SIZE*LAR_{it} + \beta_{11} SIZE*EFD_{it} + \beta_{12} GDP_t + \beta_{13} INF_t + \varepsilon_{it} \quad (2)$$

The dependent variable is the funding gap (FGAP), representing the bank's liquidity, measured by the difference between outstanding credit and deposits. Banks with wide funding gaps represent high liquidity risks and vice versa. Independent variables include bank size (SIZE), return on equity (ROE), equity size (CAP), and loan size (LTR) representing credit risk, high liquidity asset (LAR), and external funding source (EFD). The model uses macroeconomic growth (GDP) and inflation (INF) as control variables.

4. Research hypotheses

Based on previous studies, the article makes the following hypotheses.

Hypothesis H1: Bank size (SIZE) has a positive impact on liquidity risk.

Hypothesis H2: Profitability (ROA) has a negative impact on liquidity risk.

Hypothesis H3: The effect of capital (ROE) on liquidity risk is positive

Hypothesis H4: Credit size (LTR), representing credit risk, positively impacts liquidity risk.

Hypothesis H5: A high liquidity assets ratio (LAR) is negatively related to liquidity risk.

Hypothesis H6: External financing (EFD) is positively related to liquidity risk.

5. Data sources and descriptive statistics

Data was collected from audited financial statements of 25 Vietnamese commercial banks from 2010 to 2022. The data obtained is strongly balanced panel data, with 300 observations. The statistical description table (Table 1) shows the mean, standard

deviation, minimum, and maximum values of the equation (1) variables. Specifically, the liquidity gap (FGAP) has an average value of -0.0827, showing that the average level of loans is higher than deposits. The Mean of FGAP assesses that the banking system is generally in a state of liquidity shortage and high liquidity risk. However, the maximum value is 0.5450, and the minimum value is -0.3856, showing that some banks have pretty high liquidity and some banks have a significant liquidity shortage, so there is a need to regulate their liquidity. For bank size (SIZE variable), the average value is 18.7065, the smallest value is 16.5136, and the maximum value is 21.4749, showing that the number of small-sized banks is more than that of large-sized banks.

Table 1. Statistical description of variables

Variables	Obs	Mean	Standard deviation	Minimum	Maximum
FGAP	300	-0.0827	0.1190	-0.3856	0.5450
SIZE	300	18.7065	1.1697	16.5136	21.4749
ROE	300	0.0955	0.0862	-0.8200	0.2682
CAP	300	0.0946	0.0598	0.0406	0.9077
LTR	300	0.5649	0.1224	0.1448	0.7880
LAR	300	0.0100	0.0088	0.0025	0.0846
EFD	300	0.6418	0.6649	0.0000	4.2489
GDP	300	0.0589	0.0154	0.0258	0.0802
INF	300	0.0509	0.0447	0.0063	0.1868

6. OLS regression pretests

The article tests Variance Inflation Factors (VIF), correlation matrix and normal distribution to control multicollinearity and normal distribution of residuals, ensuring that model regression results are unbiased and reliable. The variance inflation factor has functions to measure the correlation and strength of the correlation between variables in the model. Last row belowTable 2 presents the results of the largest VIF being 1.51 (SIZE) and the smallest being 1.02 (GDP), with the mean of 1.21 being less than 10; these values indicate that multicollinearity does not occur in the model (1).

Table 2. Correlation matrix

Biến	FGAP	SIZE	ROE	CAP	LTR	LAR	EFD	GDP	INF
FGAP	1								
SIZE	0.1822***	1							
ROE	0.2830***	0.4862***	1						
CAP	0.0668	-0.2402***	-0.1004	1					
LTR	0.5046***	0.3589***	0.2923***	-0.0048*	1				
LAR	-0.0291	0.0148*	0.0526*	0.0422	-0.0541	1			
EFD	0.0387*	0.0658*	0.0281*	-0.1819***	-0.3064***	-0.1078*	1		
GDP	-0.0788*	-0.0414	-0.0419	0.0455*	-0.0698*	0.0119	-0.0019	1	
INF	0.2156***	0.1175*	0.2006***	-0.0201*	0.0967	-0.0346	-0.0886*	0.0832*	1
VIF	(Mean 1.21)	1.51	1.39	1.10	1.37	1.03	1.21	1.02	1.07

*Note: *, **, ***: indicate the statistical significance at 10%, 5% and 1%.*

The correlation coefficient is a statistical measure of the strength of the relationship between two variables. The correlation matrix results (Table 2) show that the correlation between pairs of variables in

the model (1) is relatively low. The highest is 0.5046, lower than the allowed level of 0.8. Thus, the level of pairwise correlation does not seriously affect the regression results.

7. SGMM estimation

The author uses the System Generalized Method of Moments (SGMM) to control and handle the phenomenon of variance, autocorrelation and endogenous variables of the model. The SGMM estimation results (Table 3) are unbiased and stable by the AR(2) test, Hansen test, and Sagan test; all have P-values> 10%, and the number of instrumental is less than or equal to the number of groups. Therefore, the following discussion based on the estimation results presented in Table 3 is reliable.

Table 3. SGMM estimation results

Dependent Var.: FGAP	(1) Model 1	(2) SIZE*ROE	(3) SIZE*CAP	(4) SIZE*LTR	(5) SIZE*LAR	(6) SIZE*EFD
L.FGAP	0.5447***	0.3533**	0.1069	0.4183***	0.3617***	0.4951***
	(0.000)	(0.013)	(0.555)	(0.000)	(0.001)	(0.002)
SIZE	0.0534**	-0.0497	0.1654***	0.1912**	0.1494***	0.0196
	(0.017)	(0.133)	(0.002)	(0.013)	(0.000)	(0.013)
ROE	-0.7159**	-12.1478***	-0.7874*	-0.0860	-0.1077***	-0.1491
	(0.054)	(0.002)	(0.096)	(0.662)	(0.563)	(0.588)
CAP	0.1896	0.0609	-18.0443**	-0.2330	0.0881	-0.1954*
	(0.366)	(0.807)	(0.020)	(0.339)	(0.753)	(0.072)
LTR	1.1163***	0.6995***	0.9952***	5.4887**	0.6038***	0.3870**
	(0.000)	(0.001)	(0.000)	(0.014)	(0.004)	(0.024)
LAR	-8.7515**	-7.6154*	-11.5872*	-7.3743**	-12.5606***	-5.0544*
	(0.036)	(0.056)	(0.055)	(0.034)	(0.006)	(0.061)
EFD	0.1922***	0.0903***	0.1558***	0.0952***	0.1113**	1.0326***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.027)
GDP	-0.3340	-0.3437	-0.8371*	-0.0791	-0.5597*	-0.4536*
	(0.140)	(0.253)	(0.056)	(0.654)	(0.088)	(0.003)
INF	0.5312***	0.5852***	0.6399***	0.4347***	0.2426*	0.1528**
	(0.004)	(0.001)	(0.002)	(0.003)	(0.070)	(0.049)
SIZE*ROE		0.6258***				
		(0.002)				
SIZE*CAP			0.8732**			
			(0.019)			
SIZE*LTR				-0.2586**		
				(0.025)		
SIZE*LAR					-11.2834***	
					(0.005)	
SIZE*EFD						0.0570**
						(0.024)
_cons	-1. 6641***	-0.4755	-3.8271***	-3.9938***	-3.2643***	-0.5660
	(0.000)	(0.530)	(0.001)	(0.008)	(0.000)	(0.442)
Number of observations	275	275	275	275	275	275
Number of instruments	23	22	22	23	23	23
Number of groups	25	25	25	25	25	25
AR(2) test	0.981	0.459	0.652	0.889	0.847	0.713
Sagan test	0.730	0.610	0.726	0.324	0.322	0.303
Hansen test	0.625	0.494	0.703	0.193	0.553	0.739

*Note: *, **, ***: indicate the statistical significance at 10%, 5% and 1%.*

Bank size effect on liquidity risk

The estimated model results indicate that bank scale has a statistically significant positive impact on liquidity risk at a 5% significance level. With this outcome, the alternative hypothesis (H1) is accepted. The research findings suggest that as the scale of a bank increases, its liquidity decreases. Larger banks tend to expand lending activities to enhance profit-seeking opportunities by concentrating resources on profitable assets. Leveraging their reputation and scale advantage, they borrow when liquidity needs arise, widening the liquidity gap and consequently increasing liquidity risk.

Bank size moderates effect of financial performance on liquidity risk

The estimation results in Table 3, column 1, reveal an inverse relationship between profitability (ROE variable) and liquidity risk. The implication is that banks with higher profits serve as internal liquidity providers, thereby reducing liquidity risk. Furthermore, the results in Table 3, column 2, regarding the variable *SIZE*ROE demonstrate statistical significance, indicating that bank size moderates the impact of financial efficiency on liquidity risk. The positive coefficient of the SIZE*ROE variable suggests that the effect of scale amplifies the positive effect of economic efficiency, resulting in a simultaneous positive impact of the SIZE*ROE variable. This finding indicates that although banks rely on retained profits to mitigate liquidity risk, the strategic choice of leverage-based liquidity management holds greater significance.

Bank size moderates effect of bank equity on liquidity risk

The research model results indicate that the scale of equity capital has an inverse impact on bank liquidity risk, aligning with hypothesis H3. A larger equity capital scale reflects the bank's financial capacity, serving as the basis for banks to enhance their reputation in external capital mobilization, promptly offsetting liquidity when necessary, thus reducing liquidity risk. However, the variable *SIZE*CAP demonstrates statistical significance, evidencing the moderating effect of bank scale on the strength of the impact of capital on liquidity risk. Once again, the positive interaction term of SIZE*CAP demonstrates the more substantial impact of scale on liquidity risk than capital alone. It also reinforces the strength of liquidity strategy relying on borrowing, holding fewer liquid assets, concentrating resources on income-generating assets, and accepting higher liquidity risk.

Bank size moderates effect of credit scale on liquidity risk

The research findings reveal that the scale of credit (LTR variable) has an inverse impact on bank

liquidity risk with a statistically significant level of 1%, yielding a positive regression coefficient, thus supporting hypothesis H4. A bank with a large credit scale experiences heightened credit risk, consequently escalating liquidity risk, indicating a strong influence of credit risk on liquidity risk. Banks pursuing profit goals increase their credit scale since lending activities constitute a primary income source. However, expanding lending exposes banks to the risk of encountering bad borrowers with poor repayment capabilities, elevating credit and liquidity risks. The interaction variable LTR*SIZE reflects the moderating effect of scale on the relationship between credit risk and liquidity risk, displaying a negative regression coefficient with a statistically significant level of 1%. The interaction variable results indicate that larger banks mitigate the spill-over effect of credit risk on liquidity risk. Leveraging their substantial scale, these banks establish a solid financial foundation to reduce the likelihood of liquidity risk as they expand their lending scale. In practice, it's observed that larger banks, when increasing their lending scale, allocate more financial resources to lending rather than focusing on liquid assets. Bank liquidity primarily relies on borrowing from the market, and with large scale, banks efficiently pursue this liquidity management strategy.

Bank size moderates effect of liquidity asset on liquidity risk

The research model results indicate that liquidity assets (LAR variable) have an inverse impact on FGAP, demonstrating that when banks hold more liquid assets, the bank's liquidity risk decreases, aligning with hypothesis H5. However, the interaction variable SIZE*LAR results are negative and statistically significant, revealing an intriguing implication. It suggests that larger banks are more likely to face higher liquidity risk than smaller ones. However, when large banks implement liquidity management policies by increasing reserves of highly liquid assets, the bank's liquidity risk is likely to decrease. Cash and cash equivalents, deposits at central banks, are always considered the most liquid assets, ensuring the bank's financial strength for payment commitments. However, liquidity assets and profitability are two factors that trade-off against each other. Holding too many liquid assets may force the bank to reduce income-generating assets, depleting resources for profit-seeking business operations and thus diminishing financial efficiency.

Bank size moderates effect of external funding on liquidity risk

The research model's results indicate that external borrowing has a positive impact on bank liquidity risk, with a statistically significant level of 5% and a regression coefficient of 1.0326. This finding is consistent with hypothesis H6. However, the interaction variable SIZE*EFD exhibits statistical significance, revealing the moderating effect of bank size on the influence of external funding dependence (EFD) on liquidity risk. The positive coefficient of the SIZE*EFD variable suggests that larger banks face higher liquidity risk when they rely more on external funding sources.

8. Conclusion and recommendations

Using the SGMM estimation method on data from 25 commercial banks from 2010 to 2022, the article assesses the regulatory role of scale on liquidity risk factors. The estimation results indicate that factors increasing liquidity risk include bank scale, credit risk, and external funding sources, while capital, profitability, and liquidity assets help banks mitigate liquidity risk. Intriguing implications emerge when employing scale as a moderator variable in the relationship between capital, credit risk, profitability, liquidity assets, external funding sources, and liquidity risk.

Firstly, although profitability reduces a bank's exposure to liquidity risk, the magnifying effect of scale on liquidity risk remains more significant than the impact of profitability. *Secondly,* while capital provides a buffer against failure risk, bank scale predominates the influence of capital on liquidity risk. *Thirdly,* the bank scale can alleviate the pressure of credit risk on liquidity risk. *Fourthly,* as larger banks bolster investments in liquid assets, they face fewer liquidity risks. *Fifthly,* reliance on external funding sources increases the likelihood of liquidity risk emergence for banks, with more severe liquidity risks observed in larger banks.

Based on these findings, the author recommends that commercial banks enhance scale by augmenting equity capital, retaining profits, or merging to leverage scale advantages, thus improving competitiveness and minimizing liquidity risk.

References:

Leykun, F. (2016). Determinants of commercial banks' liquidity risk: Evidence from Ethiopia. Research journal of finance and accounting, 7(15), 47-61.

Lucchetta, M., 2007. What Do Data Say About Monetary Policy, Bank Liquidity and Bank Risk Taking?. Economics Notes by Bcmca Monte dei Paschi di Siena SpA, 36:189-203.

SOLUTIONS FOR DEVELOPING BRAND OF UNIVERSITIES IN HO CHI MINH CITY

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Abstract: This article studies the reality of brand equity of some universities in Ho Chi Minh City. As a ressult, the research's author proposes 05 groups of solutions to develop the brands of universities in Ho Chi Minh City: Increase brand awareness for customers; Enhance the operational efficiency of the brand development team; Strengthen internal communication activities; Enhance communication activities to customers; Protect the brand.

• Keywords: *brand, universities in Ho Chi Minh City.*

1. Introduction

Apparently, the international and domestic context both creategreat opportunities and pose significant challenges for universities in Vietnam in general and Ho Chi Minh City in particular (Nguyen Nam Hai, 2013). In addition, enhancing the brand equity value of universities is an issue that is of concern to the State and society, and is considered a basic solution to tackle economic- social problems (Davidsson, 1995). As a result, the question of identifying the solution to improve the value of brand equity and factors affecting the brand equity of universities is still an unanswered question.

Therefore, in order to boost up brand equity, universities in Ho Chi Minh City need to have reasonable policies to be able to provide useful solutions to overcome existing and limited aspects. Being able to pinpointing factors affect the brand equity of universities in Ho Chi Minh City can not only help schools have more operational directions as well as strategies and development orientations in the future but also become a foundation for evaluating whether the policies of relevant organizations are effective or not. Hence, researching solutions to develop brand assets of universities in Ho Chi Minh City is actually necessary.

In the current context of Vietnam's educational service industry, identifying and measuring customer-based brand assets for universities is extremely inevitable. However, in Vietnam till now, there has not been any academic research on brand equity in the field of educational services. A rare study in this field in the country was conducted by the author group consisting of Mai Thi Hong Nhung and colleagues (2020) to build a measurement scale of student-based brand equity for universities.

2. Literature review

According to Knapp (2000), a brand is the synthesis of all impressions, felt by customers and consumers, drawn from visual and mental distinctive positioning based on emotions and perceived functional benefits. According to

David Aaker (1991), brand assets are regarded as a set of intangible assets associated with the brand name and symbol, which contribute to increasing or decreasing the value of products and services.

In reality, the concept of university brand equity is understood in a similar way to product brand equity. Keller (1996) mentioned that university brand equity is actually a form of brand equity. As a result, the structure of university brand equity is parallel to the concept of brand equity. Hartman and Spiro (2005) define university brand equity as the differential effect of service knowledge based on customer responses to the university's marketing activities. Student reactions also include purchase intentions (Jinfeng and Zhilong, 2009). Moreover, Pappu and colleagues (2006) define that university brand equity from the perspective of students is reflected through aspects such as awareness of the university, association with the university, and perceived quality about service and loyalty.

According to Farquhar (1989), brand equity is the added value for businesses, distributors, or customers because of the things that the brand brings to the product. Srivastava and Shocker (1991) indicate that brand assets are all the associations and behaviors of customers, distribution channel members, parent companies, etc, that can create sales volume as well as the added benefits for branded products compared to unbranded products.

In fact, enhanced experience and use of training services is achieved when a consumer interacts with the physical environment along with employee systems as well as business policies and practices (Brakus, Schmitt and Zarantonello, 2009). Each of these experiences plays a crucial role in service brand management because school brands are often more multi-sensory in nature than product brands and can rely on the rich experiences of consumers to influence their budgets (Ailawadi and Keller, 2004). Futhermore, brand is one of the most valuable intangible assets of businesses, especially service businesses.

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Enhancing brand equity has emerged as a top management priority over the past decade. Due to its unique competitive nature, enhancing brand equity is especially vital in the service industry to influence customer perception and subsequently purchasing choice and loyalty.

Along with socio-economic development, educational activities, especially higher education, have long mentioned the concept of "higher education brand" as an inseparable element. Neverhteless, the concept of "higher education brand" has unique characteristics compared to other brand concepts. Specifically, McNally and Speak (2002) define a university brand as "the feelings or emotions that a purchaser, or a future purchaser, describes and holds experiences related to exposure to the products and services of a training facility". Bulotaite (2003) believes that when mentioning the name of a university, it will immediately evoke "associations, emotions, images and appearances". Therefore, the task of building a university brand is to "preserve, manage and develop those impressions".

According to David Acker, brand assets (from the customer's perspective) are a collection of intangible assets associated with the name and symbol of a brand. It contributes to increasing (or decreasing) the value of a product, service or organization for the customers whom it targets. There are a number of fundamental components that together bring brand equity to a university including: loyalty, brand awareness, customer perceived quality along with related associations to the brand and other assets such as patents, certified trademarks, and distribution channel relationships.

3. Research methodology

Secondary data collection method: The author reviews research published domestically and internationally on the brand equity of universities in particular on the internet, university libraries, and magazines to find out helpful solutions to develop brand assets of domestic and foreign universities.

Systematization method: The writer arranges the content of research objects and research results for universities' brand assets to analyze and synthesize according to a certain structure. Hence, the authore systematizes the theoretical basis, analyzes the current situation and proposes solutions to develop the brand assets of universities in Ho Chi Minh City.

Analysis and evaluation method: to compare research results of published scientific works to discover useful solutions to enhance university brand assets.

4. Research result

4.1. Reality of brand assets of universities in Ho Chi Minh City

Currently, Ho Chi Minh City has a total of 51 universities, academies and national universities (collectively referred to as universities), including 37 public schools (accounting for 73%) and 14 private schools (accounting for 27%). The research focuses mainly on the central urban area of Ho Chi Minh City with 36 universities (accounting for 70%); Eastern urban area of Ho Chi Minh City with 9 universities and 1 national university (making up of 20%). Other urban areas such as the Southern Urban Area of Ho Chi Minh City have 3 universities (accounting for 6%), the Northern Urban Area of Ho Chi Minh City has 2 universities (making up of 4%) and the Western Urban Area of Ho Chi Minh City has no schools (accounting for 0%). In recent years, universities in Ho Chi Minh City have paying attention to develop a university's brand equity as demonstrated through activities to boost up awareness through the school's trading name, associated with the school's unique identity, reputation and image to create a deep impression on learners, partners, employers and differentiate it from other schools in training activities. The author also go to the universities in Ho Chi Minh City that have high brand reputation such as Ho Chi Minh City University of Economics, National University, Rmit, and so on.

A typical example of brand development strategy is Ho Chi Minh City University of Economics, which has been recently announced by the Quacquarelli Symonds Education Organization (UK) to rank the best universities in the Asia region in 2024 (QS Asia University Rankings 2024). Ho Chi Minh City University of Economics officially entered the Top 301+ of the best universities in the region, an increase of 100 places compared to the 2023 ranking results and continuously promoted in the past 3 years. The 2024 rankings include 857 educational institutions in Asia, of which 149 are new participating educational institutions. Ho Chi Minh City University of Economics ranks 6th among 15 Vietnamese educational institutions named on this ranking.

In the period 2012-2022, Ho Chi Minh City National University, with its full-time system, has trained about 110,000 bachelors, engineers, masters, and doctors, providing many high-quality human resources for Ho Chi Minh City in particular and Southern provinces in general. During that time, Ho Chi Minh City National University published about 10,000 scientific articles in international journals and had many patents on foreign inventions as well as technology transfer serving the community. All higher education institutions under Ho Chi Minh City National University have been accredited at the training institution level or to international standards, or to the standards of the Ministry of Education and Training.

In terms of brand equity, RMIT University is considered to have high quality learning environment with international standard programs and the most beautifully designed facilities in Vietnam. After graduating from this university, students will be awarded the university degree by RMIT University in Melbourne, Australia. At RMIT, students will be trained with the following programs:

English and university transfer programs, bachelor's programs, graduate programs and doctoral programs. Students also have many opportunities to practice with more than 60 clubs ranging from sports, entertainment, to business and the community, proposed and run by the students themselves.

It can be seen that universities in Ho Chi Minh City have developed better strategies for branding to respond to increasing global competitive challenges. These challenges require the adoption of a differentiated strategy in higher education institutions. It is worth noting that higher education is now widely referred to as a market because it is of interest to many researchers and organizations. What is more? There has been relatively fierce competition among higher education institutions in respect to student enrollment. Actually, sustaining the success and business expansion of universities requires developing and maintaining a distinctive brand identity through enhancing the overall brand strategy.

4.2. Proposed solutions

Initially, increase brand awareness for customers: The characteristics of the university system in Ho Chi Minh City are distributed evenly throughout the city. From the unique business characteristics of each district; each customer group as well as the consumption habits, services of educational institutions, the universitites are suggested to summarize, evaluate, and innovate enrollment work. They should make each customer not only consume the tangible value in each product and service of the educational institutions but also consume the intangible value of their products and services.

Undoubtedly, universities in Ho Chi Minh City need to regularly educate employees to understand that it is the customers who pay the educational institution's salary so that they can have an increasingly better and more authentic service attitude towards customers. As a result, the universites will build a professional, dedicated and increasingly better image in the perception of customers. In fact, to have quality products and services requires universities in Ho Chi Minh City to take practical actions because:

- The relationship between employees and customers will make customers more or less aware of the educational institution's brand. That relationship is established through the expressions of employees who will directly or indirectly inform customers about the products and services they provide.

- Brand value will be enhanced due to the dedication and concern of employees towards customers, thereby creating good relationships between employees and customers.

- Build in the mindset of customers the image of an educational institution that always listens, understands customers, and meets their legitimate and reasonable requests.

In relationships with customers, it is necessary for universities to demonstrate politeness, friendliness, enthusiasm, respect, sincerity, patience, cooperation and credibility.

Secondly, enhance the performance of the brand team: The brand team includes leaders and managers at all levels and a team of employees who directly work on the brand, which plays a crucial role not only in manufacturing and business operations but also conductors who create, control and direct the entire orchestra to play the same song. Therefore, the members of the brand team themselves must be the ones who best understand the brand identity, and that understanding must be similar among team members, so that communication to new employees are unified and employees' understanding of the new brand is similar. Actually, in order to attain the common goal, the brand team must implement the following solutions:

- Train on basic knowledge and skills in marketing educational institution for the brand team: brand knowledge must be regularly updated and concretized through programs throughout the main campus to the school divisions.

- Build an operating model of the brand team.

- Focus on training and recruiting brand team members: organize training or recruit leading domestic and foreign brand experts to enhance the knowledge and strength of the brand team.

- Develop training programs for employees in educational institutions: the brand team must concretize each aspect of the brand into specific action and behavioral criteria to synchronize the standards of the staff.

Thirdly, enhance internal communication: For internal communication to be most effective, administrators must make the most of the value spread effect between employees. Leaders at all levels must be exemplary and dedicated, and human resource activities must be standard and professional. In order to implement this goal, modern technology applications must be quickly deployed to serve internal communications such as:

- Build a live internal television system: to serve business operations as well as maximize direct interaction between the brand team and employees to ensure unity of will and action in every activity to strengthen brand development.

- Identify effective communication methods.

- Assure the continuity of internal communication: messages transmitted by the Management Board to both internal and external interested parties need to be accomplished regularly and continuously.

- Take advantage of the value spread effect among employees.

Fourthly, strengthen external communication: Today's communication with the rapid development of audio-visual tools such as television, movies, advertising, newspapers, web, and internet has played a decisive role in guiding customers' choices and influencing their thoughts. The purpose of the external brand

communication strategy is to convey the internal values of universities in Ho Chi Minh City to customers. As a result communication activities must be organized very thoughtfully and meticulously on a customer-centered basis. Specifically:

- Based on customer requests and opinions to exploit new products and provide high quality services.

- Build a consulting system for customers, try at the highest level to satisfy customer needs along with improving service quality to upgrade customer purchasing power.

Undoubtedly, external communication not only impacts public perception but also helps build and maintain a brand's reputation. Brand value is transmitted to employees through internal communication methods including management communication and organizational communication, while customers perceive brand value mainly through marketing communication and public relations.

For customers, value is communicated through their entire brand experience, through interactions with employees, through external brand communications and the tangible elements of the service offering. Hence it is necessary to be consistent in all brand value communication activities. Customers' assessment of a brand's reputation is communicated through accumulated experiences in transactions, using the services of educational institutions, through interactions with employees, through external brand communications and tangible elements of the provided service. Therefore, communication activities need to be consistent to convey the most accurate brand value to customers. They are indicated in the following factors:

- Design a unified transaction space: design from the main campus to the branches according to a common standard of the brand identity system.

- Design uniform publications: publications must be beautifully designed, illustrating differences in form and creating trust for customers.

- Equip media to introduce services at the admission place: at the admission place, there should be screens introducing the products and services of the educational institution to advertise its programs.

- Participate and widely promote community activities: organize award programs and community programs at public locations to widely promote and propagate the image of the educational institution in the public.

- Invest appropriate budget for Marketing.

Fifthly, brand protection: In the current trend of socialization of education, universities are aware that building and affirming the school's brand in the field of training and education is a need because the brand contributes to determining the existence and development of a school. Branding is also a way for schools to introduce themselves to learners and businesses, letting learners know, choose and use the training services provided by the school. It does help businesses have the confidence to link, cooperate in training and use human resources trained from schools. Moreover, Trademarks are seen as a helpful tool to protect the interests of all organizations in general and schools in particular. As a result, it is necessary to develop solutions to protect the brands of universities.

- Registering for trademark protection: is necessary to prevent trademark infringement both domestically and internationally.

- Building technical barriers to protect brands: in today's competitive "flat world", creating technical barriers to protect brand reputation is extremely necessary.

- Improving university management level.

- Developing information technology systems: to increase customer trust and ensure customer information security.

- Using modern technology to prevent counterfeiting of important seals.

- Developing and improving internal regulations: managing department operations, coordinating between relevant departments, communicating and operating with customers, communicating and behaving between leaders and employees and vice versa.

- Checking and appraising: checking and listening to feedback from managers and employees about a labor's perforance; Listening to customer opinions through survey reviews, questionnaires or organizing meetings and seminars with customers to adjust the labor's operations accordingly.

5. Conclusion

It can be said that branding and image management are an inevitable strategy that universities need to implement to maintain their position in the leading group, to differentiate their quality and image, to enhance their ability to compete in the context of globalization of the economy and education market, to attract more and more talents and student resources, to expand the network of domestic and foreign cooperation partners, and to best satisfy business community - the people who ultimately use training services. As a result, the competitive advantage of an educational organization will be cultivated and lasting. Hence, researching the current situation of brand assets and then proposing a system of solutions is extremely inevitable for universities in Ho Chi Minh City.

References:

Aaker, D. A. (1991). Managing Brand Equity: The Free Press. New York, 3, 33-37.

Aaker, D. A. (1996). Building Strong Brands. New York, 5, 26-30.

Atilgan, E., Akinci, S., Aksoy, S. & Kaynak, E. (2005). Determinants of the brand equity: A verification approach in the beverage industry in Turkey. Marketing Intelligence and Planning, 23(3), 237-248.

Bùi Văn Quang. (2015). Quản trị Thương hiệu: Lý thuyết và thực tiễn. Hà Nội: Nhà xuất bản Lao Động - Xã Hội.

Đào Văn Khanh (2022). Thương hiệu đại học Việt Nam, tại sao không?. Tạp chí khoa học trường đại học Cần Thơ, 1, 164-171.

Davidssion, P. (1995). Determinants of entrepreneurial intention. Sweden, Paper prepared for the Rent IX Workshop, Italia.

Keller, K. L. (1993). Conceptualizing, measuring and managing consumer - based brand equity. Journal of Marketing, 57 (Jannuary), 1-22.

Lassar, W., Mittal, B. & Sharma, A. (1995). Measuring consumer-based brand equity. Journal of Consumer Marketing, 10(1), 20-25.

ENHANCING LABOR PRODUCTIVITY - THE EXPERIMENTAL EVIDENCE AND SOME MANAGERIAL IMPLICATIONS

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Abstract: *The objective of the study is to identify the factors affecting labor productivity. Research on 210 subjects representing businesses, including business management boards or deputy heads of departments, or people with many years of experience working in companies in Binh Duong province, at the same time, using quantitative analysis based on SPSS software and OLS regression analysis, the research results show that physical investment capital, human capital and technological level have a positive and statistically significant impact on labor productivity, confirming the positive impact of physical capital, human capital and technological level on labor productivity. However, research results suggest that government policies have not had an impact on labor productivity.*

1. Introduction

Economic development is significantly considered as an important pursuit in socio-economic development, and improving living income towards prosperity. Therefore, the goal of economic development is always on the agenda in most countries, and thanks to that, countries set economic development goals and thereby serve as a foundation for implementing social policies. With a low starting point, Vietnam has implemented economic reforms and significantly achieved certain achievements in socio-economic development such as increased labor productivity associated with improved quality of life.

To contribute to economic development, the role of human resources, especially labor productivity, is indispensable. High labor productivity reflects the efficient work of employees, enabling them to produce a higher output. Conversely, low labor productivity corresponds to lower efficiency, resulting in the ability to produce a lower output. Previous studies have analyzed factors affecting labor productivity and have suggested that it can be influenced by various factors. Zamparelli (2024) believes that technological factors can enhance labor productivity. Meanwhile, Soekiman et al. (2011) state that factors strongly influencing productivity include supervision, physical conditions, implementation plans, and design factors. Kazaz et al. (2016) affirm that businesses investing in physical assets, especially fixed assets, can help them operate effectively in the long term. Alternatively, Al-Rubaye & Mahjoob (2020) indicate that poor communication and management, a lack of communication and coordination between construction parties, delayed payments, and a lack of motivational programs are highly associated with the characteristics of organizational structures.

The research objective is to evaluate the factors affecting labor productivity. This study aims to identify the influencing factors and assess their impact on labor productivity in the case of Binh Duong province. Additionally, the research results include discussions on potential solutions to enhance labor productivity in the future. The findings reveal that factors such as technology, human capital, and physical capital have a positive impact on labor productivity, with technological factors exerting the greatest influence. In contrast, government policies appear to have a limited impact on labor productivity, highlighting the need for businesses to adopt more effective policies to improve overall productivity.

2. Literature review

Labor productivity is a term that signifies

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the efficiency of labor utilization. Precisely, it is measured as an indicator through the ratio of output to input. Countries aspire to invest in enhancing human resources to elevate the capabilities of workers and, consequently, boost labor productivity. Conversely, an economy with low-quality human resources will exhibit diminished worker capacity and, consequently, lower labor productivity. Hence, economies consistently allocate human resources judiciously to enable the workforce to fully leverage their abilities and capabilities, thereby fostering an improvement in labor productivity.

Research by Nguyen Van Dong (2017) suggests that Vietnam's labor productivity has improved significantly, but productivity is still lower than many other countries in the region. In the context of economic integration, Vietnam must make more efforts to improve labor productivity, this comes from wage policy, investment in fixed assets in businesses, and application of high technology to production, especially implementing an open and environmentally friendly investment policy. Investing in people is essential through policies focused on training, fostering an open working environment, and motivating workers to engage in production with the utmost efficiency. According to Tran Kim Ngan and Tran Duc Luong (2022), labor productivity hinges on factors such as wages, investment capital, and labor, and can be influenced by foreign direct investment (FDI) capital. FDI inflows offer advantages in terms of technological expertise and managerial capacity, fostering interactions with domestic enterprises and enhancing management and governance capabilities. Consequently, this contributes to an increase in technology-oriented production activities for domestic enterprises. Another study conducted by Tran Thi Thuy Hang (2022) suggests that the working environment, wages, employee empowerment, and organizational structure, particularly, significantly impact labor productivity. The authors assert that human factors such as qualifications, health, age, and work motivation also play a crucial role in boosting labor productivity. Therefore, enhancing these human factors not only helps businesses improve productivity and product quality but also increases their overall contribution to the economy.

Given that labor productivity is the subject of attention for economists, policy makers and its role in the country's socio-economic development. High labor productivity brings businesses many economic benefits and helps businesses save costs or focus on optimizing production and product quality. Bui Thi Thu Ha et al. (2023) believed that labor productivity is affected by labor costs, human resource policies, work pressure and especially the level of science and technology in production. According to the authors, the level of science and technology in production is gradually becoming the main factor in the ability to improve labor productivity in enterprises. This has been explained by the technological factor in the ability to create output of business and has been confirmed by Cobb-Douglas. According to this theory, the capital factor exhibits diminishing marginal benefits, while the labor factor does not follow the law of diminishing marginal benefits. Therefore, businesses should focus on investing in enhancing the quality of human capital to improve overall business performance. Simultaneously, the technological factor demonstrates the potential to yield outstanding productivity when businesses engage in high-tech production activities capable of automating processes and promoting cleaner production practices, thereby enhancing overall productivity. Bui Thi Thu Ha et al. (2023) also contend that seniority does not significantly affect labor productivity. While seniority provides workers with more experience, older workers may face challenges, particularly in adapting to new technological advancements. Consequently, the impact of seniority on labor productivity is not conclusively clear, as younger workers may find it easier to stay updated with the latest technological developments.

Research conducted by Kazaz et al. (2016) posits that labor productivity significantly affects the time, cost, and quality of work, particularly in competitive environments where businesses must enhance labor productivity to maintain their industry standing. The authors, therefore, assessed factors influencing the labor productivity of construction enterprises and asserted that the construction industry, characterized by intense competition, is significantly impacted by organizational factors such as economic, physical, and socio-physiological elements. Kazaz et al. (2016) also argue that labor productivity is closely tied to enterprise investment processes, particularly in materials, with a focus on fixed

assets essential for forming machinery, equipment, and architectural elements. Proper investment in fixed assets ensures long-term production stability and increased output. Increased output, in turn, enables businesses to reduce fixed costs, lower product prices, and enhance competitiveness in the marketplace. Soekiman et al. (2011) highlight the construction industry's challenge with labor productivity and efficiency. Their research evaluating factors affecting project performance and subsequent productivity in Indonesia identifies strong influences on productivity, including weak monitoring elements, physical aspects, implementation plans, and design elements. The study suggests that equipment factors have a significant impact on large enterprises, whereas owner and consultant factors play a major role in small and medium-sized enterprises. Additionally, health and safety factors are less prominent concerns in small and medium-sized enterprises compared to their significance in large enterprises.

Erba & Aplin (1996) conducted research at dairy factories to identify factors affecting labor productivity, specifically evaluating elements such as the type of ownership, the monthly production volume, technological proficiency, and labor costs. They argued that labor costs positively influence factory labor productivity, and the use of advanced equipment has the potential to further enhance labor productivity. The research also suggests that vertically integrated factories, when combined with supermarket chains, exhibit higher labor productivity compared to monopolistic or cooperative factories. This underscores the significant impact of the factory's operational structure on production costs and, consequently, labor productivity. To enhance labor productivity, factories should implement solutions to reduce production costs, thereby creating product competitiveness in the market and simultaneously increasing profits for businesses and labor productivity. Additionally, Zamparelli (2024) affirms that technological factors ensure an increase in labor productivity. Moreover, wage levels, savings rates, and investments in science and technology influence the marginal transformation speed between labor productivity growth and capital productivity growth. This implies that businesses with appropriate salary policies can motivate employees and foster increased production efficiency.

3. Data and methodology

This study uses data from the primary data colleted in Binh Duong province in 2023. Based on the previous studies, the estimated equation is shown as follows:

$$NSLD_t = \beta_0 + \beta_1 VDT_t + \beta_2 HM_t + \beta_3 CN_t + \beta_4 CS_t + \varepsilon_t$$

Where:

$NSLD_t$ is enterprise's labor productivity; VDT_t is physical investment capital in the enterprise; $HUMAN_t$ is human capital in the enterprise; CN_t is level of production technology in the enterprise; $CSNN_t$ is the government policies towards businesses;

According to Hair et al. (2006), the sample size should be 5 times the number of questions to ensure good results for EFA analysis. Therefore, this study analyzed 210 representatives in companies, the selected people could be the company's board of directors or deputy/heads of departments, or people with many years of experience working in the company.

The study uses analysis through SPSS software, uses OLS regression analysis method, and then uses this research results to evaluate factors affecting labor productivity in enterprises.

4. Results

4.1. Descriptive statistics

Table 1. Frequency analysis

Items		Number	Percentage
Gender	Male	150	71.4%
	Female	60	28.6%
Age	< 40 years old	71	33.8%
	41 -> 50 years old	87	41.4%
	> 51 years old	52	24.8%
Qualification	Graduate	134	63.8%
	Postgraduate	35	16.7%
	Vocational/ College	40	19.0%
	Schools	1	0.5%
Total assets	40 billion and less	156	74.3%
	From 41 to 70 billion	21	10.0%
	From 71 to 100 billion	18	8.6%
	101 billion and more	15	7.1%

Source: Authors' analysis (2023)

Table 1 shows that most of the people surveyed were men, accounting for 71.4% compared to 28.6% women, partly reflecting that men often hold high leadership positions in businesses. In terms of age, the survey sample shows that the majority of people aged 41 to 50 are young, while

those under 40 or over 51 make up a smaller proportion. Regarding qualifications, about 63.8% of survey participants have a university degree, followed by postgraduate 16.7%, and vocational/ college 19%. Regarding business assets, 74.3% of businesses have assets of less than 40 billion VND and are quite small in scale.

4.2. Cronbach's alpha and EFA

Table 2. KMO and Barlett test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.822
Bartlett's Test of Sphericity	Approx. Chi-Square	2212.905
	df	216
	Sig.	0.000

Source: Authors' analysis (2023)

The study performed Cronbach's alpha analysis and showed that the selected scales were appropriate, thus serving as the basis for EFA analysis. According to KMO and Barlett test, the KMO index reached 0.822 and greater than 0.5, and at the same time, Bartlett's Test of Sphericity showed that Sig. = 0.000, so the choice is appropriate. Therefore, the study has the results as Table 3 indicating the rotated component matrix.

Table 3. Rotated component matrix

Items	Rotated Component Matrix[a]			
	1	2	3	4
HM2	0.787			
HM1	0.765			
HM5	0.744			
HM4	0.721			
HM3	0.698			
CN3		0.789		
CN1		0.776		
CN2		0.723		
CN4		0.702		
VDT2			0.811	
VDT3			0.799	
VDT1			0.789	
VDT4			0.783	
VDT5			0.711	
CS1				0.800
CS4				0.784
CS2				0.736
CS3				0.722
CS5				0.701

Source: Authors' analysis (2023)

4.3. Correlation matrix

Table 4. Correlation matrix

Variable	NSLD	VDT	HM	CN	CS
NSLD	1				
VDT	0.722	1			
HM	0.431	0.421	1		
CN	0.532	0.592	0.410	1	
CS	0.425	0.491	0.429	0.320	1

Source: Authors' analysis (2023)

Table 4 shows that the independent variables have a low level of correlation, the highest correlation coefficient of 0.592 belongs to VDT and CN and is still less than 0.8, so the possibility of multicollinearity is eliminated.

4.4. Regression results

Table 5. Regression results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.633	0.178		4.123	0.000		
VDT	0.211	0.023	0.254	3.459	0.000	0.893	1.120
HM	0.201	0.014	0.243	4.324	0.000	0.872	1.147
CN	0.321	0.027	0.389	5.091	0.000	0.890	1.124
CS	0.174	0.026	0.198	1.001	0.422	0.914	1.094

Dependent Variable: NSLD

Source: Authors' analysis (2023)

The results of Table 5 show that: factors such as physical investment capital, human capital and technological level have a positive and statistically significant impact on labor productivity, especially the influential technological factor is the largest, followed by the investment capital factor and finally the human capital factor. The study also suggests that state policies have not had an impact on labor productivity. More specifically about each influencing factor, we have the following discussion:

Firstly, technological advancement exerts the strongest influence on improving labor productivity. Specifically, a 1-unit increase in the level of technology results in a 0.389-unit increase in labor productivity. This finding underscores that businesses applying technology to production can enhance product manufacturing capacity, increase output, and consequently improve labor productivity. This evidence affirms the wisdom of investing in technology, serving as an ongoing recommendation for businesses. This result aligns with the findings of Zamparelli (2024), who emphasized that technological factors ensure an increase in labor productivity. Erba & Aplin (1996) similarly argued that the use of advanced equipment has the potential to reduce costs and product prices, thereby boosting labor productivity.

Recent research by Bui Thi Thu Ha et al. (2023) also affirms that technological factors contribute significantly to outstanding productivity when businesses implement high-tech production methods, including possibilities for automation and cleaner production. This leads to improved productivity, particularly in the context of the fourth technological revolution. The benefits of the fourth technological revolution provide businesses with opportunities to receive, transfer, and absorb technology, empowering them to engage in more productive production processes.

Secondly, research results show that investment in physical capital has a positive impact on enterprise labor productivity. Specifically, an increase in investment in physical capital of 1 unit increases labor productivity by 0.254 units. This result confirms the rationality of businesses investing in physical capital, which is also confirmed by Kazaz et al. (2016) said that businesses should invest in physical assets, especially fixed assets such as machinery, equipment and architectural objects. Investing in fixed assets helps businesses ensure long-term production. Indeed, increased output helps businesses reduce fixed costs per unit of product and thereby reduce product prices and increase business competitiveness in the marketplace.

Thirdly, the research results also confirm the role of human capital in improving labor productivity of enterprises. Specifically, an increase in human capital of 1 unit increases labor productivity by 0.243 units, thereby confirming the benefits of investing in human capital. High human capital has the ability to create more productive production and thereby reduce product costs, thereby increasing business efficiency. Therefore, businesses always maintain training policies within the business to improve human capital, and at the same time attract high-quality human resources to create a source of improved human resources in the business.

5. Conclusion and managerial implications

Economic development is considered a crucial goal in the socio-economic development of countries. In this context, Vietnam consistently undertakes reforms to achieve specific milestones in socio-economic development, such as increased labor productivity and an improved quality of life. A study conducted at 210 enterprises in Binh Duong province aimed to evaluate factors influencing labor productivity. The research involved surveys of company board members, deputies, department heads, or individuals with extensive experience in the company. The study employed quantitative analysis using SPSS software and utilized the OLS regression analysis method. The research findings indicate that physical investment capital, human capital, and technological proficiency have a positive and statistically significant impact on labor productivity. This reflects the positive influence of physical capital, human capital, and technological proficiency on labor productivity. However, the results suggest that government policies have not shown a significant impact on labor productivity.

Through the research, some managerial implications for businesses are as follows: businesses continue to improve production efficiency through applying technology to production. From there, this policy helps businesses apply advanced production techniques and operate with higher productivity. Second, businesses should invest in physical capital in depth to create a physical foundation for the business and develop the business in the long term. Third, businesses should improve the quality of human resources to help human resources have the ability to improve the effective operations of businesses.

References:

Al-Rubaye, Z. R. A., & Mahjoob, A. M. R. (2020). *Identify the main factors affecting labor productivity within different organizational structures in the Iraqi construction sector. IOP Conference Series: Materials Science and Engineering, 745(1), 12146. https://doi.org/10.1088/1757-899X/745/1/012146*

Bui Thi Thu Ha, Mai Thanh Lan và Bui Tuan Thanh (2023). *The influence of factors on labor productivity: Research on textile and garment enterprises in Vietnam. Vietnam Journal of Science and Technology, 65(10).*

Erba, E. M., & Aplin, R. D. (1996). *Factors Affecting Labor Productivity and Cost per Gallon in Fluid Milk Plants. Journal of Dairy Science, 79(7), 1304–1312. https://doi.org/https://doi.org/10.3168/jds.S0022-0302(96)76485-8*

Kazaz, A., Ulubeyli, S., Acikara, T., & Er, B. (2016). *Factors Affecting Labor Productivity: Perspectives of Craft Workers. Procedia Engineering, 164, 28–34. https://doi.org/https://doi.org/10.1016/j.proeng.2016.11.588*

Nguyen Van Dong (2017). *Factors affecting labor productivity and some discussions. Review of Finance. Available at https://tapchitaichinh.vn/cac-yeu-to-tac-dong-den-nang-suat-lao-dong-va-nhung-van-de-dat-ra.*

Soekiman, A., Pribadi, K. S., Soemardi, B. W., & Wirahadikusumah, R. D. (2011). *Factors Relating to Labor Productivity Affecting the Project Schedule Performance in Indonesia. Procedia Engineering, 14, 865–873. https://doi.org/https://doi.org/10.1016/j.proeng.2011.07.110*

Tran Kim Ngan và Tran Duc Luong (2022). *Factors affecting labor productivity by industry in Vietnam in the period 2005-2021. Review of Finance, Issue 2, December.*

Tran Thi Thuy Hang (2022). *Building an analytical framework on factors affecting labor productivity in mechanical enterprises in Vietnam. Economy & Forecast Review. Available at*

https://kinhtevadubao.vn/stores/customer_file/nhungnt/042022/18/Tran_Thi_thuy_Hang.pdf

Zamparelli, L. (2024). *On the positive relation between the wage share and labor productivity growth with endogenous size and direction of technical change. Economic Modelling, 131, 106622. https://doi.org/https://doi.org/10.1016/j.econmod.2023.106622*

INTENTION TO PAY PREMIUM IN FREEMIUM SERVICES VIA DOWNLOADABLE APPS OF YOUNG GENERATION IN HO CHI MINH CITY

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Abstract: *Through the survey of 275 young individuals between 16 and 30 years of age in Ho Chi Minh City from April 2023 to May 2023, the article shows that (1) Hedonic Motivation (HM) emerged as the most influential factor in shaping the behavioral intention to pay for premium features in freemium apps among the young generation in Ho Chi Minh City. It was followed by (2) Performance Expectancy (PE), (3) Price Value (PV), (4) Social influence (SI), (5) Premium Fit (PF), (6) Habit (HB), and (7) Effort Expectancy (EE), respectively.*

1. Introduction

The integration of technology into business operations has paved the way for the adoption of innovative business models, such as freemium. Nevertheless, the implementation of the freemium model in Vietnam faces a significant challenge: enhancing the conversion rate from free users to premium users. The research findings on the consumer behavior of the young generation in freemium services can be applied across various consumer contexts, irrespective of the industry.

2. Literature review and research methodology

2.1. Literature review

The Theory of Reasoned Action (TRA) is a social psychology theory developed by Ajzen & Fishbein (1975, 1980), an individual's behavior is primarily determined by their intention to engage in that behavior. This intention, in turn, is shaped by two key factors: attitudes and subjective norms. Attitudes refer to an individual's evaluation or perception of a specific behavior. It reflects whether they view the behavior positively or negatively.

The assumption made in the TRA that behavioral intention strongly predicts actual behavior has faced criticism from scholars. This recognition led to the development of the Theory of Planned Behavior (TPB) by Ajzen as an extension to TRA. TPB addresses this limitation by introducing the concept of perceived behavioral control, which refers to an individual's perception of their ability to perform the behavior in question.

The assumption made in the TRA that behavioral intention strongly predicts actual behavior has faced criticism from scholars. This recognition led to the development of the Theory of Planned Behavior (TPB) by Ajzen as an extension to TRA. TPB addresses this limitation by introducing the concept of perceived behavioral control, which refers to an individual's perception of their ability to perform the behavior in question. While TRA emphasizes that intention is the main driver of behavior, it acknowledges that intention alone may not always translate into actual behavior if individuals perceive limited control over their actions. To overcome this limitation, Ajzen (1991) incorporated perceived behavioral control as a crucial factor within TPB, expanding upon the TRA framework. TPB underscores the significance of perceived behavioral control in predicting behavior and proposes that it can mitigate the influence of low subjective norms or negative attitudes. By considering the element of perceived behavioral control, TPB offers a

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more comprehensive understanding of the factors influencing human behavior.

The Technology Acceptance Model (TAM), developed by Davis (1989), is a widely recognized theoretical framework that explains the factors influencing individuals' acceptance and adoption of IS. TAM builds upon TRA and introduces two key factors: perceived usefulness and perceived ease of use. Perceived usefulness refers to the belief that using a particular technology will enhance an individual's performance and productivity. It encompasses the assessment of how adopting the technology can bring benefits and contribute to achieving specific goals or outcomes. Perceived ease of use relates to the perception of how effortless it is to use the technology. It considers factors such as the complexity of the system, the level of user-friendliness, and the ease of learning and navigating through the technology. According to TAM, these two factors significantly influence users' attitudes towards using technology, which in turn shape their behavioral intentions and subsequent adoption behavior. When users perceive a technology as useful and easy to use, they are more likely to develop positive attitudes and stronger intentions to adopt it.

The Unified Theory of Acceptance and Use of Technology (UTAUT) developed by Venkatesh et al. (2003) is a comprehensive and widely used theoretical framework in the field of IS research. The UTAUT framework focuses on technology acceptance in organizational settings and proposes four key constructs that influence an individual's behavioral intention and subsequent use of technology. Effort Expectancy refers to the perceived ease of use and the level of effort required to use the technology effectively. Social Influence considers the impact of social factors, such as the influence of colleagues, supervisors, and external parties, on individuals' technology acceptance and use.

The Unified Theory of Acceptance and Use of Technology 2 (UTAUT2) is an updated and expanded version of the original UTAUT model, specifically designed to address the limitations and complexities of technology adoption and use in a consumer context. Developed by Venkatesh, Thong, and Xu in 2012, the UTAUT2 model takes into account advancements in technology and the evolving social and cultural contexts surrounding technology use. The UTAUT2 model introduces three new constructs that are considered influential in shaping behavioral intention and subsequent technology use: Hedonic Motivation, Price Value, and Habit. Hedonic Motivation reflects individuals' desire for pleasure and enjoyment derived from using technology, Price Value refers to the perception of value for money and cost-effectiveness, and Habit refers to the automatic and repetitive nature of technology use. These additions to the model enhance its ability to explain the factors that influence consumer behavior. Moreover, UTAUT2 recognizes the significance of individual and cultural differences in technology acceptance and use. It accounts for factors such as gender, age, experience, and cultural influences, acknowledging that these variations can shape individuals' attitudes, intentions, and behaviors towards technology.

Finding the optimal value proposition that entices users to upgrade without alienating those who prefer the free version can be a delicate task. To shed light on this complex issue, Wagner, Benlian, and Hess (2014) conducted a study titled "Converting freemium customers from free to premium - the role of the perceived premium fit in the case of music as a service." This research examines how the limitations of a free service impact users' evaluations of both the free and premium versions, ultimately providing insights into determining the optimal level of functional differences between the free and premium versions and deriving practical implications for the design of freemium revenue models. The research paper titled "Music streaming services: understanding the drivers of customer purchase and intention to recommend" by Barata and Coelho (2021) is highly valuable and serves as a significant reference for the author's theoretical framework. In addition, four additional variables are introduced: Perceived Freemium-Premium Fit (PF), Involvement and Interest (II), Personalization (P), and Attitude towards Piracy (AP). These variables were carefully chosen through a thorough literature review and semi-structured interviews conducted by the authors. The Perceived Freemium-Premium Fit (PF) variable evaluates the similarity in functionality between the free and paid versions of the music streaming service. Involvement and Interest (II) capture the user's personal engagement and interest in music, while Personalization (P)

assesses the extent to which the service provides personalized recommendations and features. Attitude towards Piracy (AP) measures the user's perspective on illegal downloading and sharing of music. Including these additional constructs enhances the understanding of users' behavioral intention to purchase the paid version of a music streaming service and their likelihood to recommend it to others.

2.2. Proposed research model

This research model is built upon the UTAUT2 framework and includes an additional variable, 'Premium Fit,' which is derived from the studies of Barata and Coelho (2021) and Wagner, Benlian, and Hess (2014).

Figure 1. Proposed research model and hypotheses
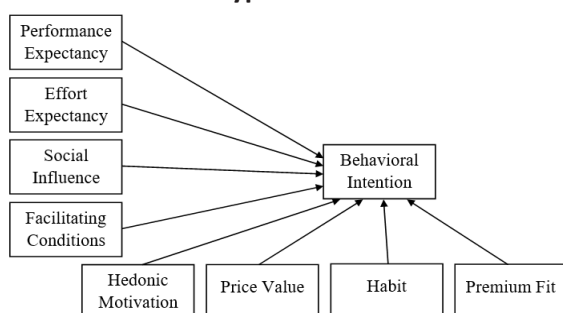
Source: Self-deprived by authors, 2023

Hypothesis

H1. Performance Expectancy (PE) is positively related with Behavioral Intention (BI)

H2. Effort Expectancy (EE) is positively related with Behavioral Intention (BI)

H3. Social Influence (SI) is positively related with Behavioral Intention (BI).

H4. Facilitating Conditions (FC) is positively related with Behavioral Intention (BI).

H5. Price Value (PC) is positively related with Behavioral Intention (BI).

H6. Hedonic Motivation (HM) is positively related with Behavioral Intention (BI).

H7. Habit (HB) is positively related to Behavioral Intention (BI).

H8. A higher Premium Fit (PF) is positively related to Behavioral Intention (BI).

2.3. Research methodology

Data collection took place over a four-week period, targeting young people aged between 16 and 30, from April to May 2023, using both online and offline methods. In total, 275 responses were received, and 250 valid responses were utilized for subsequent statistical analysis.

3. Result and discussion

Cronbach's alpha coefficient test

It is noteworthy to emphasize the case of HB, where the 'Cronbach's Alpha if the Item Deleted index exceeds the overall current Cronbach's Alpha. The analysis indicates that removing the HB2 variable results in an increase in Cronbach's Alpha coefficient from 0.746 to 0.87. Furthermore, the Corrected Item-Total Correlation coefficient for HB2 is only 0.183, falling below the minimum threshold of 0.3. Consequently, the author decides to exclude this item from the scale, leading to a significant increase of 0.124 in the Cronbach's alpha coefficient for HB2.

Additionally, it is crucial to note that the measurement scale for Premium Fit (PF) includes an observed variable, PF4, which undergoes reverse coding. Therefore, prior to conducting the Cronbach's alpha analysis in SPSS, the responses for PF4 need to be reversed in terms of value, and the new variable named PF4', associated with the reversed value, shall be applied in data analysis. For instance, if respondents agree with the statement 'The free version differentiates strongly from the premium version,' they would typically select answer choices 4 and 5. However, for statistical purposes, the values of 4 and 5 are reversed to 2 and 1, respectively. The resulting Cronbach's alpha coefficient for the PF scale is determined to be 0.851, indicating a high level of consistency and reliability in the scale.

Furthermore, the analysis of Cronbach's Alpha coefficient reveals that the Corrected Item-Total Correlation for all measurement items exceeds 0.30, with the majority surpassing 0.60. Even the two lowest indexes for Corrected Item-Total Correlation are still considerably high at 0.563 and 0.588.

Explanatory factor analysis (EFA)

The preceding tables provide a comprehensive overview of the assessment conducted on the measurement scales of the independent variables. Firstly, the Kaiser-Meyer-Olkin (KMO) coefficient for the EFA yields a value of 0.792, exceeding the recommended threshold of 0.5 (Table 1).

This thesis comprises 29 observed variables that are categorized into eight distinct independent factors. All the factors demonstrate factor loadings that surpass the threshold of 0.5. These higher factor loadings signify stronger relationships between the variables and their respective factors, and values exceeding 0.5 are typically regarded as statistically significant.

Table 1. Summary on results of EFA

Evaluation criteria	Result	Threshold	Implication
Kaiser-Meyer-Olkin	0.792	0.5 ≤ 0.792 ≤ 1	Appropriate
Sig. Bartlett's Test	0.00	0.00 ≤ 0.05	Appropriate
Eigenvalue	1.124	1.124 ≥ 1	Appropriate
Total Variance Explained	78.584%	78.584% ≥ 50%	Appropriate

Source: Data from SmartPLS 3.0 software

Pearson correlation coefficient test

The analytical results demonstrated in Table 2 uncover that all independent factors included in the model effectively contribute to explaining the dependent factor, as evidenced by their significance (Sig. values < 0.05). While a few independent variables display Sig. values above 0.05, indicating statistical insignificance in specific relationships among pairs of independent variables, this does not pose a major concern within the scope of this thesis. Besides, it is worth noting the potential issue of multicollinearity that may arise due to high correlations among certain variables.

Table 2. Summary on factor sets

No.	Independent variables	Representative variable	Observed variables
1	Performance Expectancy	PE	PE1, PE2, PE3, PE4
2	Effort Expectancy	EE	EE1, EE2, EE3, EE4
3	Social Influence	SI	SI1, SI2, SI3, SI4
4	Facilitating Conditions	FC	FC1, FC2, FC3
5	Hedonic Motivation	HM	HM1, HM2, HM3
6	Price Value	PV	PV1, PV2, PV3
7	Habit	HB	HB1, HB3, HB4
8	Freemium Fit	PF	PF1, PF2, PF3, PF4'
9	Behavioral Intention	BI	BI1, BI2, BI3

Source: Data from SmartPLS 3.0 software

Linear regression analysis

Studies aiming to elucidate human behavior typically yield R-squared values below 50%, as human behavior is generally more challenging to predict compared to physical processes. However, R-squared statistics can be evaluated based on the rule of thumb that a value below 0.3 is generally considered none or very weak, while values between 0.3 and 0.5 are considered weak or low. R-squared values ranging from 0.5 to 0.7 indicate a moderate effect size, and values above 0.7 represent a strong effect size. In this study, the adjusted R-squared value is 0.654, suggesting that the independent variables explain approximately 65.4% of the variation observed in the dependent variable. The remaining 34.6% can be attributed to external factors and random error.

The results are presented in Table 3. The variable FC yields a t-test Sig. value of 0.321, which is greater than 0.05. This suggests that FC does not have a statistically significant influence on freemium users' intention to pay for premium services. Conversely, the remaining variables, namely PE, EE, SI, HM, PV, HB, and PF, exhibit t-test Sig. values below 0.05, indicating their meaningful impact on the dependent variable BI. Moreover, the regression coefficients associated with these independent variables are all positive, signifying a positive effect on the dependent variable, with a value of 0.665.

Table 3. Coefficients table in regression analysis

Model	Standardized coefficients	Sig.	Collinearity statistics
	Beta		VIF
(Constant)		.000	
PE	.275	.000	1.205
EE	.132	.001	1.204
SI	.175	.000	1.502
FC	.048	.321	1.693
HM	.312	.000	1.118
PV	.260	.000	1.092
HB	.143	.000	1.098
PF	.157	.000	1.225

Source: Data from SmartPLS 3.0 software

Evaluate the model-fit

The variables PE, EE, SI, PV, HM, HB, and PF have been validated as statistically significant predictors of freemium users' intention to pay for premium features (BI). Among these variables, HM exerts the strongest influence on BI, followed by the other variables in the following order: PE, PV, SI, PF, HB, and EE. However, the variable FC does not demonstrate any statistically significant impact on BI. These findings highlight the significant role of various factors in shaping

users' intention to pay for premium features in freemium services, providing valuable insights for understanding user behavior and informing strategic decision-making in this context.

Table 4. Result of structural model's hypothesis testing

Hypothesis	Causal Relationship	Coefficient	Supported
H1	Performance Expectancy on BI (+)	0.275	Yes
H2	Effort Expectancy on BI (+)	0.132	Yes
H3	Social Influence on BI (+)	0.175	Yes
H4	Facilitating Conditions on BI (+)	0.048	No
H5	Price Value on BI (+)	0.260	Yes
H6	Hedonic Motivation on BI (+)	0.312	Yes
H7	Habit on BI (+)	0.143	Yes
H8	Premium Fit on BI (+)	0.157	Yes

Source: Data from SmartPLS 3.0 software

4. Conclusion and implications

Conclusion of the research

After completing one month of data collection, 275 responses were received, with 250 valid responses, and data analysis was conducted. The study utilized SPSS and SmartPLS software to analyze data, test scales, and hypotheses. The research successfully achieved its objective of exploring the intention to pay for premium features in freemium services via downloadable apps among the young generation in Ho Chi Minh City.

The study makes a significant contribution to the theoretical understanding of IS acceptance and adoption, particularly in the niche area of freemium services. By extending the original UTAUT2 model and introducing the key construct of PF, the study presents a comprehensive model that effectively explains the factors influencing freemium users' purchase intention within freemium apps.

The analysis of the data in this study confirmed the reliability and validity of seven out of eight independent variables. The proposed factors, including PE, EE, SI, HM, HB, PV, and PF, were found to explain 65.4% of the total variation in users' purchase intention. This indicates moderately strong predictive power and the applicability of the research model. Based on these findings, the author provides recommendations for key market participants, such as marketers, service providers, and entrepreneurs. These

insights serve as valuable references for existing businesses looking to enhance their conversion rates and for aspiring entrepreneurs exploring the right business model, regardless of the industry they operate in. By providing actionable guidance, this research contributes to the overall growth and advancement of Vietnam's digital economy, making it a valuable resource for both current and future players in the market.

Recommendations

Recommendations for service providers and marketers

PE strongly influences users' inclination to purchase premium versions within freemium apps. The younger generation, driven by purpose and forward-thinking, shows a greater willingness to invest in apps that offer smart digital solutions to enhance their lives. Even for hedonic freemium services, young users' purchase intention is driven by the functional benefits beyond mere entertainment.

Given the significant influence of EE on freemium users' purchase intention, it is crucial for service providers to develop effective strategies centered on this factor to eliminate barriers that hinder users from embracing the technology. Firstly, app owners should prioritize simplifying and streamlining the process of upgrading from the free to the premium version. Investing in user experience (UX) design is paramount to ensure that the premium version not only is easy to navigate and interact with but also optimizes the layout, navigation, and interactions, minimizing cognitive load and enabling users to accomplish tasks effortlessly.

Users are heavily influenced by the opinions, recommendations, and behaviors of their social circles, including friends, family, colleagues, and online communities. The perception that others are using and benefiting from the premium version can strongly impact users' decision-making processes. Drawing upon the significance of SI to BI, service providers can implement several actions focused on this determinant to increase the conversion rate.

The role of FC derived from the UTAUT2 in explaining users' intention to opt for the premium version in freemium services may not show statistical significance, as observed in

this study, aligning with Barata and Coelho's (2021) research on music streaming services. This suggests that users perceive themselves as capable of navigating the premium version without extensive assistance, relying on their internet skills for troubleshooting. Particularly, the tech-savvy younger generation demonstrates a tendency to conduct independent research to address any difficulties, reducing their reliance on human support. Furthermore, as they have grown up with digital tools, technical limitations are perceived as less problematic.

The findings of the study confirm that PV plays a significant role in influencing users' willingness to purchase the premium version in freemium platforms. However, PV is not solely determined by the affordability of the premium package; it revolves around the concept of surplus value. Surplus value is achieved when customers perceive that they are receiving more value from the product than what they paid for. The greater the surplus value, the stronger their desire becomes to obtain the premium version.

HM holds the greatest influence over users' intention to opt for the premium version in freemium services. Users are primarily motivated by the desire for entertainment, enjoyment, social interaction, and personal gratification when considering the premium offering. To leverage HM and increase the conversion rate, service providers can implement various strategies.

The role of habit in driving the conversion rate from free to premium versions within freemium apps is of considerable importance, emphasizing the need for service providers to prioritize the retention of users' daily usage habits. To increase the conversion rate by leveraging habit, several actions can be suggested for service providers.

Recognized as a significant driver of the conversion rate in freemium services, the concept of PF demands considerable attention from marketers and service providers. The stronger the alignment between the premium version and user expectations, the higher the purchase intention towards the premium offering. In light of this, the first recommendation for businesses, based on statistical findings, is to carefully consider limiting the level of restriction on useful content and features in the free version.

Recommendations for entrepreneurs

For startups, achieving financial sustainability is vital for their survival and growth. Relying solely on advertising or venture capital funding may not be sufficient in the long run. By effectively monetizing their user base through the premium version, startups can generate stable and sustainable income to cover operational costs, invest in product development, and drive business growth.

In particular, investors are attracted to startups with a clear path to profitability and sustainable revenue streams. By demonstrating an understanding of the factors affecting users' intention to pay, entrepreneurs can showcase their market knowledge, customer-centric approach, and potential for long-term success. This understanding enhances the startup's appeal to investors and increases their chances of securing funding and support.

Comprehending the factors that influence users' intention to pay for the premium version in freemium services is critical for entrepreneurs planning to employ the freemium model in their operations. Therefore, a key recommendation for entrepreneurs is to carefully examine the factors that impact customers' upgrade intention. By addressing potential challenges regarding conversion rates from the planning stage and developing strategies in advance, entrepreneurs can set themselves up for success.

References:

Ajzen, I. (1991) 'The theory of planned behavior', *Organizational Behavior and Human Decision Processes*, 50(2), pp. 179-211.

Ajzen, I. and Fishbein, M. (1980) *Understanding attitudes and predicting social behavior.* Prentice-Hall.

Barata, M.L. and Coelho, P.S. (2021) 'Music streaming services: Understanding the drivers of customer purchase and intention to recommend', *Heliyon*, 7(8).

Davis, F.D. (1989) 'Perceived usefulness, perceived ease of use, and user acceptance of Information Technology', *MIS Quarterly*, 13(3), p. 319.

Venkatesh, Thong and Xu (2012) 'Consumer acceptance and use of information technology: Extending the unified theory of acceptance and use of Technology', *MIS Quarterly*, 36(1), p. 157.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003) 'User acceptance of information technology: Toward a unified view', *MIS Quarterly*, 27(3), pp. 425-478.

Wagner, T.M., Benlian, A. and Hess, T. (2014) 'Converting freemium customers from free to premium—the role of the perceived premium fit in the case of music as a Service', *Electronic Markets*, 24(4), pp. 259-268.

COMMITMENT AND TRUST IN E-GOVERNMENT CUSTOMER CITIZEN BEHAVIOR

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Abstract: *This research focuses on decoding the key factors affecting Customers Citizenship Behavior in the context of the increasingly developing e-Government in Vietnam. Through in-depth analysis, the results show that Satisfaction and Commitment play a direct and important role in promoting Citizenship Behavior. Besides, the study also expands the perspective by pointing out four factors that indirectly influence this behavior: Citizenship Empowerment, Satisfaction, Perceived Risk, and Opportunistic Behavior. Based on the above analysis, the research team proposes some solutions to promote effective Citizenship Behavior.*

1. Introduction

E-government is a crucial step towards building a digital and smart government, improving governance capacity, promoting transparency, increasing efficiency, and building trust. Above all, Vietnam is aiming to build e-government as a solution for administrative reform, developing a socialist-oriented market economy, and international integration. E-government focuses on citizens as the center, transforming the traditional "asking-giving" relationship into a "serving-provider service" relationship. It allows citizens to access public services quickly, conveniently, and transparently, making them customers. E-government also helps overcome negative aspects of public service activities, ensuring work is resolved according to regulations, time, and quality. This saves costs in time, effort, and money. E-government improves efficiency and management quality, increasing people's satisfaction with state activities. It is the key to modern administration, contributing to national competitiveness and promotion.

Vietnam has made significant progress in e-government development, ranking 86th in the 2020 E-Government Development Index (EGDI). However, Vietnam still faces challenges such as stagnation, reluctance to innovate, uneven IT skills, and limited ICT infrastructure. To improve e-government, it is essential to raise awareness, train skills, perfect infrastructure, and synchronize ICT systems with human resources and legal basis. Digital transformation is not just about applying technology but also changing human behavior.

2. Literature review

2.1. The concept of digital transformation

"Digital transformation" is often confused with the concept of "Digitalization". "Digitalization" is simply the process of modernization, often associated with converting traditional processes to digital processes (Kohli & Johnson, 2011). Meanwhile, "Digital transformation" means using data obtained from the digitization process, and then applying modern technologies to analyze, transform that data, and create valuable values. In the business model, Solis et al (2014, p. 3) also considered digital transformation as a reorganization, new investments in technology, and business models more effectively engaging digital customers at every touch point in the customer experience lifecycle.

Digital transformation brings benefits to improve the quality of life in numerous fields such as business, administration, healthcare, education, etc. For example, the most recognizable benefits of digital transformation in business are reduced costs, thereby supporting sustainable competitive advantage (Kraus et al., 2021).

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In this study, we also agree with the stated views and define digital transformation as: *"The process of overall and comprehensive change of individuals and organizations in the way of living, working, and production based on digital technologies."*

2.2. E-government

E-government refers to the delivery of government-related information and services to citizens by utilizing ICT tools, specifically the Internet and digital platforms (Jain, 2017; Nguyen, 2017).

Many definitions have also been developed based on other aspects of digital government. Coursey & Norris (2010) and Means & Schneider (2000) both emphasized the transactional nature of e-government, as well as highlighted the connecting role of e-government in providing information to related subjects. In addition, more inclusive existing definitions, such as Jain (2017) and Haldenwang (2004) suggest restructuring internal and external relationships with an emphasis on constituency engagement and governance to enhance the delivery quality of public services via digital channels.

To the extent of this research in the context of digital transformation in Vietnam, the following definitions of Nikiforova (2020) will be used to understand and deepen analysis of e-government: *"E-government is the application of information and communications technology, specifically the Internet and digital platforms, in the activities of government at all levels or the media."*

2.3. E-government in Vietnam

In Vietnam, developing an e-Government model has become integral to administrative reform and advancing IT and national communication strategies. According to the Ministry of Public Security, by May 31, 2023, there were 206.4 million records with synchronized processing status on the National Public Service Portal, with 13.7 million records processed online.

However, challenges persist. According to the Vietnam Software and Information Technology Services Association, the country boasts nearly 900,000 workers in the IT sector, including a significant number of engineers specializing in AI, IoT, and Big Data. However, Vietnam's human resources rank low to average in quality, particularly concerning highly specialized workers, as assessed by the World Economic Forum (WEF).

Looking ahead to 2030, Vietnam has set ambitious goals for the establishment of a digital government, including establishing a top-ranking digital government by 2030, focusing on cyber safety, e-Government ranking, and digital infrastructure improvement.

3. Hypothesis development

3.1. Citizen empowerment

Within an organization, Fernandez & Moldogaziev (2011) demonstrated that employee empowerment is positively related to job satisfaction and organizational commitment. Several studies also suggest that empowered employees have higher levels of organizational commitment, as empowered employees may have higher levels of focus at work and are more self-motivated (Avolio et al., 2004). In short, we believe that citizens' commitment is an important result of citizen empowerment.

H1: Citizenship empowerment has a positive impact on relationship commitment

3.2. Satisfaction

In marketing, Brown et al (2005, p. 133) state that it is difficult to imagine a consumer developing a committed relationship without experiencing satisfaction from the exchange with a company. So for citizens to commit to using e-government, or find useful values through conducting online procedures, satisfying citizens in general is an indispensable premise.

H2: Satisfaction has a positive impact on relationship commitment

According to Bowen & Schneider (1985), customers are not only service consumers but also act as "partial employees". When customers are satisfied, they tend to engage in citizenship behaviors, which are voluntary behaviors that contribute to the service delivery process. Research on relationship marketing shows that customers often develop relationships with organizations, not just with specific employees (Berry, 1983, 1995). They feel trust, expectation, and obligation to the entire organization (Hennig Thurau, Gwinner, & Gremler, 2002).

H3: Satisfaction has a positive impact on customer citizenship behavior in the e-government environment

3.3. Perceived risk

Perceived risk is identified as citizens' perception of facing losses when pursuing desirable outcomes (Warketin et al., 2002) and is also an important factor in predicting the level of digital government adoption among citizens (Hung, Chang & Yu, 2006). The relationship between perceived risk and citizens' trust in e-Government has been verified through many empirical studies (Belanger & Carter, 2008; Carter et al., 2016). Carter et al. (2016) confirmed there is

a positive correlation between risk perception and citizens' trust in government. The research by Lee & Song (2013) shows that trust in the organization's capabilities in providing online public services reduces citizens' perceived risks. Practically, conclusions may be influenced by social and cultural factors; but theoretically, it has been proven that perceived risk has a negative effect on citizens' trust in e-Government.

H4: Perceived risk has a negative impact on customers' civic trust in the e-government environment

3.4. Opportunistic behavior

Originally proposed by Dwyer, Schurr & Oh (1987), incorporating trust into distribution channel relationship models provides a distinct perspective for examining opportunism as an explanatory variable. The research team posits that when one party believes that the other party is behaving opportunistically, such perceptions will lead to reduced trust. Instead of positing a direct impact from opportunistic behavior on relationship commitment, we argue that such behavior leads to reduced relationship commitment because partners believe they can no longer trust your relationship.

H5: Opportunistic behavior has a negative impact on customers' civic trust in the e-government environment

3.5. Commitment

Employee commitment is a reflection of their loyalty and dedication to the organization, indicating their investment in its success and development (Luthans, 2007). While some leaders may empower employees passively, others actively foster strong bonds and encourage self-management and leadership skills (Pearce & Sims, 2002). Commitment is considered a pivotal factor shaping the desire to establish enduring relationships with organizations.

*H7: Commitment has a positive impact on citizenship customer behavior*

3.6. Trust

According to Rotter's (1967) original view, trust is considered an individual's expectation and is generalized when others gain trust and confidence. Moorman et al. (1993) believe that trust is the willingness to exchange when two parties trust each other. Similarly, Morgan & Hunt (1994) define trust as confidence in the trustworthiness and integrity of the other party. From Svensson et al.'s (2010) view, trust is the antecedent of commitment. Ganesan & Hess (1997) also point out that commitment in a relationship is the most frequently tested outcome of trust.

H6: Citizens' trust in e-government has a positive impact on commitment

H8: Citizens' trust in e-government has a positive impact on citizen customer behavior

3.7. Commitment and trust as intermediate variables

Figure. The proposed research model
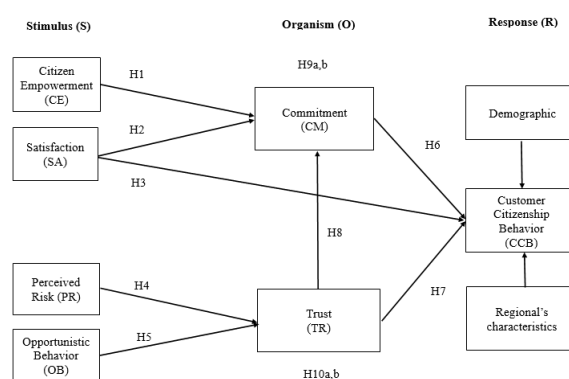
According to Morgan and Hunt's (1994) Commitment-Trust theory, to ensure continuous relational exchange, Trust and Commitment play an important intermediary role in the relationship. Trust and commitment mediate relationships by developing a collaborative environment between stakeholders; helping counteract attractive short-term alternatives; and being cautious about high-risk actions.

H9a: Commitment has an intermediary role in the relationship between Citizenship Empowerment and Citizenship Customer Behavior

H9b: Commitment has an intermediary role in the relationship between Satisfaction and citizenship Customer behavior

H10a: Trust plays an intermediary role in the relationship between data integrity and Citizenship Customer Behavior

H10b: Trust plays an intermediary role in the relationship between Opportunistic Behavior and Citizenship Behavior

4. Methodology

Researchers develop measurement items based on prior research to assess the parameters. These items undergo a pre-test with industry specialists to ensure comprehensiveness and relevance. Then, a pilot test was conducted with 5 citizens to ensure understanding. The official questionnaire was created online using Google Forms and addressed to residents in Hanoi and Ho Chi Minh City in January 2024. Sample calculation was done using Soper's online program (2019) using the parameters "anticipated effect size (0.3), desired

statistical power level (0.95), probability level (0.05), the number of latent variables (7), the number of observed variables (33)" which determined that a minimum of 90 samples were needed for the research. Thus, 1272 questionnaires are deemed entirely appropriate for performing research and data analysis. The data was analyzed using SPSS 26 software and SmartPLS 4 software and analyzed using a two-step analytic approach (Henseler & Chin, 2010). Step 1 is to assess measurement model reliability using outer loadings, Cronbach's alpha, composite reliability, and validity using AVE, cross-loadings, and Fornell-Larcker. Step 2 evaluates the structural model using bootstrapping. Finally, a One-way ANOVA analysis was conducted to determine differences in customers' civic behavior under control variables, including demographic and regional factors.

5. Results

5.1. Descriptive statistics

Out of 1272 samples collected, the number of females was 1140, accounting for 89.6% while just 10.4% were male. The majority are aged 40 - 49, with 712 people, occupying 56%, followed by 28.6% people aged 30 - 39. Most participants reported a monthly income of 8 to 15 million VND (53.5%) and had intermediate computer skills (76.4%). Additionally, 58.5% reported daily internet usage of 1 - 4 hours.

The research aims to analyze customer behavior in the e-Government environment in Vietnam, so the majority of the age group 40 - 49 is appropriate, aligning with their digital proficiency and needs for administrative transactions.

Area classification was divided into industrial zones/key economic regions or not, with 688 participants residing outside these areas, comprising over 54%. 1024 participants (83.3%) exhibit an intermediate level of digital literacy, and 868 reside in areas with relatively advanced digitization of public services (68.2%). Regarding socio-economic status and poverty rate, 1036 residents live in areas with average socio-economic status and poverty rates (81.4%). Additionally, 684 individuals identified the main challenge as limited financial resources (53.8%).

Moreover, the research team also proposed several factors that influence people's intention to use e-government such as the level of coordination between local governments, trust in the government, the level of promotion of e-government and the effectiveness of the aforementioned communication channels. 960 responses gave an "Average" rating (75.5%) in

trust in the government while the factor of the level of coordination and cooperation between levels of government was evaluated more positively at "Good" level in 588 samples (46.2%). Regarding factors related to e-government communication, 1012 citizens noted that the effectiveness of communication channels is being recorded at the "Average" level (79.6%) and 896 people said that the level of promotion needs to be improved about online public services (70.4%).

5.2. Measurement model test-validity and reliability

Table 1 summarizes the results of outer loadings, Cronbach's alpha, Composite reliability, and AVE indexes. The two observed variables OB4 and PR4 with Outer loadings of 0.504 and 0.628, respectively are smaller than 0.7. We should remove these variables and reevaluate the quality of the observed variables a second time. After revaluation, all observed variables have an outer loading above 0.7 (Hair et al. (2014), the observed variables are meaningful and we can proceed to the next steps.

Table 1. Reliability and validity test

Construct	Cronbach's alpha	Composite reliability	Average variance extracted (AVE)
CCB	0.938	0.953	0.802
CE	0.865	0.908	0.712
CM	0.900	0.930	0.769
OB	0.912	0.906	0.666
PR	0.905	0.926	0.644
SA	0.907	0.935	0.783
TR	0.876	0.915	0.728

Cronbach's alpha values ranged from 0.865 to 0.938, and CR composite reliability ranged from 0.908 to 0.953. The results show that the outcome measurement models do not have reliability problems as they exceed the recommended 0.7 (Hair et al., 2014). The results of the AVE show convergent validity. Values range from 0.692 to 0.802, which is higher than the recommended value of 0.5 (Hair et al., 2017; Bagozzi & Yi, 1988).

Table 2. HTMT ratio

	CCB	CE	CM	OB	PR	SA	TR
CCB							
CE	0.341						
CM	0.741	0.431					
OB	0.089	0.065	0.119				
PR	0.288	0.122	0.319	0.075			
SA	0.813	0.287	0.530	0.130	0.306		
TR	0.613	0.345	0.592	0.062	0.492	0.415	

It is recommended that values above 0.90 represent a lack of discriminant validity (Henseler et al., 2015). Furthermore, the confidence interval of HTMT must not include the value 1. Based on the results see that all HTMT values are less than 0.9, so discriminant validity is guaranteed.

5.3. Structural equation modeling

The results show that the independent variables of CM, TR, and CCB do not have collinearity because all VIF < 3 (Hair et al., 2018).

Table 3. Structural equation model results

Endogenous variables	Commitment (CM)		Trust (TR)		Customer Citizenship Behavior (CCB)	
	Adjusted R² = 0.416		Adjusted R² = 0.204		Adjusted R² = 0.734	
Predictor variables	VIF	f^2	VIF	f^2	VIF	f^2
Citizen Empowerment (CE)	1.140	0.061				
Satisfaction (SA)	1.201	0.129			1.350	0.798
Perceived Risk PR)			1.001	0.250		
Opportunistic Behavior (OB)			1,001	0.006		
Commitment (CM)					1.618	0.245
Trust (TR)	1.242	0.177			1.440	0.091

The adjusted R-squared values in Table 3 reveal a substantial explanatory power of the model for the endogenous constructs. Customer Citizenship Behavior (CCB) exhibits the highest explanatory power (0.734), 73.4% of its variance is explained by the model. Trust (TR) shows a moderate explanatory power (0.204), accounting for 20.4% of its variance. Commitment (CM) demonstrates an intermediate explanatory power (0.416), explaining 41.6% of its variance. Notably, the high R-squared value for CCB suggests a strong fit of the model in predicting customer citizenship behavior.

Exogenous variable influence on trust and commitment

The exogenous latent variables collectively explain 41.6% of the variance in Commitment (adjusted R² = 0.416). The effect size (f^2) values indicate a weak influence of Citizen Empowerment (CE, $f^2 = 0.061$) and Satisfaction (SA, $f^2 = 0.129$) on Commitment, while Trust (TR) exerts a moderate influence ($f^2 = 0.177$). Similarly, exogenous variables explain 20.4% of the variance in Trust (adjusted R² = 0.204). The effect size (f^2) value suggests a significant impact of Perceived Risk (PR, $f^2 = 0.250$) on Trust, while Opportunistic Behavior (OB, $f^2 = 0.006$) has a negligible effect.

Exogenous construct influence on citizenship behavior (CCB):

The exogenous latent variables collectively explain a substantial 73.4% of the variance in Customer Citizenship Behavior (CCB). Satisfaction (SA) exhibits the strongest influence on CCB (effect size $f^2 = 0.798$), suggesting a large impact. Commitment (CM) demonstrates a moderate effect size ($f^2 = 0.245$), while Trust (TR) also exhibits a moderate effect size ($f^2 = 0.091$).

Table 4. Hypotheses testing of the proposed theoretical model

Hypotheses	Relationships	Coefficients	P- Values	Conclusion
H1	CE → CM	0.201	0.000	Supported
H2	SA → CM	0.300	0.000	Supported
H3	SA → CCB	0.534	0.000	Supported
H4	PR → TR	-0.446	0.000	Supported
H5	OB → TR	-0.071	0.233	Not Supported
H6	TR → CM	0.358	0.000	Supported
H7	CM → CCB	0.324	0.000	Supported
H8	TR → CCB	0.187	0.000	Supported
H9a	CE → CM → CCB	0.065	0.010	Supported
H9b	SA → CM → CCB	0.097	0.000	Supported
H10a	PR → TR → CCB	-0.083	0.000	Supported
H10b	OB → TR → CCB	-0.013	0.258	Not Supported

Table 4 presents the bootstrapping analysis results for path coefficients. All relationships with p-values of 0.000 show strong evidence, while the path coefficient for the OB -> TR relationship has a non-significant p-value of 0.233 (p-value > 0.05), and OB → TR → CCB relationship has a non-significant p-value of 0.258 (p-value > 0.05) suggesting that the effect of OB on TR and CCB are not statistically significant in the model. This non-significant finding could be due to data noise or sampling error.

The PLS-SEM model's predictive power was evaluated using Stone and Geisser's (1974) Q² index. All variables showed positive Q² values, indicating the model's ability to predict latent variables. Hair et al. (2019) found that Q² values are higher than 0; 0.25 and 0.50 indicating small, medium, and large predictive goodness. The CCB indicator demonstrated strong predictive capability (Q² = 0.571), while the CM indicator showed average prediction (Q² = 0.306). The TR indicator exhibited weak predictive capacity (Q² = 0.190), indicating the model needs improvement in its ability to predict latent variables.

5.4. Differences in Customer Citizenship Behavior according to Demographic and Regional Characteristics

The study analyzed Customer Citizenship Behavior across various value groups using Levene's test, F-test and Post-hoc test results. The study found that Customer Citizenship Behavior (CCB) was consistent across genders, income levels, employment status, and computer skills. However, age and urban residency showed variations in CCB, with older and urban residents displaying more CCB. No differences were observed in CCB related to regional economic status, digitalization, socio-economic status, poverty, communication about e-Government, or management challenges. Yet, regions with better inter-departmental coordination and higher government trust reported increased CCB. Essentially, while personal demographics had little impact on CCB,

the regional government's functionality and trust levels did influence it.

6. Discussion

Based on the meaning of standardized regression coefficients, the order of factors affecting Customer Citizenship Behavior is Commitment, Trust, Citizenship Empowerment, Satisfaction, Perceived Risk, and Opportunistic Behavior. Commitment has the strongest impact on Citizenship Behavior, while Opportunistic Behavior has the weakest. Satisfaction has a direct and indirect positive impact on Citizenship Behavior, but the relationship decreases when Commitment is present. Commitment mediates the relationship between Satisfaction and Citizenship Behavior, indicating its influence on citizen engagement.

Commitment is the most significant factor influencing customer citizenship behavior in e-Government environments, as it promotes citizen engagement, allowing access to information and services, and participation in government decision-making. Trust in e-Government also positively influences citizen behavior, with lower levels than Citizen Empowerment. Trust is passive and depends on the quality of services and government activities, leading to higher intentions to use services. However, high perceived risk in e-government services can decrease trust, undermining the government's ability to protect information and interests. Research by Li (2021) and Belanger & Carter (2008) agree that trust and perceived risk are negatively correlated, with high trust minimizing potential risks while high perceived risk reduces trust. Opportunistic behavior does not affect citizens' trust in e-government, as not all people are aware of it. Factors such as education level, life experience, and access to information sources can also shape perceptions of opportunistic behavior.

The study found no significant differences in customer citizenship behavior across genders, income groups, employment, or computer skills. However, it revealed variations among residents, with older age groups and urbanized individuals more likely to exhibit this behavior. Regional characteristics, such as digital level, socio-economic status, and e-Government effectiveness, did not affect customer citizenship behavior. Customer citizenship behavior, in particular, increased when collaboration among government agencies and confidence in the government were better.

7. Conclusion

7.1. Recommendations for citizens

Increase Commitment and Civic Empowerment: Citizens should actively participate in e-Government services and activities by providing feedback,

participating in online activities and decision-making processes.

Promote innovation and learning: Citizens should continuously improve information technology skills to confidently interact with e-Government and stay updated with the latest features and innovations.

Practice Active Citizenship Behavior: Citizens should spread awareness of e-Government among communities and help others utilize online services by responding to challenges and suggesting solutions.

7.2. Recommendations for Vietnamese Government

Strengthen civic engagement and empowerment: Government agencies should develop policies and documents that encourage citizen commitment, establish mechanisms for public monitoring and participation in policy decisions, and ensure legal frameworks for data protection.

Increase satisfaction and trust: Governments should invest in improving the quality of online public services, handle citizens' needs transparently and efficiently, and simplify administrative procedures.

Manage perceived risk: Governments should prioritize personal information and security, stabilize open data, and ensure government transparency and fairness.

Facilitate citizenship behavior: Governments should create online communities for citizen engagement, gather feedback through meetings and surveys, and ensure e-Government reflects community needs.

References:

Berry, L. L. (1995). Relationship Marketing of Services--Growing Interest, Emerging Perspectives. Journal of the Academy of Marketing Science, 23(4), 236–245. https://doi.org/10.1177/009207039502300402

Brown, T.J., Barry, T.E., Dacin, P.A. and Gunst, R.F. (2005), "Spreading the word: Investigating antecedents of consumers' positive word-of-mouth intentions and behaviors in a retailing context", Journal of the Academy of Marketing Science, Vol. 33 No. 2, pp. 123-138.

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers.

Đảng Cộng sản Việt Nam, Văn kiện Đại hội đại biểu toàn quốc lần thứ XIII, tập II, Nxb CTQG-ST, H.2021, tr. 5.

Dwyer, F. R., Schurr, P. H., & Oh, S. (1987). Developing buyer–seller relationships. Journal of Marketing, 51(2), 11–27. https://doi.org/10.2307/1251126

Ganesan, S., and Hess, R., (1997). Dimension and levels of trust: Implications for commitment to a relationship. Journal of Marketing Letters, 8 (4), pp 439-488.

Hair, J.F., Risher, J.J., Sarstedt, M. and Ringle, C.M. (2019) When to Use and How to Report the Results of PLS-SEM. European Business Review, 31, 2-24. https://doi.org/10.1108/EBR-11-2018-0203.

Hennig-Thurau, T., Gwinner, K. P., & Gremler, D. D. (2002). Understanding Relationship Marketing Outcomes. Journal of Service Research, 4(3), 230–247. https://doi.org/10.1177/1094670502004003006

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43, 115–135. https://doi.org/DOI 10.1007/s11747-014-0403-8

Kohli, R. & Johnson, S. (2011) Digital transformation in latecomer industries: CIO and CEO leadership lessons from Ecana Oil & Gas (USA) Inc. MIS Quarterly Executive 10(4).

Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021, July). Digital Transformation: An Overview of the Current State of the Art of Research. SAGE Open, 11(3), 215824402110475. https://doi.org/10.1177/21582440211047576.

Luthans, F., Avolio, B. J., Avey, J. B., & Norman, S. M. (2007). Positive psychological capital: Measurement and relationship with performance and satisfaction. Personnel Psychology, 60(3), 541–572. https://doi.org/10.1111/j.1744-6570.2007.00083.x.

Moorman, C., Deshpande, R. and Zaltman, G. (1993) Factors Affecting Trust in Market Research Relationships. Journal of Marketing, 57, 81-101. https://doi.org/10.2307/1252059.

Morgan, R. M., & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. Journal of Marketing, 58(3), 20–38. https://doi.org/10.2307/1252308.

Schneider, Benjamin & Bowen, David. (1985). Employee and Customer Perceptions of Service in Banks. Replication and Extension. Journal of Applied Psychology. 70. 423-433. 10.1037/0021-9010.70.3.423.

SIMULTANEOUS SYSTEM APPROACH

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Abstract: *By using bank-level data collection and understanding the two-way causality between loan growth and bank soundness. The paper investigates the prudential risks related to the expansion of credit and its effect on the soundness of Vietnamese Banks in a decade. The quantitative analysis is carried out using a regression model and variables indicating the characteristics of specific commercial banks as well as the volatility of the economy. Three-stage least square method is carried out in this study to examine the relationship between credit growth and bank soundness. The information was gathered from 10 banks in Vietnam from 2012 to 2021 taken from the annual financial reports of the banks. It is obvious that there is no significant proof that credit growth has harmed banks. On the other hand, weaker banks appear to have begun to grow more quickly than sounder ones.*

1. Introduction

Due to the lack of research on credit growth and bank soundness, the goal of this paper is to raise awareness of the risks arising from credit growth and its association with bank soundness in Vietnam. Apparently, there are only a few papers analyzing the credit growth and bank soundness with each other only within the Vietnamese banking scope. Moreover, existed paper does not answer the question of whether sound or less sound banks grow more rapidly. In contrast with other research, this study uses a different way to calculate Distance to Default by using the Merton model as a way to evaluate bank soundness.

2. Literature review

2.1. Rapid credit growth has a negative impact on banks

Similar to many countries around the world, Vietnam suffered from the extreme impacts of the 2008 global financial crisis, as well as the public debt crisis in Europe which began in 2010. Furthermore, the economy's internal turbulence has raised, with significant trade deficits, budget deficits, growing high inflation, public debt, and weak economic development. These problems, to a certain extent, have made the banks in Vietnam face several inconstancies, which consist of non-performing loans and liquidity issues (Hao, 2012). The underlying reason for the deterioration of Vietnam's banking system's soundness has been universally agreed upon: too much credit expansion from 2007 to 2010, as well as the rise of the size and number of banking systems. This can be explained by the reduction in marginal benefits caused by the credit boom in Vietnam's economic sector (Do et al., 2017). This finding of the impacts of the credit boom on the soundness of Vietnamese Commercial Banks pointed out the features related to the effects that the credit growth between 2007 and 2010 had on the soundness of Vietnam's banking system, which includes the quality of bank assets, liquidity risks, banking system profitability and capital adequacy. This is a result of the banking system's widely ranged growth model of Vietnamese banking systems. Moreover, the system has been overly focused on increasing total assets through credit growth, with little consideration for the quality of bank lending and bank control.

In the study by Tamirisa and Igan (2007) about the credit boom and bank soundness in Europe, they suggested that rapid credit growth in the New Member States did not weaken banks substantially but it started to rely less on bank soundness, which is an effect that is declared in banks and credit markets which are expanding strongly. The finding indicated that rapid credit growth in the NMS had not noticeably but had been connected with increasing prudential risks empathizing the significance of proactive, risk-based supervision. The outcomes of this research suggested that a diverse supervisory response is a must for all nations, depending on the magnitude of the prudential concerns related to rapid credit growth. Rapid credit growth in some countries has weakened banks or weak banks are enhancing quickly, a powerfully built policy reaction may be required. In addition, according to SSI, income after tax of the top 14 banks in Vietnam

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increased by 43% in 9 months of 2021 compared to the same period last year. As a matter of fact, the banking industry could have done even better in the fourth quarter of 2021 because this was when the States Bank loosened the room for credit at the highest ceiling level for many credit organizations.

2.2. Credit grows more rapidly in sounder or less sound banks?

Recognizing the possibility of a two-way causal relationship between loan growth and bank soundness, it is necessary to take into account macro-level research specifying the drivers of credit growth (Cottarelli et al., 2005) and (Egert et al., 2006). Moreover, a micro-level study points out the effect of credit growth on bank soundness (Maechler et al., 2010) and a paper highlighting the position of bank soundness as an element driving credit growth (Dell'Ariccia et al., 2005) (Zicchino & Erlend, 2006). They found that credit growth had a negative influence on bank soundness, but only in the early section of the sample period which was 1995 to 2000. During that era, growth is primarily driven by sounder banks, but this relationship weakens from 2001 to 2005. Specifically, in terms of loan growth, less sound banks have begun to catch up with sounder banks. The deterioration of the link between credit growth and bank soundness may point to higher risks related to rapid credit growth, since loan maker is equally likely to occur in less sound (and potentially susceptible banks). This finding holds up when various measures of bank soundness and model assumptions are used.

The study about credit growth and bank soundness by Igan and Pinheiro (2011) used a specific data set including banks in 90 countries between 1995 and 2005 to model credit growth and bank soundness. In this report, bank's credit growth is evaluated as the annual proportion change in total outstanding loans, but their soundness is estimated by distance to default. Looking at the results, sounder banks had an incentive to grow quicker during the period, nevertheless, compared to the late 1990s, the rate of credit growth from 2001 to 2005 was more independent of bank soundness. Having this result, it can be interpreted that sounder banks enhances credit quicker in the 1990s, however, they started to get worn out by the fast speed of growth. Forward to the 2000s, the less sound banks kept on expanding credit approximately as fast as the sound banks. They concluded that rapid expansion from weaker banks may eventually jeopardize the stability of the banking system in subsequent years, because weak banks tend to make effort to surpass their starting issues by taking part in high risk/high return projects.

3. Methodology

3.1. Data collection

The data is gathered from 10 Vietnamese commercial banks over 10 years starting from 2012 and provided with information from the annual financial reports. The chosen banks for the study should be active until the end of 2021 as well as represent the Vietnamese banking system. In addition, the total assets of the chosen banks have taken account for over 85% of the total assets of the whole system in 2021. The macro statistics collected are found in the information disclosure by State Bank of Vietnam, the International Monetary Fund and Worldbank during this period.

3.2. The empirical model

On a theoretical level, the relationship between credit growth and bank soundness might be either positive or negative. Having their higher capital cushions and presumably superior risk management, stronger banks are projected to have a competitive advantage in reaching the credit demand. As a result, sounder banks may expand more credit. However, if loan portfolios develop quicker than banks' ability to assess and manage risks, credit risks may rise and loan quality deteriorates, resulting in increased non-performing loans and less profit. One may also argue the contrary: for the sake of surviving, weaker banks may be required to offer loans aggressively. The hazards connected with quickly rising loan portfolios would be more prominent in that circumstance. Overall, the relationship between credit growth and bank soundness carries on being an econometric mystery. The two-way relationship between bank credit growth and soundness can be investigated using a simultaneous equation model.

3.2.1. Dependent Variables

For this paper, credit growth and bank soundness are modeled as functions of each other also as several macroeconomic and bank-specific features. Specifically, individual banks' credit growth is evaluated as the annual percent change in total outstanding loans, while the distance to default measures the soundness of banks. The model includes lagged dependent variables to account for credit growth persistence and distance to default. By successively examining the significance of several macroeconomic and bank-specific variables found in the recent studies as structural predictors of credit growth and bank soundness, a parsimonious baseline specification was established.

Specifically, distance to default has gradually become a famous measurement for the soundness of the bank (Danmarks Nationalbank, 2004). Its reputation

originates from the truth that it is tied to the possibility of default, that is, the likelihood that the value of assets falls below the value of debt. Furthermore, this paper will use the Black Scholes model to identify each bank's distance to default.

According to the Black Scholes formula for a European call option, the distance to default is estimated by:

$$d_2 = \frac{\ln\left(\frac{S_t}{K}\right) + \left(r - \frac{\sigma^2}{2}\right)T}{\sigma\sqrt{T}}$$

With is the value of the underlying asset, is the strike price, is the risk free rate, is the volatility and is the time period.

However, some factors will then be replaced (Dar et al., 2019). The risk free rate will be replaced by the expected continuously compounded return on the value of the firm The value of the underlying asset a time t will become the value of the firm at time t is V. The strike price turns into the debt value D. Finally, the volatility is replaced by the volatility of the firms' value

The new distance to default formula is provided by:

$$d_2 = \frac{\ln\left(\frac{V}{D}\right) + \left(\mu_V - \frac{\sigma_V^2}{2}\right)T}{\sigma_V\sqrt{T}}$$

With V as value of firm at time t, D as debt value, as the expected continuously compounded return on value of the firm, as the volatility of the firms value and T is the time period.

3.2.2. Independent Variables

Macroeconomic factors reflecting demand-side indicators of bank credit growth and the effect of macroeconomic states on bank soundness served as an initial step for the baseline formulation. The macroeconomic variables are expected to reflect the risks that banks face, consequently, might have an impact on their soundness.

Secondly, the micro variables that demonstrate the business of each Vietnamese bank are selected to give a description of the elements that have an impact on the soundness of the banks.

Table 1. List of variables

	Variables	Description and calculations	Symbol	Sources
Dependent Variables	Bank's Credit growth	The rise in demand for loans. *Credit growth rate = (Outstanding Loans at time t – Outstanding Loans at time t-1)/ Outstanding Loans at time t-1*	*Bank Credit Growth*$_{it}$	Annual consolidated financial statement
	Bank Soundness	$d_2 = \frac{\ln\left(\frac{V}{D}\right) + \left(\mu_V - \frac{\sigma_V^2}{2}\right)T}{\sigma_V\sqrt{T}}$	*Distance To Default*$_{it}$	Annual consolidated financial statement

	Variables	Description and calculations	Symbol	Sources
Macro Independent Variables	GDP per capita	GDP per capita is gross domestic product divided by midyear population.	*GDP per Capita*$_t$	data.worldbank.org
	Real GDP growth rate	The cycle of the economy, annual percentage growth rate of GDP at market prices based on constant local currency.	*GDP growth*$_t$	data.worldbank.org
	Real interest rate	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator.	*RIR*$_t$	data.worldbank.org
	Exchange rate	Annual change of the real exchange rate	*ΔRER*$_t$	Investing.com
Characteristics of Vietnamese banks	Cost to Income	Represents the relationship between the income and the cost to achieve that income while describes the effectiveness of the operations. *Cost to Income = Operating cost/Operating Income*	*Cost To Income*$_{it}$	Annual consolidated financial statement
	Interest Margin	The net interest margin, measures the profitability of banks. *Net Interest Margin = (Net Interest Income-Net Interest Expense)/Average Interested-Earning Assets*	*InterestMargin*$_{it}$	Annual consolidated financial statement
	Liquidity	Liquidity is a measure of the cash and other assets banks have to promptly pay bills and meet short-term business and financial obligations. *Liquidity ratio = Liquid assets/Total Assets*	*Liquidity*$_{it}$	Annual consolidated financial statement
	Size	Size of the assets *Ln(Total Assets)*	*Size*$_{it}$	Annual consolidated financial statement
	Public	The proportion of share of capital owned by the government.	*Public*$_{it}$	Annual Report
	Foreign	The proportion of share of capital owned by the foreign individuals or institutions.	*Foreign*$_{it}$	Annual Report

3.3. Model Specification

Equation 1:

Bank Credit Growth$_{it}$ = f (Bank Credit Growth$_{i,t-1}$, GDP per Capita$_{t-1}$, GDP growth$_{t-1}$, RIR$_{t-1}$, ΔRER$_{t-1}$, Distance To Default$_{i,t-1}$, Cost To Income$_{i,t-1}$, Interest Margin$_{i,t-1}$, Liquidity$_{i,t-1}$, Size$_{i,t-1}$, Foreign$_{it}$, Public$_{it}$)

Equation 2:

Distance To Default$_{it}$ = f (Bank Credit Growth$_{i,t-1}$, GDP per Capita$_{t-1}$, GDP growth$_{t-1}$, RIR$_{t-1}$, ΔRER$_{t-1}$, Distance To Default$_{i,t-1}$, Cost To Income$_{i,t-1}$, Interest Margin$_{i,t-1}$, Liquidity$_{i,t-1}$, Size$_{i,t-1}$, Foreign$_{it}$, Public$_{it}$)

With i indicates individual banks and t denotes the year index. *Bank Credit Growth* is the proportion change in real bank credit to the private sector every year. The real interest rate is denoted by *RIR* and *ΔRER* represents the percentage change in real exchange rate over the course of the year. Furthermore, *Cost To Income* and *Interest Margin* refer to the cost-to-income ratio and the net interest margin, respectively. *Public* and *Foreign* are indicators of public and foreign ownership.

The three-stage least squares approach can be used to estimate these two equations together. Arellano (1990) concluded that the three-stage least squares method (3SLS) is a useful regression model employing panel data with short time dimension and containing lags of the dependent variables. In addition, the benefits of using 3SLS are shown in this context. 3SLS is used for a simultaneous equation setting, which is different

than the usual way for calculating single-equation dynamic panel models proposed by Arellano and Bond (1991). Secondly, considering the cross-equation correlation, 3SLS produces more proficient results for contemporaneous equation systems than two-stage least squares (2SLS). Thirdly, 3SLS lets the covariance matrix of the residuals created by the two equations to be unrestricted. Hence, the results from the regression are trustworthy, not drifted and more desirable than that of the two-stage method consisting of lagged dependent variables in the model (Brooks, 2008).

4. Results and Discussion

4.1. Data Description

As you can see from Table 2, it is noticeable that the average bank credit growth rate of 10 commercial banks in this study is quite moderate at 17.81% and the dispersion of the values is relatively low with a standard deviation of 10.71%. The lowest credit growth rate recorded among 10 banks is 22.18% while the highest is 48.94%.

Table 2. Descriptive statistics

	Mean	Max	Min	Std. Dev.	Obs
BANKCREDITGROWTH	0.18	0.49	-0.22	0.11	100
GDPPERCAPITA	2322	2857.6	1735.1	377.42	100
GDPGROWTH	0.06	0.07	0.03	0.02	100
RIR	0.05	0.07	0.02	0.02	100
_RER	0.01	0.04	-0.01	0.01	100
DISTANCETODEFAULT	16.08	27.89	6.76	4.93	100
COSTTOINCOME	0.46	0.87	0.03	0.13	100
INTERESTMARGIN	0.04	0.09	0.02	0.02	100
LIQUIDITY	0.31	0.52	0.09	0.09	100
SIZE	4.71E+08	1.76E+09	4.60E+07	4.17E+08	100
FOREIGN	0.19	0.30	0.00	0.09	100
PUBLIC	0.28	0.96	0.00	0.35	100

This represents the truth of the Vietnamese banking market's structure and competition. Despite the fact that the number of commercial banks in Vietnam is quite large, the majority of credit market shares have been held by a small group of state-owned commercial banks. As a result, small commercial banks have frequently struggled with loan growth, even during the system's credit boom phase, due to potential resource, capital, and client base constraints. Furthermore, looking at the histogram, along with the skewness of 0.28, the distribution of the credit growth rate can be considered fairly symmetrical.

On average, banks' distance to default, using the Merton model, ranges around 16.08. The histogram indicates that the distribution of distance to default values is also quite symmetrical. In addition, the highest value of distance to default is 27.89 compared to the lowest of 6.76. Furthermore, the level of dispersion of the distance to default is relatively low which indicates that there might be an adequate level of synchronization

in the Vietnamese banking system's operations. This would help the banking system to avoid systemic risk and be well protected from unfortunate shocks in the economy (Do et al., 2017).

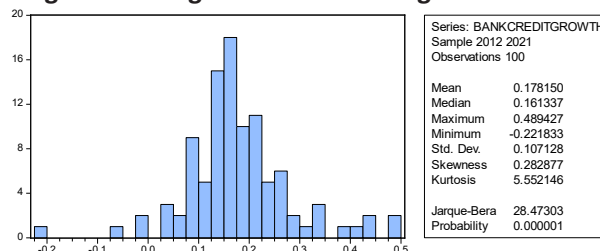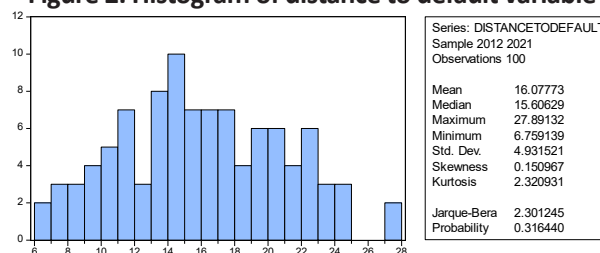**Figure 1. Histogram of bank credit growth variable**

Figure 2. Histogram of distance to default variable

Looking at Appendix 1, it shows that some variables are substantially correlated, which are (ΔRER; GDP Growth) and (Public; Size).

4.2. Regression without redundant variables

After dropping all insignificant variables, credit growth is consistent with the finding that it has a statistically insignificant impact on the bank. At the same time, these changes do not dramatically alter the results, the lagged distance to default variable in the credit growth equation is reported to be statistically significant and its coefficient is negative. In terms of the research questions, this can be interpreted that credit growth does not have a noteworthy effect on the bank soundness. Moreover, the result also indicates rapid expansion from less sound banks, in other words, smaller-scale banks are likely to operate more in the lending sector.

BANK CREDIT GROWTH = 0.854033 + 0.252286*BANK CREDIT GROWTH(-1) - 0.004546*DISTANCETODEFAULT(-1) - 0.029344*LOG(SIZE(-1)) - 0.324526*FOREIGN

DISTANCE TO DEFAULT = 7.908862 + 0.275431*BANK CREDIT GROWTH(-1) + -0.00045*GDP PER CAPITA(-1) + 0.904227*DISTANCE TO DEFAULT(-1) + -0.333544*LOG(SIZE(-1)) + 0.727449*PUBLIC

4.3. Regression with first and second differenced variables

The distance to default variable statistically has a negative effect on the bank credit growth, concluding that less sound banks tend to extend credit as quickly as sounder banks. Not only that, but the same result is also seen from the soundness equation, which is the growing in credit has nothing to do with the soundness of the bank. This finding is in line with the

observations of Hilbers and others (Hilbers, 2005), who reported no substantial decrease in financial soundness determinants based on a general review of financial soundness indicators. Finally, the empirical regression for the fixed model is:

BANK CREDIT GROWTH = -0.391953 + 0.240040*BANK CREDIT GROWTH(-1) + 0.000847*GDP PER CAPITA(-1) - 3.016388*D(GDP GROWTH(-1),2) - 0.833172*RIR(-1) + 0.677194*D(_RER(-1)) - 0.005859*DISTANCE TO DEFAULT(-1) + 0.151237*COST TO INCOME(-1) + 0.821245*INTEREST MARGIN(-1) + 0.161170*D(LIQUIDITY(-1),2) - 0.031688*LOG(SIZE(-1)) + 0.308316*D(FOREIGN) + 0.073403*PUBLIC - 0.144755*TREND

DISTANCE TO DEFAULT = 11.832258 - 1.193708*BANK CREDIT GROWTH(-1) - 0.003993*GDP PER CAPITA(-1) - 14.382358*D(GDP GROWTH(-1),2) - 2.840980*RIR(-1) + 12.281985*D(_RER(-1)) + 0.911232*DISTANCE TO DEFAULT(-1) + 1.546140*COST TO INCOME(-1) + 13.356490*INTEREST MARGIN(-1) + 3.107948*D(LIQUIDITY(-1),2) - 0.232820*LOG(SIZE(-1)) - 11.717874*D(FOREIGN) + 0.976732*PUBLIC + 0.298616*TREND

4.4. Dividing into two sub-periods

Analyzing the regression in two sub-periods, credit growth in Vietnam appeared to be a negative, but statistically insignificant effect on bank soundness both during 2012-2017 and 2017-2021. Therefore, the result is consistent with the two previous conclusions this study has winded up. Moreover, the paces of credit growth in Vietnam in two sub-periods are both dependent on bank soundness, while showing a significantly negative connection with it. This finding is also in line with other tests in the research, concluding that less sound banks produce a more rapid expansion in credit. These conclusions are similar with the findings by Natalia and Deniz (Igan, 2007), however, the independence of credit growth on bank soundness was explained by the significance change in two periods. From their study, when the DistanceToDefault variable was no longer significant in the second period, it meant that less sound banks could grow as rapidly as healthier banks.

Empirical regression using sample from 2012 and 2017:

BANK CREDIT GROWTH = 0.608062 + 0.374609*BANK CREDIT GROWTH(-1) - 0.000179*GDP PER CAPITA(-1) + 23.938060*GDP GROWTH(-1) - 0.491870*RIR(-1) - 8.964545*_RER(-1) - 0.006898*DISTANCE TO DEFAULT(-1) + 0.204697 *COST TO INCOME(-1) + 1.821127*INTEREST MARGIN(-1) - 0.041254*LIQUIDITY(-1) - 0.072785*LOG(SIZE(-1)) - 0.228074*FOREIGN + 0.183351*PUBLIC

DISTANCE TO DEFAULT = 10.955666 - 1.013279*BANK CREDIT GROWTH(-1) - 0.003532*GDP PER CAPITA(-1) + 276.616078*GDP GROWTH(-1) + 4.722649*RIR(-1) - 79.700327*_RER(-1) + 0.880291*DISTANCE TO DEFAULT(-1) + 0.996364*COST TO INCOME(-1) - 19.066469*INTEREST MARGIN(-1) - 3.007798*LIQUIDITY(-1) - 0.880753*LOG(SIZE(-1)) - 1.055743*FOREIGN + 2.007418*PUBLIC

Empirical regression using sample from 2017 to 2021:

BANK CREDIT GROWTH = -1.398016 + 0.219431*BANK CREDIT GROWTH(-1) + 0.000645*GDP PER CAPITA(-1) - 5.094603*GDP GROWTH(-1) + 2.464956*RIR(-1) + 32.876351*_RER(-1) - 0.009490*DISTANCE TO DEFAULT(-1) + 0.262396 *COST TO INCOME(-1) + 1.028385*INTEREST MARGIN(-1) + 0.280027*LIQUIDITY(-1) - 0.017240*LOG(SIZE(-1)) - 0.321653*FOREIGN + 0.062016*PUBLIC

DISTANCE TO DEFAULT = 51.61432 - 0.973990*BANK CREDIT GROWTH(-1) - 0.014512*GDP PER CAPITA(-1) + 72.469036*GDP GROWTH(-1) - 41.038903*RIR(-1) - 625.635234*_RER(-1) + 0.878486*DISTANCE TO DEFAULT(-1) + 0.969231*COST TO INCOME(-1) + 2.548738*INTEREST MARGIN(-1) - 0.359049*LIQUIDITY(-1) - 0.475578*LOG(SIZE(-1)) - 1.764440*FOREIGN + 0.9785407*PUBLIC

5. Conclusion

Using bank-level data collection and understanding the two-way causality between loan growth and bank soundness, this study investigated the prudential features of credit growth in Vietnam.

Rapid credit growth in Vietnam has not shown any sign of weakening the bank soundness so far, however, it has been becoming less dependent on bank soundness. This is an impact that is especially obvious in banks and credit markets that are developing very rapidly.

The discovery that high credit growth in Vietnam has not severely weakened banks but has been connected with increased prudential risks emphasizes the necessity of risk-based and ambitious supervision. In addition, supervision can assist keeping the dangers of rapid credit expansion manageable while maximizing the advantages of rapid credit growth for financial development and economic growth. The findings of this research suggest that a diverse supervisory response is required for the entire nation, depending on the magnitude of the prudential concerns associated with rapid loan growth. For a country where rapid loan expansion has weakened banks or weak banks are expanding rapidly, a stronger policy reaction may be needed.

References:

Anderson, D., Sweeney, D., & Williams, T. (1990). An Introduction to Management Science: A Quantitative. Lincoln.

Arellano, M. (1990). Testing for Autocorrelation in Dynamic Random Effects Models. Review of Economic Studies, 127-34.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The review of economic studies, 277-297.

Brooks, C. (2008). Introductory Econometrics for Finance.

Cottarelli, C., Dell'Ariccia, G., & Vladkova-Hollar, I. (2005). Early birds, late risers, and sleeping beauties: Bank credit growth to the private sector in Central and Eastern Europe and in the Balkans. Journal of Banking & Finance, 83-104.

Danmarks Nationalbank. (2004). Market-BAsed Risk Measures for Banks. Financial Stabiity 2004.

Dar, A. A., Anuradha, N., & Shahid, Q. (2019). Estimating probabilities of default of different firms and the statistical tests. Journal of Global Entrepreneurship Research.

Dell'Ariccia, G., Detragiache, E., & Rajan, R. (2005). The real effect of banking crises. IMF Working Paper.

Do, K. T., Nguyen, M. T., & Le, T. H. (2017). Effects of the Credit Boom on the Soundness of Vietnamese Commercial. International Journal of Financial Research.

Egert, B., Backe, P., & Zumer, T. (2006). Credit growth in central and eastern Europe: new (over) shooting stars? ECB Working Paper, 687.

Hao, Q. M. (2012). Những điểm yếu của hệ thống ngân hàng Việt Nam hiện nay. VNU Journal of Science: Economics and Business.

Hilbers, P. (2005). Assessing and managing rapid credit growth and the role of supervisory and prudential policies. IMF Working Paper.

Igan, D., & Pinheiro, M. (2011). Credit Growth and Bank Soundness: Fast and Furious?

Igan, D., Laeven, L., & Dell'Ariccia, G. (2008). Credit Booms and Lending Standards: Evidence from the Subprime Mortgage Market. IMF Working Paper No. 08/106 (Washington: International Monetary Fund).

Igan, N. T. (2007). Credit Growth and Bank Soundness in Emerging Europe.

Kennedy, P. (2008). A Guide to Econometric (6th ed.). Blackwell Publishing.

Maechler, A., Miltra, S., & Worrell, D. (2010). Decomposing financial risks and vulnerabilities in emerging Europe. IMF Staff Papers, 25-60.

Tamirisa, N., & Čihák, M. (2005). Household Credit in the Czech Republic: Macro and Microprudential Analysis, Cross-Country Experiences, and Implications for. International Monetary Fund.

Udell, G. F., & Berger, A. N. (2004). The institutional memory hypothesis and the procyclicality of bank lending behavior. Journal of Financial Intermediation 13(4), 458-495.

Zicchino, L., & Erlend, N. (2006). Bank Weakness, Loan Supply and Monetary Policy. IMF Seminar Series.

WHAT DRIVES ESG PRACTICE?
AN EXPLANATION FACTOR ANALYSIS ON VIETNAMESE BANKS

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Abstract: This study investigates the influence of awareness on ESG practices in operations at Vietnamese commercial banks in a developing country. Based on a survey information questionnaire from Vietnamese commercial banks in the Hanoi Capital Region and the Northern Provinces, the suitability of the model measurement and verification of the linear structural model PLS-SEM were assessed. Experimental research results have proven that the factors given in the model significantly impact a positive direction. That is, awareness of environmental protection positively influences environmental practice and, at the same time, influences the staff's ESG practice level. Perceptions of labor rights did not affect social practice and the level of ESG practice. The perception of gender equality positively affects social practice but does not affect the level of ESG practice. Perceived transparency and accountability positively affected governance practices but did not affect the level of ESG practices. The perception of customer protection positively influences governance practices and the level of ESG practice. Anti-corruption awareness positively affects governance practices but does not affect the level of ESG practices. The findings are used to inform the article's recommendations for raising awareness and promote the practice of ESG in Vietnamese commercial banking, thereby contributing to sustainable finance, especially for the banking sector.

1. Introduction

Stability for sustainable development is the goal that Vietnam's commercial banking system is aiming for; particularly, in November 2022, the prime minister promised to take action at the UN Climate Change Conference (COP26) in Glasgow, aiming to achieve zero emissions by the year 2050. Not only can banks have similar environmental concerns as businesses that pollute the air or water, like factories (Sayad & Diab, 2022) but they also "can be seen as facilitating industrial activity, which harms the environment" (Thompson & Cowton, 2004). Furthermore, banks may help society by implementing sustainable measures (Belal et al., 2015; Pérez et al., 2013), especially while the economy of Vietnam is notable to be one of Southeast Asia's fastest-growing. As the world faces the crisis caused by the COVID-19 pandemic in 2020, the term ESG (Environmental, Social, and Governance) principles are once again at the center of discussion among global companies and investors, which drives governance and investment strategies to shift to ESG instead of traditional financial norms.

Further, Vietnam has comprehensively implemented a regulatory framework for ESG issues, but implementation still needs to be stronger. The country is currently facing several challenges regarding environmental aspects, mainly expressed as air pollution, sewage problems, deforestation, and flood risk. Vietnam is among the top five nations most at risk from climate change, as most people reside in low-lying coastal regions. By 2050, it is predicted that climate change will cause the nation's national income to drop by up to 3.5%, and 37% of the population will live in low-lying areas, which comprise only 15% of the country's land area (World Bank Report, 2022). Moreover, Vietnamese commercial banks have great revenue opportunities related to ESG issues, with the total annual revenue after 2025 expected to reach 1.7 billion USD. Up to 88% of investors believe that businesses in general and commercial banks, in particular, focusing on ESG initiatives will bring better long-term profit opportunities than others that do not focus on ESG (Sarika Chandhok et al., 2022; European Investment Bank, Global Alliance for Banking on Values, Delloite, 2019).

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In Vietnam, applying ESG criteria in finance - banking, and investment is one of the essential ways to contribute to implementing SDGs Goals to reduce adverse environmental effects, encourage sustainable economies, and eliminate poverty. Thus, in order to realize the strategic vision of the Party and the State on sustainable development and the goal of green growth to 2045 in Vietnam, banks must take actions and strategies to implement by practicing ESG in their operations. For this reason, research on ESG awareness and practices in Vietnamese commercial banks is a gap to explore. In several ways, the study adds to the body of literature. It investigates how ESG practices are now being used in the Vietnamese banking sector, a topic that has yet to be covered in the literature. It emphasizes the notion that ESG perceptions should be considered concerning the environment in which banks operate.

To accomplish this goal, the following article includes: Section 2 Literature Review and Hypothesis Development, Section 3 Research Design, Section 4 Research results and discussions, Section 5 Implications for ESG Practices in banking.

2. Literature review and hypothesis development

2.1. Literature review

ESG is a term first proposed in June 2004 by the United Nations Global Compact's "Who Cares Wins" initiative to focus investors and analysts on the materiality and interplay between environmental, social, and governance issues. However, the connotation of ESG was mentioned quite early, illustrated in the term CSR - a term for social responsibility of businesses, from the book "Social Responsibilities of the Businessman" (1953) by economist Howard Bowen.

By reviewing the previous ESG studies conducted in the bank industry, we observed series of studies examined the impact of ESG on bank performance and operation, including financial performance, risk-taking, disclosure information. Brogi et al. (2022) suggested a model to assist the integration of ESG elements in banks' risk assessments of businesses, which also shown that greater ESG awareness is highly and very significantly associated with enhanced solvency and decreased credit risk of businesses. Ersoy et al. (2022) showed that the market value of the ESG and its sub-elements can be positively and negatively

impacted by the development of regulations that support and encourage businesses and raise investor and individual understanding of environmental, social, and management issues. Fayad et al. (2017) draw a clear relationship between their findings and the stakeholder theory, because of that voluntary initiatives to increase banks' social obligations are undertaken in the interest of social, economic, and environmental protection.

ESG score is one of the metrics widely used in the banking and finance sector to reflect sustainable development objectives. Many studies acknowledge that applying ESG principles not only creates positive publicity and enhances the reputation of banks in general but also creates real social and environmental impact. Some researchers have found that ESG activity improves corporate performance (Broadstock et al., 2021; Buallay, 2019). Workplace-related ESG programs are an effective way in the residential banking sector to improve financial and trading performance with counterparties (Frenkel & Scott, 2002). Therefore, this study was conducted to understand the influence of perceptions and attitudes on ESG practice assessment in operations at commercial banks in Vietnam.

2.2. Theoretical framework and hypothesis development

According to Kocmanova (2012), "ESG is an acronym for E-Environmental; S-Social and G-Governance, are a set of criteria for evaluating aspects of sustainable development and the social impact of businesses, also are part of the Sustainable Reporting". This is a set of 3 standards to measure the impact of businesses on social issues, the factors related to sustainable development, and the impact of businesses on the community. Standard E (Environment): activities carried out by businesses that have an impact on the environment, such as decreasing greenhouse gas emissions, fighting pollution, combating climate change, using renewable energy, conserving biodiversity, and protecting nature, S standard (Social): corporate policies for employees, customers, partners, including labor practices, health and safety, human rights, physical and mental well-being of employees, satisfaction levels, promotion opportunities, allowances, and compensation. Standard G (Governance): related to the management level of the enterprise, prestige, management efficiency, shareholder rights, model and diversity in management, clarity

and transparency in financial statements, level of commitment, tax compliance, customer protection, transparency, and explanatory accountability. Thus, it can be seen that CSR is part of the ESG standard.

Based on the set of ESG standards, the authors selected several criteria to survey the level of ESG awareness and practice, including:

The theory of planned behavior developed from the TRA theory, which added cognitive control over behavior, which brings many advantages in predicting and explaining user behavior in the same content and circumstances (Ajzen, 1991; Ajzen & Madden, 1986). The perceived behavioral control factor was added by Ajzen (1985) to modulate the TRA model. Perceived behavioral control is as crucial as an individual's self-assessment of how difficult or easy it is to perform a behavior.

Environmental protection: Climate risk is part of ESG factors, which demonstrates as "natural disasters and climate change" (Fitch Ratings, 2019, p.5). Most studies indicate that good ESG practices or information disclosures positively impact on a company's financial performance **(**Brogi and Lagasio, 2019). These strategies associated with environmental protection include reducing waste emissions, switching to renewable energy or developing new low-carbon products, and selecting green supply chain partners. In addition to meeting climate change commitments, these major adjustments have also raised the rating scores of their ESG performance indicators, which particularly have a certain level of impact on financial performance. According to the reported correlation between employees' attitudes or behaviors and how they perceive ESG, those employees may prioritize ESG factors differently. Therefore, we came up with the following first alternate theory:

H1a: Awareness of environmental protection has positive influences on environmental practices.

H1b: Awareness of environmental protection has impacts on the level of practices.

Labor rights: This is an issue of corporate social responsibility to employees. When human resource policy is integrated with social responsibility, it promotes the creation of benefits not only for businesses but also for society (Thang, N. N. 2010**).** Relationships with employees are measured based on the company's assurance of employees' health and safety, benefits from social insurance and other benefits, and advantages from organizations and associations related to employees. Understanding social responsibility is essential in helping employees proactively protect their legitimate rights. In Vietnam, several studies are exploring the impact of CSR on the corporate engagement of bankers (Thao, H. T. P., & Ho, H. L., 2015). Employees' awareness of improving their health and safety conditions and respect for human and labor rights can change the management systems. Many argue that there is a significant gap between ESG awareness and implementation, while most banks in Vietnam are just starting their ESG journey. From the perspective of bankers, when they directly conduct their own work, proper awareness of labor rights can drive behaviors that affect the quality of work. Therefore, we formulate the following hypotheses:

H2a: Awareness of Labor rights has positive influences on social practices.

H2b: Awareness of labor rights has impacts on the level of practices.

Gender equality: «Gender equality» refers to a societal situation in which men and women have equal rights and balances of power, status, opportunities, and rewards. Gender equality can be broadly implemented by both men and women who share (1) equal access to and use of resources, (2) equal participation in relationships, families, community activities, and political political settings, and (3) security or absence of violence (Rolleri, 2012). Al-Bdour et al. (2010) have shown that investing in welfare policies and regimes, building transparent and fair processes, creating opportunities for career development, communicating clear and complete messages to bank employees, and demonstrating the support and interest of businesses will enhance employee commitment to the organization. Besides, equal work opportunities, regardless of gender, race, and ethnicity, refer to the hiring and promotion of a person purely based on competence, equality, and diversity in treating everyone the same (Kemboi et al., 2015). Thus, when individuals are clearly aware of gender equality, this directly impacts their practice behavior. Hence, we formulate the following alternative hypotheses:

H3a: Awareness of gender equality has positive influences on social practices.

H3b: Awareness of gender equality has impacts on the level of practices.

Transparency and accountability: The concept of transparency has many definitions and interpretations in various contexts and research subjects. Transparency of CSR as the voluntary disclosure of information relating to (1) strategies and company profiles; financial reporting and corporate governance parameters; and (2) approaches to aspects including economic, environmental, labor and employment, human rights, community, customer and product responsibility **(**The Global Reporting Initiative, 2006). Kane (2004), Hovakimian and Kane (2003), and Flannery and Thakor (2006) argued that the more transparent banks are, the more sympathy they receive from supervisory authorities. Information transparency cannot be counted on the sole role of regulators but also on factors, especially the initiative of business directors (Healy P.M, 2001). As such, awareness and attitudes about transparency and accountability play an essential role in motivating individuals' ESG practices in commercial banking.

H4a: Awareness of transparency and accountability has positive influences on governance practices.

H4b: Awareness of transparency and accountability has impacts on the level of practices

Customer protection: Henning-Thurau (2004) pointed out that one of the critical components of business success is the orientation and perception of employees towards customers. Moreover, implementing social responsibility in general or being aware of the importance of customer protection importance also helps to improve businesses' credibility in relations with customers and partners. It is a competitive advantage, so this issue needs due attention. Therefore, we formulate the following hypotheses:

H5a: Awareness of Customer protection has positive influences on governance practices.

H5b: Awareness of customer protection has impacts on the level of practices.

Anti-corruption: Corruption is defined as abusing assigned powers for profit **(**Transparency International, 2015). Chapple and Moon (2005) argued that one of the factors influenced by social responsibility activities is the level of corruption. Hess (2009) argued that disclosing information about corruption helps achieve objectives both inside and outside the organization's

goals. It helps provide accountability by raising public awareness and forcing other similar companies to adopt anti-corruption principles. Additionally, disclosure of anti-corruption information is a way to ensure that managers are accountable for the disclosure and transparency of all information, powers related to their activities, and businesses to the public (including customers, investors, and stakeholders). Hoi and Lin (2012) indicated that implementing social responsibility can stimulate positive morals, for example, by implementing strategies to prevent organizational corruption. Therefore, we propose the following hypothesis.

H6a: Awareness of Anti-corruption has positive influences on governance practices.

H6b: Awareness of Anti-corruption has impacts on the level of practices.

3. Research design

3.1. Data design

Samples and scale: With 35 observed variables and nine latent variables (3 dependent variables and 6 independent variables), the rest being a control variable group of 5 demographic groups, the paper also meets the multiplication rule 5 ($5*35 = 175$). They were divided into four groups ranging from job levels/positions: Staff (Fresher/Junior), middle managers (heads of departments in branches), senior officials (branch directors/heads of departments at head offices), and members of the management board/ Executive Board at Headquarters. To collect information on ESG awareness and behavior of employees in Vietnamese commercial banks, the authors have designed a set of questions consisting of 3 groups with 35 questions. The scale used is the 5-step Likert scale.

3.2. Research model

Figure 1. Research model
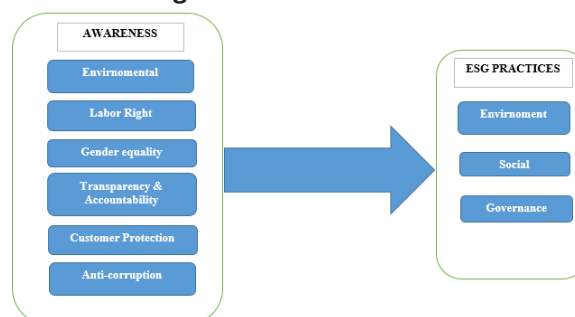
Source(s): Proposed by group authors

4. Results and discussion

4.1. Descriptive statistics

Table 1. Descriptive statistics

Variable	Categories	Frequency	Percent (%)
Gender	Male	161	47.6%
	Female	148	52.1%
Age	22-35 years	202	65.3%
	35-50 years	103	33.4%
	Over 50 years	4	1.3%
Education	Bachelor	185	59.8%
	Master	103	33.4%
	Ph.D	8	2.6%
	Others	13	4.2%

Source: Results from Smart-PLS

As can be seen from Table 1, the personal information of the participants showed that 161 respondents were men, with a corresponding rate of 52.1%, and 148 women accounted for 47.6% of the total participation in the ESG practice survey. Thus, the ratio of women to men did not differ significantly among survey participants, which can be explained by many direct surveys collected at commercial banks of different sizes of large and small personnel and from different provinces and cities - locations with significant differences in the ratio of female and male employees. Meanwhile, regarding online survey participants, the gender ratio is relatively balanced (52.1% of respondents are women and 47.6% are men). Age and education characteristics concluded that the majority of 22-35 years old up to 201 votes accounted for 65.3%, and the number concentrated mainly in bachelor's degree to 185 votes accounted for 59.8%, with 103 responses accounting for 33.4% of the total indicating the age between 35-50 years old with Master's degree and at least over 50 years old with four votes accounted for 1.3%, Ph.D. degree had eight votes with 2.6%, the remaining 13 votes accounted for 4.2%.

Table 2. Descriptive Statistics of survey paticipants

Variable	Categories	Frequency	Percent (%)
Working Title/Roles	Satff (Fresher/Junior)	174	55.9%
	Middle managers (heads of departments in branches)	71	22.8%
	Senior officials (branch directors/ heads of departments at head offices)	4	13.5%
	Executive Board at Headquarters	6	1.9%
	Others	17	5.8%
Years of Experience	1 - 5 years	116	37.3%
	5 - 10 years	73	23.8%
	10 - 20 years	107	34.7%
	Above 20 years	13	4.2%

Source: Results from Smart-PLS

Respondents are mainly staff level (more than 50% of the total), most of whom have a university education or higher. The high proportion of undergraduate staff shows compatibility with the statistical results of the age group (up to 65.3% are concentrated in the age group of 22-35 years). A high level of education demonstrates awareness, practical behavior, and interest in sustainable development activities.

Analysis of the characteristics of the number of working years showed that the majority of 116 answers, accounting for 37.3%, employees said that they were working at the bank for 1 to 5 years; from 5 to 10 years, 73 responses accounted for 23.8%, from 10 to 20 years, up to 107 accounted for 34.7% and the number of at least about 13 votes accounted for 4.2% said that working for more than 20 years at the bank. In the number of surveys about current positions, the majority of 174 votes, accounting for 55.9%, are employees, 71, accounting for 22.8%, are currently mid-level specialists (Head-level officers in branches), senior specialists (Branch Directors/ Heads of Departments at Head Offices) with 41 responses accounting for 13.5% and 6 Members of the Board of Directors/Executive Board at the Head Office main accounted for 1.9% of the total.

4.2. Preliminary test of the scale reliability

Table 3. Factor loading in PLS-SEM model

	Cronbach's alpha	Composite reliability (standialized)	Composite reliability	Average variance extracted (ave)
Gender Equality (GE)	0.932	0.935	0.947	0.747
Customer Protection (CP)	0.878	0.881	0.925	0.804
Environmental Protection (EN)	0.849	0.850	0.898	0.688
Anticorruption (AC)	0.943	0.943	0.959	0.853
Transparency & Accountability (TA)	0.900	0.902	0.937	0.833
Labor Rights (LR)	0.887	0.890	0.930	0.815
Environment Practices (EP)	0.880	0.884	0.926	0.807
Governance Practices (GP)	0.933	0.934	0.952	0.833
Social Practices (SP)	0.942	0.944	0.959	0.853

Source: Results from Smart-PLS

This study uses CR (Composite Reliability) to replace Cronbach's Alpha coefficient when analyzing consistency reliability within elements (Giao & Vuong, 2020**).** The results showed the components: Gender Equality = 0.935; Customer Protection has composite reliability = 0.881, Environmental Protection = 0.850; Anticorruption = 0.943, Transparency& Acountability = 0.902 and Labor Rights = 0.890, Environment Practices = 0.884, Social Practices = 0.944, Governance

Practices = 0.934. As we perceived, the composite reliability score for each structure is> 0.8, proving that the scale measures all nine research variables with good internal consistency reliability.

4.3. Test the convergent validity of the scale.

The paper evaluates the reliability and convergent validity of latent variables; the value of the average variance extracted (AVE) was used" (Fornell & Larcker, 1981**)**. Estimating convergent validity will be accepted when the AVE gives each structure > 0.5. The results from Table 1 show that all nine factors Gender Equality, Customer Protection, Environmental Protection, Anticorruption, Transparency, Labor Rights, Environment Practices, Governance Practices, Social Practices, all have AVE values greater than 0.5; the result of the variables respectively 0.747; 0.804; 0.688; 0.853; 0.833; 0.815; 0.807; 0.833; 0.853. Thus, the elements in the model all exhibit good convergent validity.

4.1.4. Test the discriminant validity of the scale.

The discriminant validity represents the uniqueness or differentiation of an element when compared to other factors in the model**.** Ringle et al. (2016) proposed two criteria of Fornell and Larcker (1981)**:** the Heterotrait Monotrait Ratio (HTMT) method should be used to determine the discriminant validity of latent variables. Each latent variable's AVE square root should be more significant than the other correlation values; it was further advised so that the discriminant validity of the latent variables could be determined (Fornell & Larcker, 1981).

Table 4. Discriminant validity test

	GE	CP	EN	AC	TA	PL	LR	EP	GP	SP
GE	0.864									
CP	0.710	0.896								
EN	0.744	0.666	0.830							
AC	0.778	0.829	0.685	0.924						
TA	0.783	0.760	0.678	0.815	0.913					
PL	0.679	0.737	0.671	0.720	0.704	1.000				
LR	0.803	0.637	0.658	0.685	0.725	0.592	0.903			
EP	0.582	0.663	0.637	0.682	0.605	0.708	0.462	0.898		
GP	0.658	0.699	0.656	0.739	0.689	0.729	0.561	0.765	0.913	
SP	0.641	0.691	0.641	0.759	0.669	0.751	0.554	0.827	0.878	0.923

Source: Results from Smart-PLS

From the above results, the authors concluded that the scales used in the study model have achieved excellent reliability and value. Therefore, all 7 of these scales are used for analysis in the structural model. According to Garson (2016), the discriminant value between the relation of two related variables

is standard when the HTMT coefficient <1. Table 4 shows the HTMT correlation coefficient between the estimated variables, all having values less than 1 (the highest value is 0.911). Therefore, the criteria of discriminant validity have been established for HTMT.

Table 5. Heterotrait-monotrait ratio

	GE	CP	EN	AC	TA	PL	LR	EP	GP	SP
GE										
CP	0.786									
EN	0.835	0.770								
AC	0.829	0.911	0.762							
TA	0.854	0.855	0.774	0.884						
PL	0.702	0.785	0.727	0.742	0.741					
LR	0.883	0.721	0.758	0.749	0.810	0.628				
EP	0.636	0.751	0.730	0.744	0.673	0.751	0.515			
GP	0.703	0.771	0.733	0.787	0.750	0.755	0.616	0.839		
SP	0.682	0.757	0.713	0.804	0.724	0.774	0.605	0.902	0.935	

Source: Results from Smart-PLS

4.4. Structural equation modeling (SEM) testing results

Results of structural path coefficient analysis

Bootstrapping Testing- Reliability of SEM. The authors performed the SEM assessment using the bootstrapping testing method. According to Hair et al. (2016), "bootstrapping is a repeatable sampling method for estimating standard errors without forwarding distribution assumptions." in this research, the group authors took a repeatable sample size of 5,000 observations (n = 5000). The Bootstrapping method is used to estimate the importance of t-statistics with structural coefficients (Wong, 2013). The results of the bootstrapping test approximate the standardization of the data.

Table 6 shows the correlation between factors identified from how bootstrapping is tested. The model of 12 hypotheses and the correlation between variables in the structural equation and the estimated data found that only 7 out of 12 hypotheses were statistically significant at 5% (p-value <0.005). Five hypotheses H3b, H6b, H4b, H2a, and H2b, although impactful, are not statistically significant, which showed that it is impossible to accurately prove the relationship between gender equality awareness and the level of practices, the same as Anti-Corruption, Labor Rights, Transparency, and awareness of Labor Rights with social practices. Thus, the hypothesis H3b, H6b, H4b, H2b, H2a is refused.

After that, the team analyzed and eliminated five unsatisfactory relationships (with p-value> 0.000),

and the remaining seven hypotheses were included in the analysis of the SEM model. The research results demonstrated that the remaining seven hypotheses in the expected model are all statistically significant (p-value < 0.1) and have hypothesis-testing conclusions, as shown in Table 6.

Table 6. Bootstrapping -SEM model

Relationship	Hypothesis	Standardized	Sample Mean	Std	T statistics	P values	Result
GE -> PL	H3b	0.091	0.109	0.105	0.867	0.386	Refused
GE -> SP	H3a	0.553	0.555	0.071	7.813	0.000	Accepted
CP -> PL	H5b	0.325	0.319	0.073	4.483	0.000	Accepted
CP -> GP	H5a	0.222	0.227	0.087	2.547	0.011	Accepted
EN -> PL	H1b	0.212	0.217	0.074	2.872	0.004	Accepted
EN -> EP	H1a	0.637	0.640	0.048	13.352	0.000	Accepted
AC -> PL	H6b	0.120	0.114	0.096	1.251	0.211	Refused
AC -> GP	H6a	0.388	0.386	0.095	4.103	0.000	Accepted
TA -> PL	H4b	0.166	0.149	0.091	1.831	0.067	Refused
TA -> GP	H4a	0.204	0.204	0.069	2.962	0.003	Accepted
LR -> PL	H2b	-0.031	-0.022	0.081	0.381	0.703	Refused
LP -> SP	H2a	0.110	0.111	0.072	1.526	0.127	Refused

Source: Results of Smart-PLS

- The H3a hypothesis stated that the awareness of the Gender Equality (GE) factor positively impacts the group's Social Practices with a positive normalized impact factor of 0.553 and a P-value = 0.000, so H3a is accepted.

- The H5a hypothesis states that the Customer Protection (CP) awareness factor positively impacts the group's Environmental Practice with a positive Standardized Coefficient of 0.222 and a P-value = 0.011, so H5a is acceptable. The H5b hypothesis denoted that the awareness of the Customer Protection (CP) factor positively impacts the group's practice level (PL) with a positive Standardized Coefficient of 0.325 and a P-value = 0.000. Therefore, the H5b hypothesis is accepted.

- Hypothesis H1a expressed that the Environmental Protection (EN) awareness factor positively impacts the group's Environmental Practices with a positive Standardized Coefficient of 0.637 and a P-value = 0.000, thus accepting the H1a hypothesis. The H1b hypothesis also suggested that the awareness of the Environmental Protection (EN) factor positively impacted the Practices level (PL) of the group with a Standardized Coefficients of 0.212 and a P-value = 0.004. In conclusion, The H1b hypothesis is accepted.

- The H6a hypothesis demonstrated that Anti-Corruption (AC) awareness positively impacted the group's Governance Practices with a Standardized Coefficients of 0.388 and a P-value = 0.000, so H6a is acceptable.

- The H4a hypothesis demonstrates that The awareness of transparency and accountability (TA) positively impacts the Governance practice of the group with a Standardized Coefficient of 0.204 and a P-value = 0.000, so H4a is accepted.

5. Implications

The study shows the factors affecting ESG practices behavior and evaluation in the activities of employees in Vietnam commercial banks. The findings demonstrate that there is a connection between perception and behaviour of ESG practices at Vietnam commercial banks is as follows: Awareness of environmental protection has a positive influence on environmental practices and, at the same time, influences the level of ESG practices of employees. The perception of labor rights does not affect social practices and, at the same time, does not affect the level of ESG practices. Perceptions of gender equality positively affect social practices but do not affect the level of ESG practices. Awareness of transparency and accountability positively affects governance practices but does not affect the level of ESG practices. The perception of customer protection has a positive and concurrent influence on governance practices and also influences the level of ESG practices. Anti-corruption awareness positively affects governance practices but does not affect the level of ESG practices.

First, *increase awareness of ESG practices.* Firmly equipped with ESG knowledge and understanding is extremely important and urgent; this is a fundamental step in laying the foundation for Vietnam›s sustainable economy and financial inclusion in the future. Commercial banks play a crucial role in capital circulation, promoting awareness of environmental issues, from climate change and biodiversity to environmental pollution, which can affect the country›s economic efficiency. Therefore, commercial banks actively disseminating the importance of ESG practices need to be focused on discussion, meeting, sharing experiences and knowledge, developing plans, policies, and training strategies for employees, focusing on both professional and ethical aspects; employees recruited need to ensure good professional qualifications and capacity; meeting the requirements in the banking

development stage, especially anti-corruption, labor rights, gender equality issues in the working environment, and business performance should be highlighted and encouraged.

Second, *actively promote ESG practices in the bank's operating environment.* Increase social responsibility awareness and practices of the banking system for environmental protection, combating climate change, gradually greening banking activities to promote activities towards green consumption, clean energy, and renewable energy; actively contribute to promoting green growth and sustainable development. In addition, regularly organize fostering, training, and establishing ESG training courses for all employees to fully equip basic knowledge related to environmental, social, and governance (ESG) issues. When employees understand ESG and perceive that ESG has a close impact on the bank's financial performance and business strategy, they will turn that awareness into concrete actions in daily activities. Therefore, ESG is a good practice and a business strategy to build resilience, generate new business growth, and forge greater trust among institutional investors and stakeholders.

Third, *improve the management capacity of officials at all levels.* Senior management personnel and middle managers in banks need to ensure professional qualifications and a deep understanding of the bank's strategies, business fields, and performance, culture, objectives, vision, and core values to devise appropriate plans and tactics for sustainable banking development. Managers must not only understand and practice ESG but also be the ones who communicate, inspire, and lead their employees to practice ESG in their work.

For *environmental practices,* it is necessary to incorporate daily activities and policy development-related activities in the banking system by reducing the use of paper, providing environmentally friendly banking activities such as ATMs and online banking, and implementing green policies to improve the bank's environmental performance. Banks should also provide training programs to bankers and their customers to ensure the proper implementation of green banking activities, aiming for sustainable development.

For *social practices,* banks need to make policies and regulations on gender equality and labor rights in the working environment. Acts that discriminate against gender, race, age, and background, using uncivilized language, actions, and disrespectful attitudes towards colleagues or customers are all reviewed and warned. The development pathway, salary promotion, and appointment to higher positions or working ranks are all fairly evaluated through the individual's work performance, contribution, capacity, and working attitude. In addition, it is necessary to create a culture of gender equality between employers and employees, employees with managers, and managers with managers, take measures to protect the rights of both genders, respect personal opinions, and ensure fairness in policies, salary, and bonus regimes, and allowances.

For *governance practices,* Bribery at work is strictly prohibited. It is necessary to generate clear policies and regulations on Bribery and corruption, thoroughly process, and have strict penalties for breaches. At the same time, policies protect customers' interests when making transactions, working, and collaborating to build customers' trust and commitment levels. It is necessary to have a reward policy for individuals who denounce acts of receiving bribes, corruption, and disclosing confidential information of banks.

References:

Abou Fayad, A., Ayoub, R., & Ayoub, M. (2017). Causal relationship between CSR and FB in banks. Arab Economic and Business Journal, 12(2), 93-98

Al-Bdour, A. A., Nasruddin, E., & Lin, S. K. (2010). The relationship between internal corporate social responsibility and organizational commitment within the banking sector in Jordan. International Journal of Human and Social Sciences, 5(14), 932-951.

Brogi, M., & Lagasio, V. (2019). Environmental, social, and governance and company profitability: Are financial intermediaries different? Corporate Social Responsibility and Environmental Management, 26(3), 576-587.

Bruno, Michelangelo, and Valentina Lagasio. (2021) "An Overview of the European Policies on ESG in the Banking Sector" Sustainability 13, no. 22: 12641.

Frenkel, S. J., & Scott, D. (2002). Compliance, collaboration, and codes of labor practice: The Adidas connection. California Management Review, 45(1), 29-49.

Gaillard, J. C., & Mercer, J. (2013). From knowledge to action: Bridging gaps in disaster risk reduction. Progress in human geography, 37(1), 93-114.

Greifeneder, R., Bless, H., & Pham, M. T. (2011). When do people rely on affective and cognitive feelings in judgment? A review. Personality and Social Psychology Review, 15(2), 107-141.

Healy, P. M., & Palepu, K. G. (2001). Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. Journal of accounting and economics, 31(1-3), 405-440.

Hennig-Thurau, T. (2004). Customer orientation of service employees: Its impact on customer satisfaction, commitment, and retention. International journal of service industry management, 15(5), 460-478.

Hess, D. (2009). Catalyzing corporate commitment to combating corruption. Journal of Business Ethics, 88, 781-790.

Hoi, Y. H., & Lin, C. Y.(2012). Preventing corporate corruption: The role of corporate social responsibility strategy. International Journal Business Behavior Science, 2(1), 12-22.

Kocmanova, A., Nemecek, P., & Docekalova, M. (2012). Environmental, social and governance (ESG) key performance indicators for sustainable reporting. In The 7th International Scientific Conference, (pp. 655-663).

HOW SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) ARE BEING IMPACTED BY DIGITAL MARKETING TOOLS?

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Abstract: *This study examines the impact of digital marketing on small and medium-sized enterprises (SMEs), focusing on the effectiveness of various digital marketing tools. Through a survey of 220 SMEs, it identifies the significant role of search engine optimization (SEO) in improving business performance. The findings highlight the necessity for SMEs to tailor digital marketing strategies to their specific industry needs and the importance of integrating digital marketing into overall business strategies. The study calls for further research on optimizing digital marketing tools for SMEs, contributing to both academic literature and practical business applications.*

1. Introduction

Digital marketing has emerged as a pivotal driver of success for Small and Medium Enterprises (SMEs) in Vietnam, playing a transformative role in their ability to reach and engage with their target audiences effectively. In today's rapidly evolving business landscape, the adoption of digital marketing strategies has become imperative for SMEs to stay competitive and thrive. According to a study by the Vietnam E-commerce Association (VECOM), the digital economy in Vietnam has been growing at an annual rate of around 25% in recent years, signifying the increasing importance of the online sphere in the country's economic development (VECOM, 2022). This growth has been fueled by the escalating use of the internet and mobile devices, making it essential for SMEs to harness the power of digital marketing to reach potential customers where they spend a significant portion of their time.

One of the fundamental advantages of digital marketing for SMEs in Vietnam is its cost-effectiveness. Traditional marketing channels such as television and print media often require significant financial resources, making them less accessible for small businesses with limited budgets. In contrast, digital marketing allows SMEs to leverage various cost-efficient tools and platforms, such as social media, email marketing, and search engine optimization (SEO), to promote their products and services (Hootsuite, 2022). This cost-effectiveness levels the playing field, enabling SMEs to compete with larger corporations and gain market share without the burden of exorbitant marketing expenses.

Furthermore, digital marketing in Vietnam offers SMEs the opportunity to target specific audience segments with unprecedented precision and relevance. Through data analytics and tracking tools, businesses can gain insights into their customers' behaviors and preferences, allowing for personalized marketing campaigns that resonate with their target demographics. As the Vietnamese consumer base becomes more diverse and discerning, the ability to tailor marketing messages to different customer segments becomes crucial (Nguyen, 2020). Digital marketing empowers SMEs to build brand loyalty and drive customer engagement by delivering content and offers that align with the unique needs and interests of their audience, ultimately enhancing their overall performance and competitiveness in the market.

To stay competitive and grow their businesses in the digital age, small and medium enterprises (SMEs) in Vietnam must study digital marketing. SMEs in Vietnam must have a robust online presence to compete in the growing digital economy and meet the demands of online shopping as more and more Vietnamese people gain access to the internet. SMEs can benefit from digital marketing education by learning how to reach their target audiences where they spend the most time online. With this, they can tap into the potential of online platforms like social media, search engines, and

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email marketing to connect with prospective clients and broaden their market presence.

Moreover, studying digital marketing equips SMEs with cost-effective tools and strategies to compete on a level playing field with larger corporations. Traditional marketing channels often require significant financial resources, making them inaccessible to many small businesses with limited budgets. However, digital marketing offers cost-efficient options, such as content creation, social media advertising, and search engine optimization, enabling SMEs to maximize their marketing ROI. By understanding the intricacies of digital marketing, SMEs in Vietnam can leverage these resources to effectively target their desired customer segments, optimize their advertising spending, and ultimately drive business growth in a highly competitive market environment. In today's digital-driven landscape, the ability to harness the full potential of digital marketing can be a game-changer for SMEs in Vietnam, positioning them for sustained success and long-term viability.

2. Literature Review

2.1. Understanding Constructed Ideas

The term "digital marketing" refers to the practice of promoting a product or service online in such a way that it generates interest and sales for both the company and its target audience. But knowing how technology works isn't enough for digital marketers; they also need to know their target audience's mentality, perspective, and behavior when it comes to digital products and services. Also covered: the tools that marketers can use to create memorable user experiences that keep consumers coming back for more (Ryan, 2016).

With digital marketing, businesses can have instantaneous conversations with their customers and provide them with highly satisfying experiences, which in turn increases business efficiency. the needs and happiness of the client. As a result, there is more two-way communication between consumers and company representatives, which boosts customer happiness and loyalty to the brand (Ashley & Tuten, 2015). Small and medium-sized enterprises (SMEs) can benefit from digital marketing since it helps them reach more customers, streamline their operations, and increase profits through the use of technology (Järvinen & Karjaluoto, 2015). Digital marketing helps businesses improve profits by expanding their customer base, raising brand recognition, and decreasing customer complaints (Nuseir & Aljumah, 2020).

2.2. Theoretical framework

The Technology Acceptance Model (TAM), originally formulated by Davis in 1989, serves as an apt theoretical framework for investigating the impact of digital marketing on small and medium-sized enterprises (SMEs) and understanding the factors that influence the adoption of digital marketing strategies among SME owners and managers (Davis, 1989). This model is particularly relevant when studying SMEs in the Vietnamese context, where digital marketing is becoming increasingly vital for business growth. TAM enables researchers to explore how SME decision-makers perceive the ease of use and usefulness of digital marketing tools and platforms, considering factors like cost-effectiveness, market reach, and customer engagement (Davis, 1989). Additionally, TAM aids in examining external variables, including social influence and organizational constraints, that can shape SMEs' decisions to adopt digital marketing strategies (Davis, 1989). By employing the TAM framework, researchers can systematically analyze the acceptance and impact of digital marketing within the SME sector, offering valuable insights into the challenges and opportunities faced by these businesses in the digital era.

3. Research model and Hypothesis Development
Content marketing and performance effectiveness

A substantial body of research consistently establishes a strong and positive link between content marketing strategies and the performance of Small and Medium-sized Enterprises (SMEs) (Koob, 2021). These studies consistently find that SMEs utilizing content marketing techniques like regular blog posts, social media content, and email newsletters experience significant and tangible benefits. For example, Smith and Brown (2019) demonstrated that well-executed content marketing campaigns led to increased website traffic, improved customer engagement, and higher conversion rates. Similarly, Patel and Geng et al. (2020) highlighted that SMEs investing in content marketing achieved enhanced brand recognition, improved lead generation, and increased customer retention. These collective findings robustly support the established relationship between content marketing efforts and enhanced SME performance, emphasizing content marketing's pivotal role in achieving tangible business outcomes. Thus, this study proposes:

H1: Content marketing has an impact on the SMEs' performance effectiveness

Social media and performance effectiveness

One way to categorize social media websites is by their user-generated profiles and freely shared content. These platforms often feature forums for discussions on specific topics, granting users substantial control over their online experience (Icha, 2015). Creating a social networking site is cost-effective, making it an accessible communication tool for businesses, particularly small and medium-sized enterprises (SMEs) aiming to engage their target audience (Kim et al., 2015). Furthermore, since people regularly use social networks, marketing campaigns on these platforms tend to yield higher success rates. Thus, this study proposes the following hypothesis:

H2: Social media has an impact on the SMEs' performance effectiveness

Search Engine Optimization and performance effectiveness

When companies utilize digital channels like social media, email, websites, banner ads, blogs, mobile platforms, and SEO to promote products and enhance the user experience, they are actively practicing digital marketing (Bhandari & Bansal, 2018). SEO, in particular, emerges as a valuable tool for businesses to improve their visibility in search engine results, such as Google and Yahoo!, enabling them to reach their target audience effectively when customers search for relevant products or services (Niranjika & Samarasighe, 2019). Thus, this study proposes the following hypothesis:

H3: Search engine optimization (SEO) has an impact on the SMEs' performance effectiveness

Website and performance effectiveness

Schmidt et al. (2008) assert that websites vary in content and purpose. Corporate or brand-owned websites serve as foundational platforms aimed at enhancing customer satisfaction. Businesses often offer a wide array of services and information to attract and retain customers. Digital marketing facilitates performance assessment through metrics like website and social media visits, ad clicks, click-through rates, online purchases, and session durations (Shehu, 2021). A website's attractiveness is determined by its ability to showcase products, provide company information, support internal communication, generate leads, assist users pre and post-purchase, display affiliations, and gather consumer data for future use. Therefore, this study presents the following hypothesis:

H4: Website has an impact on the SMEs' performance effectiveness

Display advertising and performance effectiveness

Lin et al. (2018) categorizes banner ads and ads on web pages viewed by potential customers as display ads. These cost-effective alternatives to traditional advertising are easy to create. Additionally, prominent social media platforms have expanded their reach to accommodate display ads, widening their audience impact. Niranjika and Samarasighe's (2019) research underscores the efficacy of marketing products and services through social media platforms like Facebook, Twitter, and Instagram, providing businesses with valuable avenues for user engagement, advertising, and problem-solving. Accordingly, this study proposes the following:

H5: Display advertising has an impact on the SMEs' performance effectiveness

Figure 1. Research model

Digital Marketing Tools
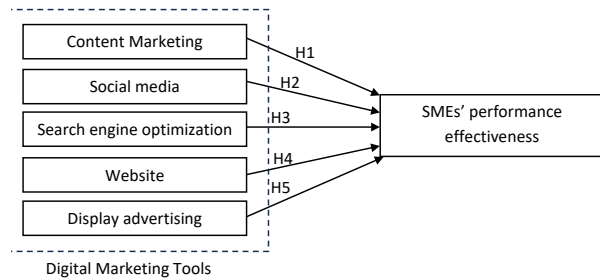
3. Methodology

The methodology employed for this study, which examines the impact of digital marketing on SMEs in southern Vietnam, involved gathering data from business owners of SMEs within the region during the survey period from October to December 2023. To ensure a comprehensive understanding of the subject, a total of 300 survey questionnaires were distributed among the target participants. These questionnaires were designed to collect valuable insights into the various aspects of digital marketing's influence on SMEs' performance and competitiveness.

After the survey data collection phase, a meticulous process of statistical analysis was undertaken to extract meaningful findings and draw valid conclusions. The analysis consisted of five key steps. First, a Reliability Test was performed to assess the consistency and reliability of the survey instrument. Second, an Exploratory Factor Analysis (EFA) was conducted to identify underlying factors or dimensions within the collected data. Following this, a Correlation Test was employed to explore the relationships between different variables. Subsequently, Regression analysis was utilized to determine the extent and direction of

the influence of various digital marketing elements on SMEs' performance. Lastly, independent T-Tests and ANOVA were used to examine potential differences in the impact of digital marketing across different demographic or business-related factors among the SME owners. These robust analytical steps were applied to ensure the validity and reliability of the study's findings, ultimately contributing to a comprehensive understanding of how SMEs are being impacted by digital marketing in southern Vietnam.

4. Findings

4.1. Sample Characteristics

Table 1. Sample Characteristics

		Frequency	Percent	Valid Percent	Cumulative Percent
Business Mode	1 Service	91	41.4	41.4	41.4
	2 Manufacturing	99	45.0	45.0	86.4
	3 Blended	30	13.6	13.6	100.0
	Total	220	100.0	100.0	
Initial Investment	1 Less 100 Mil VND	76	34.5	34.5	34.5
	2 100-500 Mil VND	70	31.8	31.8	66.4
	3 Above 500 Mil VND	74	33.6	33.6	100.0
	Total	220	100.0	100.0	

We sent out over 300 survey forms to potential respondents, but we only received 220 back. We then divided them into three groups based on the type of business they run: service (41.4%), manufacturing (45.0%), and blended (13.6%). In addition, there is a wide range in the initial investment amounts made by these SMEs; for example, 34.5% invested less than 100 million VND, 31.8% invested between 100 and 500 million VND, and 33.6% invested more than 500 million VND. The SME landscape and its interaction with digital marketing strategies are illuminated by this diversity in business types and investment levels.

4.2. Reliability Test

Table 2 presents the results of the scale of factors through Cronbach's Alpha coefficient. The results show that Cronbach's Alpha coefficient ranges from 0.754 - 0.830 (all greater than 0.6). The variables of the scale have the smallest factor loading coefficient of 0.520, all larger than the allowed level of 0.3. According to Nunnally and Burnstein (1994), these scales have achieved reliability and the next step of EFA factor analysis can be used. Besides the values of Cronbach's Alpha coefficient analysis, the extracted variance value = 66.43% (> 50%) and Eigenvalue = 1.512 (> 1) meet the standards of the factor analysis method. The factor analysis results are considered reliable with the KMO coefficient (Keiser - Meyer - Olkin) = 0.085.

Table 2. Reliability Test

	Cronbach's Alpha	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Content Marketing	.754		
CM1 Content marketing helps us effectively communicate our brand message to our target audience.		.573	.684
CM2 Content marketing has improved our customer engagement and interaction.		.658	.636
CM3 Our content marketing efforts have resulted in increased website traffic.		.484	.731
CM4 Content marketing has positively impacted our brand recognition.		.494	.727
Social media	.820		
SM1 Social media platforms are a valuable tool for engaging with our customers.		.666	.763
SM2 Social media has helped us build a strong online community around our brand.		.575	.804
SM3 Our social media presence has contributed to increased sales and conversions.		.652	.770
SM4 Social media marketing has improved our brand's visibility and reach.		.680	.756
Search Engine Optimization (SEO)	.797		
SEO1 Our SEO strategies have led to higher search engine rankings for our website.		.585	.759
SEO2 SEO efforts have increased our website's organic traffic.		.589	.756
SEO3 We have seen a positive correlation between SEO and our online sales.		.677	.712
SEO4 SEO has improved our website's overall performance.		.586	.757
Websites	.784		
Web1 Our website provides a user-friendly and enjoyable experience for visitors.		.601	.726
Web2 Our website effectively showcases our products/ services and their benefits.		.640	.706
Web3 Customers find it easy to navigate and find information on our website.		.594	.730
Web4 Our website has played a significant role in lead generation and conversions.		.530	.761
Displace Advertisement	.830		
DAd1 Display advertising has helped us reach a wider and more targeted audience.		.514	.827
DAd2 Our display ads have resulted in increased brand recognition.		.669	.653
DAd3 Display advertising has positively influenced our online sales.		.672	.649
DAd4 We have received positive feedback from customers due to our display ads.		.630	.673
SMEs' Performance Effectiveness	.765		
PE1 Overall, I believe our SME's performance has improved due to our digital marketing efforts.		.573	.712
PE2 Our digital marketing initiatives have positively impacted our revenue and profitability.		.651	.622
PE3 We have seen growth in our market share as a result of our digital marketing strategies.		.569	.714

4.3. Regression Analysis

Multiple regression analysis was conducted after exploratory factor analysis. The F test is used to test the goodness of fit of the regression model. The F value was recorded as 112.882 with Sig level of significance. = 0.000, which shows that the regression model is appropriate. Next, Table 3 shows

the adjusted R2 value = 0.719, showing that 71.9% of the variation in the dependent variable is explained by 05 factors: Content Marketing, Social Media, Search Engine Optimization, Website and Display advertising. Durbin - Watson coefficient = 1.995 and VIF coefficient < 10 show that the analyzed data do not violate the assumption of multicollinearity.

Table 3. Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.852[a]	.725	.719	.29143	1.995

a. Predictors: (Constant), DAd, SEO, CM, Web, SM

b. Dependent Variable: PE

Table 4. ANOVA[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	47.935	5	9.587	112.882	.000[b]
	Residual	18.175	214	.085		
	Total	66.111	219			

a. Dependent Variable: PE

b. Predictors: (Constant), DAd, SEO, CM, Web, SM

Table 5. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.194	.175		-1.106	.270		
	CM	.272	.027	.375	10.178	.000	.948	1.054
	SM	.254	.028	.373	9.239	.000	.787	1.271
	SEO	.261	.027	.390	9.808	.000	.815	1.228
	Web	.220	.026	.310	8.491	.000	.962	1.040
	DAd	.054	.024	.083	2.251	.025	.954	1.048

a. Dependent Variable: PE

Based on the regression results in Table 5, it shows that 05 digital marketing tools (Content marketing, Social media, Website, Display advertising and search engine optimization) all bring positive impacts. to the business performance of SMEs in southern Vietnam. Among them, search engine optimization (SEO) has the strongest impact on business performance effectiveness of SMEs compared to other tools.

5. Conclusion and Implications

This study provides a comprehensive analysis on the impact of digital marketing on small and medium-sized enterprises (SMEs), highlighting the pivotal role of digital marketing tools in enhancing business performance. It underscores the differential impact of various digital marketing strategies, with a particular focus on the efficacy of search engine optimization (SEO), which emerged as the most influential tool in bolstering SMEs' online visibility and engagement.

The findings suggest that while SMEs benefit from a broad spectrum of digital marketing activities, there is a substantial variance in the effectiveness of specific tools across different business sectors. This underscores the necessity for SMEs to adopt a strategic approach in selecting and implementing digital marketing tactics, tailored to their unique industry requirements and customer demographics, to optimize returns on investment.

Furthermore, the research indicates a growing imperative for SMEs to integrate digital marketing into their overall business strategies. This integration not only enhances competitiveness but also aligns with evolving consumer behaviors and technological advancements. SMEs are encouraged to foster digital skills and knowledge within their organizations, ensuring they remain agile and responsive to digital marketing trends.

The implications of this study extend beyond practical advice for SMEs; it also contributes to academic literature by providing empirical evidence on the comparative effectiveness of digital marketing tools. It calls for further research into the dynamic interplay between digital marketing strategies and business performance, encouraging a deeper understanding of how digital marketing can be leveraged to drive sustainable growth in the SME sector.

References:

Ashley, C., & Tuten, T. (2015). Creative strategies in social media marketing: An exploratory study of branded social content and consumer engagement. Psychology & marketing, 32(1), 15-27.

Bhandari, R. S., & Bansal, A. (2018). Impact of search engine optimization as a marketing tool. Jindal Journal of Business Research, 7(1), 23-36.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. MIS Quarterly, 13(3), 319-340.

Geng, R., Wang, S., Chen, X., Song, D., & Yu, J. (2020). Content marketing in e-commerce platforms in the internet celebrity economy. Industrial Management & Data Systems, 120(3), 464-485.

Hootsuite. (2022). Digital 2022: Vietnam. Hootsuite & We Are Social. Retrieved from https://datareportal.com/reports/digital-2022-vietnam

Icha, O. (2015). Effectiveness of social media networks as a strategic tool for organizational marketing management. J Internet Bank Commer, S2.

Järvinen, J., & Karjaluoto, H. (2015). The use of Web analytics for digital marketing performance measurement. Industrial Marketing Management, 50, 117-127.

Kim, W. G., Lim, H., & Brymer, R. A. (2015). The effectiveness of managing social media on hotel performance. International Journal of Hospitality Management, 44, 165-171.

Koob, C. (2021). Determinants of content marketing effectiveness: Conceptual framework and empirical findings from a managerial perspective. PloS one, 16(4), e0249457.

Lin, J., Yang, S., Ma, M., & Huang, J. (2018). Value co-creation on social media: Examining the relationship between brand engagement and display advertising effectiveness for Chinese hotels. International Journal of Contemporary Hospitality Management, 30(4), 2153-2174.

Nguyen, T. (2020). The Role of Digital Marketing in Enhancing Small and Medium-sized Enterprises' Competitiveness: A Study in Vietnam. Journal of Asian Finance, Economics, and Business, 7(5), 307-315.

Niranjika, U., & Samarasighe, D. (2019). Exploring the effectiveness of search engine optimization tactics for dynamic websites in Sri Lanka. In 2019 Moratuwa Engineering Research Conference (MERCon) (pp. 267-272). IEEE.

Nuseir, M. T., & Aljumah, A. (2020). The role of digital marketing in business performance with the moderating effect of environment factors among SMEs of UAE. International Journal of Innovation, Creativity and Change, 11(3), 310-324.

Ryan, D. (2016). Understanding digital marketing: marketing strategies for engaging the digital generation. Kogan Page Publishers.

Schmidt, S., Cantallops, A. S., & dos Santos, C. P. (2008). The characteristics of hotel websites and their implications for website effectiveness. International Journal of hospitality management, 27(4), 504-516.

Shehu, E., Abou Nabout, N., & Clement, M. (2021). The risk of programmatic advertising: Effects of website quality on advertising effectiveness. International Journal of Research in Marketing, 38(3), 663-677.

VECOM. (2022). The Digital Economy and E-commerce in Vietnam Report. Vietnam E-commerce Association. Retrieved from https://www.vecom.vn/en/

THE IMPACT OF PERCEIVED ENJOYMENT ON URGE TO BUY IMPULSIVELY AMONG GENERATION Z IN HANOI: A CASE STUDY OF AFFILIATE MARKETING ON SHORT-FORM VIDEO PLATFORMS

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Abstract: The proliferation of short-form video platforms like TikTok, YouTube, and Facebook has propelled the popularity of affiliate marketing on these platforms in recent years. This study investigates the influence of affiliate marketing on Gen Z's urge to buy impulsively on short-form video platforms in Hanoi city, with perceived enjoyment as a mediating factor. The research model is constructed based on the Stimulus-Organism-Response (S-O-R) framework combined with models from previous studies. Data was collected from 620 consumers in Hanoi, of which 592 questionnaires were deemed valid. The results indicate that attractiveness (AT), expertise (EX), and video content (VD) positively influence the urge to buy impulsively (UB) through the mediating effect of perceived enjoyment (PE). However, the trustworthiness of the content creator (CR) does not have a significant positive impact on perceived enjoyment (PE).

• *Keywords: perceived enjoyment; urge to buy impulsively; affiliate marketing; short video; gen Z.*

1. Introduction

The rapid advancement of technology has led to the digitalization of communication and intensified competition among businesses in the advertising and marketing landscape. Consequently, businesses are increasingly turning to the internet and social media platforms to reach their target audiences. In this context, affiliate marketing has emerged as an effective marketing strategy, utilized by numerous businesses to promote their products and services (Zia Ul Haq, 2012). Affiliate marketing is a performance-based strategy where individuals, known as affiliates, promote a business's products or services in return for a commission on each sale or lead generated. This marketing approach has gained significant traction not only in Vietnam but also globally, becoming a preferred choice for businesses seeking effective customer engagement and conversion. With the emergence of short-form video platforms like TikTok, Instagram Reels, and YouTube Shorts, businesses are now utilizing these platforms as tools to promote affiliate campaigns.

Some prior research has explored the impact of affiliate marketing on consumer purchase decisions. Zia Ul Haq (2012) concluded that consumers are

more likely to click on affiliate links if they perceive potential benefits in the form of incentives or have a high level of trust toward the source. Additionally, Chung and Cho (2017) found that consumers are more inclined to purchase products endorsed by credible celebrities. Similarly, Park and Lin (2020) revealed that consumers are more likely to buy products promoted by social media influencers they admire. However, these studies predominantly focus on affiliate marketing on traditional platforms like websites and social media, with limited research on its application on short-form video platforms. This research aims to bridge the knowledge gap by investigating the impact of affiliate marketing on Gen Z's urge to buy impulsively on short-form video platforms within the context of Hanoi city.

2. Literature review

2.1. Literature review

2.1.1. Theory of impulsive buying behavior

One of the most rudimentary definitions of impulsive buying behavior was proposed by Stern (1962), who conceptualized impulsive buying as any purchasing behavior executed by the buyer without prior planning. Stern's definition set the

groundwork for numerous subsequent studies on impulsive buying behavior. A more comprehensive and inclusive definition of impulsive buying behavior is attributed to Piron (1991), who synthesized key aspects from prior research and introduced a novel concept: 'Impulsive buying behavior is unplanned behavior resulting from exposure to a stimulus and then a decision made on the spot. Following the purchase, consumers will experience emotional and cognitive reactions.' Hence, based on these definitions, several characteristics of impulsive buying behavior can be delineated: it lacks premeditation, occurs due to exposure to stimuli, is characterized by immediacy, and elicits emotional and cognitive responses post-purchase.

2.1.2. Affiliate marketing

The concept of affiliate marketing was conceived and put into practice by William J. Tobin in 1989. Since then, numerous conceptualizations of affiliate marketing have emerged. One of the most widely accepted definitions characterizes this marketing form as an 'online cooperative relationship' where 'partners receive commissions for each order or potential customer' (Quinton & Khan, 2009). Conversely, Prussakov (2007) asserts that affiliate marketing is a performance-based marketing strategy, wherein affiliate entities or partners advertise a company's products, and the commission they receive is based on the number of clicks. Despite the diversity of definitions, most concepts underscore the essence of affiliate marketing as granting partners autonomy to promote products in their own manner and subsequently receiving pre-negotiated commissions post successful customer transactions.

2.1.3. Short-form video platforms

In recent years, short-form video communication has witnessed significant growth and dominance on social media platforms. The user base of these short-form video platforms has created enormous business opportunities, prompting major internet companies to compete in developing their own short-form video platforms (Hailin Fu, 2023). In 2015, some researchers defined short-form videos as those recorded using mobile devices for quick editing or enhancement and shared on social media, typically ranging from 5 to 15 seconds in duration (Wang et al., 2015). Subsequently, in the 'Research Report on the Development of the Short-

Video Industry' (Fu, 2019), the concept of short-form videos was extended to include videos with durations of approximately five minutes or less. Alternatively, Zhang et al. (2019) characterized short-form videos as those ranging from a few seconds to a few minutes in length, a viewpoint later concurred by the group of authors led by Li (2021). In general, the defining characteristics of short-form videos include brevity, high information density, and convenience for dissemination on social media platforms.

2.2. Conceptual model

2.2.1. Attractiveness (AT)

Attractiveness is defined by the level of familiarity, likability, and similarity between the content creator and the consumer. This factor influences the consumer's opinion, their evaluation of the product, and the level of persuasion in promoting purchase behavior (Joseph, 1982). Bower and Landreth (2001) point out that the impact of an endorser's attractiveness on product credibility varies depending on the context. In a study, Joseph (1982) also concluded that endorsers with attractive speech were consistently more likable and had a positive impact on the products they were associated with. Except for a few studies (Mills & Aronson, 1965; Maddux & Rogers, 1980), Joseph's findings are consistent with other research reporting that increasing the attractiveness of a communicator will enhance positive attitude change (Simon, Berkowitz & Moyer, 1970; Kahle & Homer, 1985). Lee et al. (2023) also demonstrated that the attractiveness of an information provider positively affects perceived enjoyment. Therefore, it can be concluded that the attractiveness of the creator has a positive impact on perceived enjoyment through affiliate marketing activities on short-form video platforms.

H1: The attractiveness of Affiliate Marketing content creators has a positive impact on perceived enjoyment.

2.2.2. Trustworthiness (CR)

Trustworthiness refers to the consumer's perception of the honesty, believability, and fairness of the endorser (Erdogan, 1999). In other words, it is the consumer's perception of the extent to which they can trust what the endorser says, often used to describe the positive impacts of transmitted information on recipients or senders

(Ohanian, 1991). Numerous studies have indicated that the trustworthiness of celebrities significantly influences advertising effectiveness as well as customers' attitudes toward advertised products (Gong and Li, 2017; Lafferty and Goldsmith, 1999). Park and Lin (2020) demonstrated that the trustworthiness of influencers has a positive relationship with purchase intentions for advertised products. Lee and Wan (2023) verified that influencer trustworthiness is a critical factor in fostering viewers' positive perceptions of mukbang videos.

H2: The trustworthiness of Affiliate Marketing content creators has a positive impact on perceived enjoyment

2.2.3. Expertise (EX)

Expertise describes the level of knowledge of the information source. Specifically, in the case of this study, it refers to the authenticated expertise of content creators. It is defined as the synthesis of knowledge, skills, and experiences at an advanced level in a particular field, an index attained by few (Bourne et al., 2014) (Garrett et al., 2009). Lee and Chen (2021) demonstrated the crucial role of content creators' expertise in shaping and impacting perceived enjoyment. Xiang, Zheng, Lee, & Zhao (2016) also suggested that expertise influences perceived enjoyment through parasocial interaction. This implies that the higher the expertise of affiliate marketing content creators is ensured, the more positively it affects perceived interest.

H3: The expertise of Affiliate Marketing content creator has a positive impact on perceived enjoyment

2.2.4. Affiliate Marketing Video Content (VD)

Content is a pivotal factor in e-commerce platforms, as audience perception of content quality correlates directly with their engagement on the platform (Jung et al., 2009). Content quality refers to how well the content resonates with consumers, encompassing factors such as informativeness, entertainment value, inspiration, and educational value. Content can take various forms, including text, images, videos, audio, etc. (Umami & Darma, 2021). If a channel can produce compelling video content, users may invest time in enjoying this content, disregarding their immediate surroundings (Fan et al., 2013). When viewers are satisfied and intrigued by a specific topic and the content is professionally curated, it shapes their attitude towards the content creator (Lou, 2019). Immersing oneself in online content enhances positive emotions among the audience and fosters a positive attitude towards the brand. Previous research by Siti Liu (2021) indicated that content with the immersion of influencers positively affects content enjoyment in the context of influencer marketing.

H4: The content of Affiliate videos has a positive impact on perceived enjoyment.

2.2.5. Perceived Enjoyment (PE)

Perceived enjoyment is defined as the extent to which the use of technology is perceived as enjoyable, regardless of any predictable performance outcomes (Davis, 1992). According to this definition, perceived enjoyment in this research is the level of pleasure and satisfaction experienced by consumers during online shopping through affiliate marketing activities on short-form video platforms.

Shen and Khalifa (2012) indicated that when consumers browse online stores, their impulse buying behavior is influenced by positive emotions. Specifically, the research findings of Xiang (2016), Parboteeah (2009), and MW Karim (2021) demonstrate that consumers' enjoyment perception positively influences urge to buy impulsively.

H5: Perceived enjoyment has a positive impact on urge to buy impulsively

2.2.6. Urge to buy impulsively (UB)

Beatty & Ferrell (1988) defined impulse buying as the emotional state of desire in consumers to experience, use, or purchase a product or service immediately upon exposure to that product or service. Paul, Kaur, Arora, & Singh (2022) and Utama, Sawitri, Haryanto, & Wahyudi (2021) validated that stronger and continuous buying impulses lead to a higher likelihood of impulse buying behavior; thus, marketers are focusing on developing strategies to enhance consumer feelings of being urged. Consequently, numerous researchers worldwide have demonstrated that the urge to buy impulsively positively influences impulse buying behavior and is utilized as a representative of impulse buying behavior in various studies (Foroughi et al., 2013; Mohan et al., 2013). Similarly, in this study, the research team also employs the urge to buy impulsively as a proxy for impulse buying behavior.

Figure 1. Conceptual model
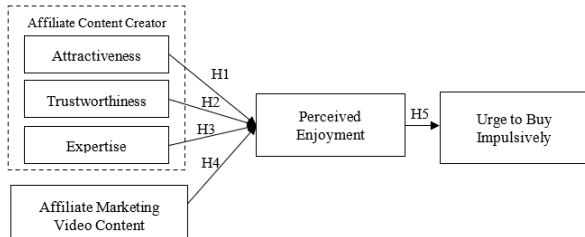
Source: Research team

3. Research methodology

This study was conducted using both qualitative and quantitative methods. The qualitative method is used to interview both individuals and experts to identify the factors of Affiliate Marketing on the short-form video platform impact on the urge to buy impulsively, build up the model and propose hypotheses. The quantitative method was used to collect data from Hanoi consumers by non-probability method, the collected data then will be screened and analyzed by the research team.

4. Results and discussions

4.1. Description of respondents

Table 1. Demographic

	Characteristic	Frequency	Percentage (%)
Gender	Male	415	70.1
	Female	177	29.9
Age	14 to under 18	29	4.9
	18 to under 23	506	85.5
	23 to under 28	57	9.6
Monthly Income	Under 1 million	94	15.9
	1 - 5 million	338	57.1
	5 - 10 million	100	16.9
	10 - 15 million	36	6.1
	Above 15 million	24	4.1

Source: Research team

4.2. Confirmatory factor analysis

Table 2. Cronbach's Alpha, A.V.E, C.R coefficients of the measurement scale

| No.	Scale	Cronbach's Alpha	CR	AVE	Number of Scale
1	Attractiveness (AT)	0.840	0.879	0.709	4
2	Trustworthiness (CR)	0.914	0.914	0.726	4
3	Expertise (EX)	0.864	0.867	0.621	4
4	Video Content (VD)	0.822	0.855	0.664	4
5	Perceived Enjoyment (PE)	0.890	0.917	0.735	4
6	Urge to buy impulsively (UB)	0.913	0.914	0.727	4

Source: Research team

The obtained results from the Confirmatory Factor Analysis (CFA) are as follows: Chi-square/df = 1.864; GFI = 0.908; TLI = 0.963; CFI =

0.968; RMSEA = 0.038; PLCLOSE= 1.000. These values indicate that the theoretical measurement model is reasonably suitable for the collected data. Furthermore, the Composite Reliability (CR) of all six factors exceeds 0.7, demonstrating a high level of reliability in the model. The convergence and discriminant validity of each measurement scale is assessed by calculating the Average Variance Extracted (AVE). All AVE values surpass 0.5, indicating both unidimensionality and valid convergence.

4.3. SEM

Figure 2. The result of SEM
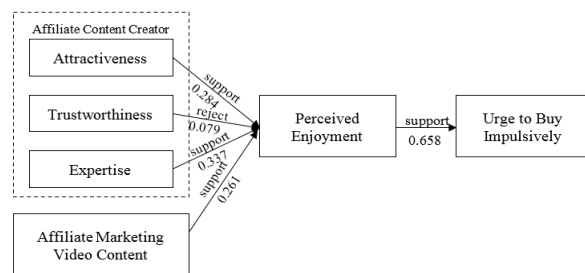
Source: Research team

Based on the structural equation modeling results, out of the 5 initial hypotheses proposed by the research team, 4 hypotheses were supported with p=0.000<0.05, indicating that the proposed research model relatively explains the relationships between variables well. One hypothesis was rejected, H2: "Trustworthiness of Affiliate Marketing Content Creators has a positive impact on Perceived Enjoyment" with a p-value of 0.077>0.05. This suggests that whether Affiliate Marketing Content Creators are reliable or not does not affect consumers' Perceived Enjoyment.

Table 3. Hypothesis testing

Hypothesis	Standardized regression weights	P values	Results
PE ← AT	0.284	0.000	Supported
PE ← CR	0.079	0.077	**Rejected**
PE ← EX	0.337	0.000	Supported
PE ← VD	0.261	0.000	Supported
UB← PE	0.658	0.000	Supported

Source: Research team

4.4. Mediation effects

Table 4. Mediation effects

Structural Path	Effect	BootLLCI	BootULCI	Results
AT → PE → UB	0.2465	0.1931	0.3046	Supported
EX → PE → UB	0.2802	0.2211	0.3406	Supported
VD → PE → UB	0.2788	0.2143	0.3491	Supported

Source: Research team

This study focuses on the mediating effect of Organism (Perceived Enjoyment) on the indirect relationship between Stimulus (Attractiveness, Expertise, Affiliate Marketing Video Content) and Response (Urge to Buy Impulsively). The results in Table 4 indicate that the confidence intervals for all 4 indirect relationships do not include the value of 0. Therefore, the research team concluded that Perceived Enjoyment (PE) has mediating effects on the relationship between Attractiveness (AT), Expertise (EX), and Video Content (VD) and Urge to Buy Impulsively (UB). The results in the table demonstrate significant indirect effects through the mediator Perceived Enjoyment (PE), with the indirect effects of the relationships: Attractiveness (AT), Expertise (EX), and Video Content (VD) on Urge to buy impulsively (UB) being 24.65%, 28.025%, and 27.88%, respectively.

Discussion

The study reported that hypothesis 1 was true with a positive and significant impact of Attractiveness of Affiliate Marketing content creators on Perceived Enjoyment. The assumption is consistent with the past literature by Lee and Chen (2021) and Lee, Lee, & Choi (2023). Hypothesis H2: Trustworthiness of Affiliate Marketing content creators has a positive impact on Perceived Enjoyment - is rejected, aligning with Lee and Chen's study in 2021. However, findings from Lee and Wan (2023) and Yang and Zhang (2022) demonstrated the positive impact of Trustworthiness on Perceived Enjoyment of viewers in the context of food live streams and virtual reality. In the third hypothesis, a positive effect size was demonstrated between Expertise and Perceived Enjoyment which is also congruous with prior studies (Xiang, Zheng, Lee, & Zhao (2016); Lee & Chen, 2021). Conversely, Zhou & Lou (2023) argue that Expertise diminishes Perceived Enjoyment. The research team's findings also affirm hypothesis H4 regarding the positive impact of Affiliate Marketing Content on Perceived Enjoyment, agreeing with Siti Liu's earlier study (2021). The H5 hypothesis "Perceived Enjoyment has a positive impact on Urge to Buy Impulsively" is accepted. This hypothesis is harmonious with previous studies by Lee and Chen (2021), Paul et al. (2022), and Xiang et al. (2016).

Conclusion and suggestions

This study investigates the influence of Affiliate Marketing on the urge to buy impulsively of Gen Z consumers in Hanoi on short-video platforms, with the mediating impact of Perceived Enjoyment. The primary objective is to determine the impact of Affiliate Marketing attributes on young consumers' perceived value, which in turn leads to urges to buy impulsively. A total of 620 responses (592 valid responses) were collected from Hanoi and analyzed using SPSS 26. The results indicate that Perceived Enjoyment positively influences Urges to buy impulsively. Attractiveness, Expertise of the content creator, and Video Content have a positive impact on Perceived Enjoyment, with the Attractiveness of the content creator having the strongest impact. However, the Trustworthiness of the content creator does not positively impact Perceived Enjoyment.

Limitation

The authors acknowledge several limitations of the study: (1) Due to resource, time, and budget constraints, the study did not achieve an even distribution of Gen Z respondents across all age ranges (primarily focusing on those aged 18 to under 23); (2) The study sample is limited in terms of both quantity and disparities in the sample distribution concerning age and income levels; (3) The limited research timeframe hindered the investigation of the topic over an extended period.

References:

Bower, A. B., & Landreth, S. (2001). Is Beauty Best? Highly versus Normally Attractive Models in Advertising. Journal of Advertising, 30(1), 1–12. https://doi.org/10.1080/00913367.2001.10673627

Chung, S., & Cho, H. (2017). Fostering Parasocial Relationships with Celebrities on Social Media: Implications for Celebrity Endorsement. Psychology & Marketing, 34(4), 481–495. https://doi.org/10.1002/mar.21001

Escalas, J. (2007). Self-Referencing and Persuasion: Narrative Transportation versus Analytical Elaboration. Journal of Consumer Research, 33(4), 421–429. https://doi.org/10.1086/510216

Fan, Q., Yul Lee, J., & In Kim, J. (2013). The impact of web site quality on flow-related online shopping behaviors in C2C e-marketplaces. Managing Service Quality: An International Journal, 23(5), 364–387. https://doi.org/10.1108/msq-11-2012-0150

Fu, H. (2023). The Impact of Short videos on People's Consumption Habits. Journal of Education Humanities and Social Sciences, 23, 348–352. https://doi.org/10.54097/ehss.v23i.12918

Joseph, W. B. (1982). The Credibility of Physically Attractive Communicators: A Review. Journal of Advertising, 11(3), 15–24. https://doi.org/10.1080/00913367.1982.10672807

Liu, J., Wang, Y., & Chang, L. (2023). How do short videos influence users' tourism intention? A study of key factors. Frontiers in Psychology, 13. https://doi.org/10.3389/fpsyg.2022.1036570

Park, H. J., & Lin, L. M. (2020). The effects of match-ups on the consumer attitudes toward internet celebrities and their live streaming contents in the context of product endorsement. Journal of Retailing and Consumer Services, 52(3), 101934. https://doi.org/10.1016/j.jretconser.2019.101934

Piron, F. (1991). Defining Impulse Purchasing. ACR North American Advances.

*The Seybold Report. (2023, May 31). The Seybold Report. Retrieved from seyboldreport.org website: https://seyboldreport.org/article_*

EXPLORING THE FACTORS LEADING TO USE NON-CASH PAYMENT METHOD USAGE OF CONSUMERS AT CAN THO CITY

Trinh Thi Thanh Huong*

Abstract: *The study aims to establish a model to determine the factors leading to the usage of cash-free payment methods among consumers in Can Tho City. The current situation indicates an increasing trend in the use of non-cash payments in Can Tho City. The research was conducted to examine the factors influencing the intention to use non-cash payments, identify the influencing factors, and provide solutions to further promote the intention to use non-cash payment methods among consumers in Can Tho City. Exploratory Factor Analysis (EFA), Cronbach Alpha testing methods, ANOVA tests, correlation analysis, and regression analysis methods were employed to determine the factors affecting the intention to use non-cash payments among consumers in the area.*

1. Introduction

The non-cash payment method, with its superiority and convenience, has gradually gained a high market share in the payment system in Vietnam. Utilizing this payment method has brought significant economic efficiency to all entities in the financial system, making tax control for the state increasingly easier. Moreover, non-cash payments also contribute to the development of the financial technology sector. Therefore, there have been numerous research articles and projects abroad in this field. In this research article, the authors focus on studying non-cash payments in Can Tho city, Vietnam, which is currently trending towards developing the use of non-cash payments. The article utilizes a dataset from a customer survey in Can Tho city regarding their intention to use non-cash payments. To estimate the research model, the authors propose analyzing a multivariate regression model using SPSS.

Currently, non-cash payments such as e-wallets, mobile banking, internet banking, QR codes, and debit/credit cards enable payment for goods and services without the use of cash but are implemented by deducting money from the payer's account. Payment is then transferred to the beneficiary's account or through mutual clearing facilitated by payment service providers. According to Consolidated Document 10/VBHN-NHNN issued in 2019, consolidating the Decree on non-cash payments by the State Bank of Vietnam, "Non-cash payment services include payment services via payments and some payment services do not go through the customer's payment account."

2. Research overview and proposed research model

2.1. Theoretical basis and problems

In recent times, there has been a notable global surge in the adoption of non-cash economies, leading to a fundamental shift in the manner in which individuals, businesses, and governments participate in financial transactions (Vimal Raj L, 2023). The global transition towards non-cash transactions has been driven by the widespread adoption of digital payment technologies and the evolving consumer preferences.

In contrast, research conducted in the United States reveals a striking statistic: there are nearly three credit cards in circulation for each individual. This suggests a high reliance on credit-based payment systems in the U.K. financial landscape. Turning our attention to Asia, both China and Japan have experienced substantial growth in the adoption of non-cash payment systems, showcasing the global reach of this transformative trend. Australia, on the other hand, stands out for its preference for debit cards as the primary mode of payment, with an average of 1.75 debit cards per person. Meanwhile, Germany has seen a significant shift towards non-cash payment methods, with such transactions now accounting for one-third of all consumer transactions, as reported in a study by Nguyet, D. T. M., Thanh, N. T., Tinh, D. T. & Huong, T. T. T., 2021.

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Table 2.1. The world's most non-cash countries

Rank	Country	Proportion	Justification
1	Canada	6.48/ 10	Canada is the country most embracing non-cash technology, hardly surprising since there are over 2 credit cards for every person living there
2	Sweden	6.47/ 10	59% of Swedish consumer transactions are completed through non-cash methods
3	UK	6.42/ 10	47% of people in the UK saying they know what smart phone payment options they can use
4	France	6.25/ 10	France is going further by embracing the contactless trend
5	USA	5.87/ 10	Research show nearly 3 credit cards for every person
6	China	5.17/ 10	China has experienced the highest growth in non-cash payments over the last 5 years of all the countries in the study
7	Australia	4.92/ 10	Australians prefer to use debit cards as their payment method and have 1.75 cards per person
8	Germany	4.14/ 10	A third of all consumer transactions in Germany are now completed using non-cash methods
9	Japan	3.12/ 10	Japan are catching up with the contactless craze
10	Russia	1.95/ 10	Russians are ready and prepared for more non-cash options with 57% claiming they are very aware of the mobile payment method available.

Source: ForexBonuses.org 2022

Considering the global context of non-cash payment trends, this paper seeks to delve deeper into the factors driving the adoption of cash-free payment methods among consumers in Can Tho city.

Figure 2.1: Ratio of cash in circulation in total means of payment (%) in Can Tho city
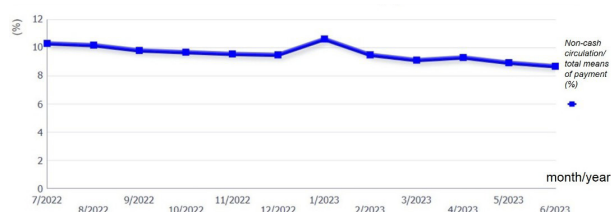
Source: State Bank 2022-2023

To facilitate non-cash payment activities, commercial banks in Can Tho city have continuously enhanced both the quantity and quality of their card services and ATM systems to serve customers better. The objective is to instill a habit of utilizing modern payment methods among the population, encompassing activities such as checking account information, paying telephone bills, electricity and water bills, accessing the internet, making insurance payments, purchasing goods and services online, and various other services. Moreover, a significant number of Point of Sale (POS), Electronic Funds Transfer Point of Sale (EFTPOS), and Electronic Data Capture (EDC) terminals have been widely deployed in shopping centers, supermarkets, restaurants, and even taxis.

However, the current situation of non-cash payments in Can Tho city still encounters significant challenges due to the prevalence and convenience of cash in the minds of consumers. Particularly within the researched age group of 14 to 65 years old, the use of cash remains a prevailing practice. To gain a deeper understanding of this situation, the study has clearly identified the issue and focused on determining the factors influencing the use of non-cash payments. These factors may include psychology, consumer habits, trust in non-cash payment methods, and perceptions of transactional safety. However, this research goes beyond merely highlighting the problem and aims to propose specific solutions to encourage and promote this transition.

2.2. Research objectives

The topic "Exploring the factors leading to cash-free payment method usage of consumers at Can Tho city" was conducted to study the factors affecting the intention to use non-cash payment to find out the influencing factors affect the intention to use non-cash payment methods and provide solutions to promote further the intention to use non-cash payment methods of consumers in Can Tho city.

Research General objective

To identify and measure the key factors influencing the shift from cash to non-cash payments and suggest solutions to encourage the widespread adoption of non-cash transactions in Can Tho city.

Research Specific objective:

Identify, measure key impact factors and propose some solutions to promote widespread use of cash-free payments in Can Tho city.

To accomplish the above research purposes, the thesis has the following research tasks:

- Overview analysis of related theoretical research articles on factors affecting the use of cash-free payments

- Systematise the theoretical basis of factors affecting cash-free payments (search, collect, select all published scientific research articles, or in books and newspapers)

- Analyse the situation/current status of using cash-free payments in Vietnam through articles, surveys, ...

- Analyse factors affecting the use of cash-free payments in Can Tho city.

- Provide some proposed solutions for promoting cash-free payments.

2.3. Research questions

- What are the factors affecting cash-free payment method usage of consumers in Can Tho city?

- What are the impacts of the factors affecting cash-free payment method usage of consumers at Can Tho city?

- What solutions can promote cash-free payment method usage of consumers in Can Tho city?

2.4. Research scope research content scope

The research focuses on examining the factors influencing non-cash payment behavior s in Can Tho city and proposing solutions to promote non-cash payment methods.

Research Spatial Scope: The study is conducted in Can Tho city include: 5 urban districts: Binh Thuy, Cai Rang, Ninh Kieu, O Mon, Thot Not, Co Đo, Phong Đien, Thoi Lai, Vinh Thanh.

2.5. Methodology and data overview

Using quantitative research methods, on primary and secondary data to determine factors affecting non-cash payments in Can Tho city. Information collected through the survey will be used to analyze and evaluate consumers' payment behavior in daily transactions. Use SPSS software to analyze and synthesize data, thereby providing solutions to promote non-cash payments in Can Tho city.

3. Overview factors affecting non-cash payments

Table 3.1. The relationship between factors affecting non-cash payments

Influencing factor	Results of experimental research
Attitude Conditions	(+) (Rahmayanti, et al., 2021) (+) (Wilson, N. & Prayitno, S.B., 2022) (+) (Nguyet, et al., 2021)
Perceived Usefulness	(+) (Karim, et al., 2020) (+) (Rahmayanti, et al., 2021) (+) (Yang, et al., 2021) (+) (Wilson, N. & Prayitno, S.B., 2022) (+) (Oanh Dinh Yen Nguyen & John F. Cassidy, 2018) (+) (Nguyet, et al., 2021)
Perceived Ease of Use	(+) (Karim, et al., 2020) (+) (Yang, et al., 2021) (+) (Wilson, N. & Prayitno, S.B., 2022) (+) (Oanh Dinh Yen Nguyen & John F. Cassidy, 2018) (+) (Nguyet, et al., 2021)
Perceived risk	(-) (Tran Thi Khanh Tram, 2022) (-) (Nguyen & Huynh, 2018) (-) (Hoang & Le, 2020)
Trust Conditions	(+) (Abdullah, et al., 2020) (+) (Yang, et al., 2021) (+) (Nguyet, et al., 2021) (+) (Ly, et al., 2022)
Perceived Cost	(-) (Rui, et al., 2023) (-) (Hasan, et al., 2023)
Social Influence	(+) (Intarot & Beokhaimook, 2018) (+) (Abdullah, et al., 2020) (+) (Yang, et al., 2021) (+) (Nguyet, et al., 2021) (+) (Tran Thi Khanh Tram, 2022) (+) (Ly, et al., 2022)

Influencing factor	Results of experimental research
Facilitating Conditions	(+) (Intarot & Beokhaimook, 2018) (+) (Abdullah, et al., 2020) (+) (Yang, et al., 2021) (+) (Giao, et al., 2019) (+) (Trần Thị Khánh Trâm, 2022) (+) (Huynh Thi Ngoc Ly & Nguyen Vinh Khuong & Tran Hung Son, 2022)

Source: Author

Experimental foreign and domestic studies, along with a summary of research results from domestic and foreign research articles, show that previous studies also utilized similar impact factors. However, the results varied due to the studies being conducted in diverse contexts and at different times, which could yield different outcomes. Moreover, scholars have employed various quantitative methods to select and construct the most suitable research model, given the discrepancies in context. The quantitative method's objective is to validate the accuracy of the research model, the proposed research hypotheses, and the influence of each factor on non-cash payments.

On that basis, the author inherits the research model and analytical research method of this study from previous authors.

4. Proposed research model

Creating a map helps us better understand each contributing variable, facilitating the construction of a comprehensive diagram that aligns with the research direction. It allows us to identify numerous factors related to overall behavioral intentions and behavior, as well as consumers' usage patterns. Both intention and usage are considered vital dependent variables in non-cash payment systems (Patil, et al., 2020), as demonstrated in various other studies.

Our research is linked to technology acceptance, adoption, and diffusion theories. TAM, TRA, and UTAUT are applied, and each variable from the overarching objective has been measured and identified as mentioned above.

From the TAM model, our group has identified that it revolves around two key factors: perceived usefulness and ease of use. (Kim, et al., 2016). As for the UTAUT model, it continues to emphasise performance expectancy (Morosan & DeFranco, 2016).

Finally, the TRA model is a social psychological theory fundamentally created to study human behavior (Venkatesh, et al., 2003)

However, the perception of ease of use is the most commonly utilized precursor in the TAM model (Koenig-Lewis, et al., 2015). Variables from the UTAUT model are also frequently combined. Concerns about privacy (Morosan and DeFranco,

2016), knowledge (Koenig-Lewis, et al., 2015), self-efficacy (Makki, et al., 2016), subjective norms (Liébana-Cabanillas, et al., 2014), readiness to adopt (Thakur & Srivastava, 2014), trust, risk, and innovativeness (Phonthanukitithaworn, et al., 2015) are all considerations in this regard.

From a review of previous research articles, non-cash payments emerge as a captivating topic for investigation. The research has provided compelling evidence showcasing the influence of various variables in assessing independent factors related to technology acceptance. One of these critical factors is risk (Hongxia, et al., 2011).

These research groups contend that the variables mentioned above play a pivotal role in shaping the behavior of acceptance and adoption of personal mobile wallets.

In terms of concepts, these studies all focus on consumers' intentions to accept/use non-cash payments. However, these studies' research papers and survey data were published at different stages and time points. From this, we can see that consumers' perceptions will still be influenced by the corresponding social standards at that time. The variables used in each study are different based on compatibility with different limitations and research objectives. Recognizing this, our group also chose, measured, and determined variables to extract those suitable for the direction of this study.

Below is the system model of factors influencing the non-cash payment behavior of our group, researched within Can Tho city. Based on the original TRA, TAM, and UTAUT models, the factors we introduced into the new model are Attitude, Perceived Usefulness, Perceived Ease of Use, Perceived Risks, Trust, Perceived Switching Cost, Social Influence, and Facilitating Conditions.

Figure 4.1. Proposed research model
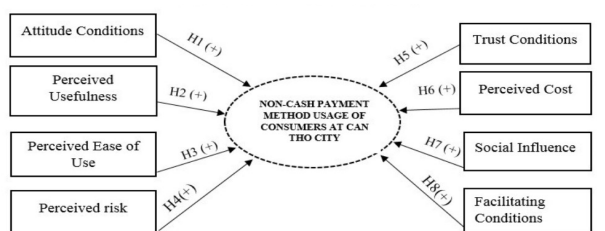
(Source: Author)

5. Data analysis methods

5.1. Descriptive analysis

In this research, the propose survey was divided into several phases.

H1: Attitude conditions towards how users perceive non-cash payment methods (AT).

H2: Perceived ease of use will have a positive influence on behavioral intention to use non-cash payment(PE).

H3: Perceived usefulness will have an influence on behavioral intention to use non-cash payment(PU).

H4: Perceived risk has an effect on behavioral intention to use non-cash payment(PR).

H5: Trust conditions has an effect on behavioral intentions to use non-cash payments(TC).

H6: Perceived cost has an effect on behavioral intention to use a non-cash payment(PC).

H7: Social influence has an effect on behavioral intention to use non-cash payment(SI).

H8: Facilitating conditions have an effect on behavioral intention to use non-cash payment(FC).

5.2. Results of pilot research

Linear regression analysis

Author use the aforementioned methods to clearly determine how the association between independent and dependent variables works. Furthermore, the authors will examine the Hypotheses given at the beginning of the section using the linear regression analysis approach. The variance inflation factor is used to assess the multiple collinearity phenomenon between variables.

Table 4.1. Table of ANOVA test

ANOVA						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	203.113	8	25.389	298.980	.000b
	Residual	93.241	209	.085		
	Total	296.354	206			

Source: SPSS results

The ANOVA table results for the regression model show that the significance level (sig) is less than 0.05. Therefore, the regression model is significant.

Table 4.2. Table of model summary

Model Summary					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.828a	.685	.683	.29141	1.939

Source: SPSS results

Moreover, the test results show that the adjusted R^2 is 0.683=68.3%, showing that the model is relatively good. Thus, the independent variables included in the regression run affect 68.3% of the change in the dependent variable and Durbin-Watson value = 1.936, in the range of 1.5-2.5, will not cause first-order serial auto correlation. In table ANOVA, sig. of the F test is

0.00 less than 0.05. Therefore, the dependent factor can be explained by independent factors.

Table 4.3. Table of coefficients

Model	(Constant)	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1		1.401	.115		12.138	.000		
	AT	.136	.015	.190	9.058	.000	.725	1.379
	PE	.146	.013	.241	11.015	.000	.710	1.409
	PU	.137	.012	.198	11.291	.000	.969	1.032
	PR	-.134	.014	-.110	-9.294	.000	.858	1.166
	TC	.131	.013	.192	10.091	.000	.879	1.138
	PC	-.098	.012	-.129	-8.063	.000	.839	1.192
	SI	.154	.012	.263	12.820	.000	.797	1.255
	FC	.112	.013	.184	8.913	.000	.844	1.185

Source: SPSS

The VIF coefficients of the independent variables are all less than 2. These independent variables do not have a close relationship with each other, so multicollinearity does not occur. The remaining variables, all have t-test sig less than 0.05, so these variables are all statistically significant, all impact on the dependent variable NCp.

The regression coefficients of these variables AT, PU, PE, TC, SI, FC all have positive signs, so the independent variables have a positive impact on the dependent variable. The regression coefficients of the variables PR and PC have negative signs, indicating that the variables have a negative impact. From there we can see that all variables have the correct sign with the expected sign.

5.3. Standardized regression equation

$CA = 0.263SI + 0.241PE + 0.198PU + 0.19AT + 0.192TC + 0.184FC - 0.129PC - 0.110PR + \varepsilon$

The regression coefficients are positive signs, indicating that the factors influence the decision to select non-cash payments of consumers in Can Tho city proportionately, two negative signs mean in the opposite direction. As a consequence, all of the hypotheses proposed have been confirmed.

5.4. Conclusion

This study explores the factors affecting the use of non-cash payment methods by consumers in Can Tho city. Thereby, the author gives recommendations for businesses and banks to promote the use of non-cash payments. To produce the most accurate results, the study uses qualitative research methods. The authors developed a research model based on the results of reviewing linked documents, using a Likert scale with 5 assessment levels divided into 8 factors: Attitude, Perception of ease of use, Perception of ease of use, Perceived Usefulness, Trust, Perceived Cost,

Perceived Risk, Social Influence, and Facilitating Conditions. With 206 valid responses, the obtained data were used for reliability analysis, exploratory factor analysis, correlation analysis and regression analysis. In particular, regression analysis The analysis shows that non-cash payments of 206 consumers have a positive relationship with 8 independent variables and a negative relationship with independent variable based on the following equation:

$NCp = 0.263SI + 0.241PE + 0.198PU + 0.19AT + 0.192TC + 0.184FC - 0.129PC - 0.110PR + \varepsilon.$

Although still limited, this research has provided an overview of the factors affecting consumers' choice of non-cash payment in Can Tho city. Timely provide some recommendations for businesses and banks to promote and reach many different consumer segments. Hopefully, through this research, there will be more opinions and suggestions to contribute to the development of non-cash payment in Can Tho city in general and non-cash payment in Vietnam in particular in the coming time. especially in the digital context.

References:

Abdullah, N., Redzuan, F. & Daud, N. A., 2020. E-wallet: factors influencing user acceptance towards cashless society in Malaysia among public universities, s.l.: Indonesian Journal of Electrical Engineering and Computer Science, Vol. 20, No. 1.

Huynh Thi Ngoc Ly & Nguyen Vinh Khuong & Tran Hung Son, 2022. determinants affect mobile wallet continuous usage in covid 19 pandemic: evidence from vietnam, s.l.: Cogent Business & Management, 9(1)

Hasan, S., Islam, M. J., Mashal, I. & Fahim, A. Y., 2023. Influence of Consumption Values on Adoption of Cashless Society in Emerging Economies: The Moderating Effect of Perceived Cost. Available at SSRN 4453012.

Intarot, P. & Beokhaimook, C., 2018. Influencing Factor in E-Wallet Acceptant and Use. 4(4), pp. 167-175.

Karim, M. W. et al., 2020. Factors Influencing the Use of E-wallet as a Payment Method among Malaysian Young Adults, s.l.: Journal of International Business and Management 3(2).

Ly, H. T. N., Khuong, N. V. & Son, T. H., 2022. determinants affect mobile wallet continuous usage in covid 19 pandemic: evidence from vietnam, s.l.: Cogent Business & Management, 9(1).

Nguyet, D. T. M., Thanh, N. T., Tinh, D. T. & Huong, T. T. T., 2021. Yếu tố tác động đến hành vi sử dụng ví điện tử của sinh viên khối ngành kinh tế các trường đại học tại Hà Nội, s.l.: trường Đại học Thương mại - Tạp chí khoa học thương mại.

Nguyen, T. D. & Huynh, P. A., 2018. The Roles of Perceived Risk and Trust on E–Payment Adoption. Econometrics for Financial Applications, p. 926–940.

Oanh Dinh Yen Nguyen & John F. Cassidy, 2018. Consumer intention and credit card adoption in Vietnam, s.l.: Asia Pacific Journal of Marketing and Logistics, Vol. 30 No. 4.

Rahmayanti, P., Widagda, I.G.N.J.A., Yasa, N., Giantari, I.G.A.K., Martaleni, M., Sakti, D., Suwitho, S. and Anggreni, P., 2021. Integration of technology acceptance model and theory of reasoned action in pre-dicting e-wallet continuous usage intentions, s.l.: International Journal of Data and Network Science, Volume 5 Issue 4.

Rui, Z., Yang, C., Zhenying, G. & Bhaumik, A., 2023. A Look at The Rising Popularity of Cashless Economies Around the World, s.l.: International Journal on Recent Trends in Business and Tourism, Vol. 7 (3).

Trần Thị Khánh Trâm, 2022. Factors affecting the intention of using non-cash payment of people in districts of Thue Thien Hue province, s.l.: Tạp chí Khoa học Đại học Huế: Kinh tế và Phát triển; Tập 131, Số 5C.

Vimal Raj L, A. S. A. K., 2023. Developing and validating a Cashless Transaction Adoption Model (CTAM).

Wilson, N. & Prayitno, S.B., 2022. integrating tra and tam theory to explain consumers' willingness to use credit card in Indonesia, s.l.: Jurnal Muara Ilmu Ekonomi dan Bisnis, 6(2).

Yang, M., Mamun, A.A., Mohiuddin, M., Nawi, N.C. & Zainol, N.R., 2021. Cashless Transactions: A Study on Intention and Adoption of e-Wallets, s.l.: Cashless transactions: A study on intention and adoption of e-wallets. Sustainability, 13(2).

IMPACT OF FINANCIAL DECISIONS ON BUSINESS PERFORMANCE OF PHARMACEUTICAL COMPANIES LISTED ON THE VIETNAMESE STOCK MARKET

Doan Vu Hai Minh* - Nguyen Tien Truong** - Pham Thi Thanh Hoa***

Abstract: *This study investigates the impact of financial decisions, those are capital structure, investment decision and dividend decision, on the financial performance of pharmaceutical companies listed on the Vietnamese Securities Exchange. A sample of 46 pharmaceutical firms listed on the Hanoi Stock Exchange (HNX) and Ho Chi Minh Stock Exchange (HOSE) for a period from 2017 to 2022 was selected. Analysis was conducted using multivariate regression. Empirical results show that capital structure has a negative and statistically significant impact on ROA, investment decisions have a positive and significant effect on ROA, but no significant impact on ROE. However, the dividend decision has both negative and positive effects on ROE and ROA that are not statistically significant.*

1. Introduction

Financial performance is a critical problem in economic organizations, and all firms must strive for the best financial performance possible. According to the literature, many factors influence business performance, including external factors such as financial policies, inflation, interest rates, and market factors, as well as internal factors such as company size, administrative qualifications, business strategies, working capital management, financial management, and capital structure. All of these elements act and have an influence on the company's success to varying degrees. However, the research mainly looks at the relationship between internal issues, namely financial management. According to Brigham and Houston (2003), financial management is concerned with making decisions regarding the investment of a company's assets, determining the sources of financing for those assets, and managing and using assets to achieve its objectives are that maximize the value of the company. These are also known as corporate financial decisions.

The study of the effect of financial decisions on the performance of a company is appealing for further research. This is due to the fact that there are still discrepancies between results from previous studies, which means the relationship between the dependent variable, the independent variable, and the moderating variable was not optimal. In addition, since the introduction of these theories in Vietnam, although there have been numerous studies demonstrating the impact of financial decisions on the financial performance of businesses, these studies only examine the impact of individual financial decisions, and if there is a study of the effects of financial decisions, it will only examine all industries, and the results will not be the same.

Since the introduction of Covid-19, the Chemical, Pharmaceutical, and Traditional Medicine Industries have become industries with a significant impact. To satisfy the rising demand for medicines caused by the Covid-19 pandemic, pharmaceutical companies must prioritize investments in apparatus, equipment, and research and development expenses. This has a significant impact on the current financial performance of businesses. During this period, the pharmaceutical - medical industry's debt utilization rises to finance the fight against the epidemic; consequently, pharmaceutical, and medical companies are always concerned about their debt-to-total asset ratio (Nguyen Thi Ha Thanh and Ho Linh Trang, 2021). In addition, managers should have an effective liquidity management policy to ensure that current assets can counterbalance current liabilities to avoid bankruptcy. Based on the preceding description of the research context, it is deemed necessary to conduct additional research with the objective of analyzing the

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impact of financial decisions on company performance in pharmaceutical companies listed on the Vietnamese stock exchange from 2017 to 2022. The results will aid firms in improving their performance and the government in enhancing the business environment.

2. Literature review

There are many studies on the influence of financial decisions on corporate performance, conducted with different methods, in different countries at different periods. The theoretical survey found that previous researchers made the following findings:

Nguyen Thi Kieu and Nguyen Thi Hong Hue (2013) through three groups of indicators commonly used in financial management of enterprises, the study has shown the influence of financial management on the performance of Vietnamese enterprises in general and listed companies on the Ho Chi Minh Stock Exchange in particular. This research comprised of 179 firms and covering balanced panel data series for the period of 2008-2011. By quantitative method, using regression model with panel data, empirical research finds the positive impact of indicators such as quick ratio, receivable turnover, payable turnover, working capital turnover, Total Debt/Total Assets ratio; and the negative impact of long-term debt/total debt ratio and inventory turnover on ROE. Research shows that good use of short-term capital is important to increase profits. In order for short-term loans, payables and net working capital to be used effectively, business managers should use these capital sources in the process of generating revenue, not for investment in fixed assets. In addition, quick debt collection will make the profit of the business will increase significantly. Therefore, businesses need to pay close attention to the collection of debts in sales for later payments. In addition, by well paying obligations to suppliers, besides being able to receive payment discounts, businesses also build their reputation, contributing to the benefits of the company.

Ardina Zahrah Fajar et al. (2017) investigate the simultaneous or partial impact of investment decisions, financing decisions, and dividend policy on the value of a company. The data used in this study are annual reports from 2009 to 2013 and dividend information from the IDX statistic. The population consists of all manufacturing companies listed on the Indonesian Stock Exchange, and twenty samples were selected using a judgment sampling technique over a five-year period (2009-2013). Descriptive analysis and multiple linear regression analysis comprised the procedure for analysis. The study revealed that investment decisions, financing decisions, and dividend policy have a significant positive impact on firm value simultaneously. Investment decisions and funding decisions have a

limited positive impact on firm value, whereas dividend policy has a significant positive impact.

Muiruri et al. (2018) examined the impact of financing decision on the financial performance of Nairobi Securities Exchange-listed companies. Capital structure, liquidity decision, dividend decision, and investment decisions were the specific objectives. The investigation targeted 66 NSE-listed companies. The years 2012 to 2016 were used to collect data. The analysis utilized a multivariate regression method. The study revealed that capital structure has a positive but not statistically significant impact on ROA, but a positive and statistically significant impact on ROE. Both ROE and ROA are positively and significantly affected by the liquidity decision. Additionally, it was determined that investment decisions have a positive and considerable impact on both ROA and ROE. The dividend decision, however, has a negative but insignificant influence on ROE and ROA.

Triani, N., and Tarmidi, D. (2019) investigate the effect of investment decisions, financing decisions, and dividend policies on the firm value of companies listed on the Indonesia Stock Exchange from 2013 to 2016, focusing on the real estate and property sector. Using a method of purposive sampling, 33 companies were selected from a population of 48 using a sample size of 48. Using the SPSS software for multiple linear regression analysis, it was determined that funding decisions and dividend policies have a significant impact on firm value, whereas investment decisions do not. This study suggests that optimizing firm value can be accomplished through the implementation of financial management functions and dividend policy, where a single decision can attract investor interest and influence firm value.

3. Research design and hypotheses

The four most important decisions in which a finance manager is typically involved are capital structure or leverage decision, investment decision, and dividend decision, all of which have an individual or collective impact on shareholder wealth and company profit (Faulkender & Wang, 2006).

Theories of capital structure

Modern capital structure analyses were first introduced by Modigliani and Miller in 1958. Modigliani and Miller investigated the case of enterprises operating in a tax-free setting. They presumed that the capital market was flawless; therefore, the firm's value does not depend on its capital structure, but rather on the present value of its operations. Modigliani and Miller (1963) conducted a follow-up study that disproved the corporate income tax hypothesis. In this instance, the larger the use of debt, the greater the business's value and the utmost increase when it is financed. 100% of its debt

under the theory's assumptions includes no corporate income tax, no transaction costs, bankruptcy costs, or financial hardship costs, individuals and institutions can borrow money on an equal basis, the capital market is flawless, and no single investor has a significant impact on the price of a security.

The Jensen and Meckling (1976) Agency theory collaborates with the investment decision variable of the study. The agency theory is founded on the relationship between principals (the proprietors) and agents (the administrators). The manager's investment decision is crucial to the company's performance. The most important premise of agency theory is that managers are typically motivated by their own personal gains and work to exploit their own personal interests, as opposed to contemplating the interests of shareholders and maximizing shareholder value. If management is more motivated by personal gains, then there will be little money spent on profitable investments, since the greater the amount spent to motivate management, the greater the expenses, and consequently the profit available to shareholders will be limited.

Theories of investment decisions

The investment decision is an important factor in the financial function of the company. If the higher the investment decision made by the company, the higher the opportunity for the company to get a return or high level of development. Because the company has a high investment decision, it is possible to influence investor interest in the company so that it can increase the demand for the company. Sharpe's (1964) Risk and Return Trade-off Theory is dependent on the study's independent variable, investment decision. Higher risk is associated with a greater likelihood of a higher return, while lower risk is associated with a greater likelihood of a lesser return. The concept of risk and return trade-off assumes that there is no risk-free profit that can be earned efficiently.

Theories of dividend decisisons

Gordon and Litner's (1974) bird-in-the-hand theory is attributed to the first theory, the neutral theory of dividend policy, which states that there is no relationship between profit distribution policy and stock price or corporation value. It was a critique of the neutral theory (Modigliani and Miller, 1961). This theory suggests that the dividend policy has a direct influence on the market value of a company through its effect on the market share price, as the required rate of return on funds owned decreases as dividends increase. This is because the degree of investor certainty regarding the attainment of capital gains realized from retained earnings is less than the degree of certainty obtained from the capitalization of dividends, as the degree of risk increases due to the high level of uncertainty associated with retaining and reinvesting profits. This indicates that investors prefer to

distribute profits rather than achieve capital gains in the future, as profits disseminated today are more certain than the possibility of achieving future capital gains.

Financial performance

In order to evaluate the business performance of an enterprise, the profit ratio indicators (ROA, ROE) are often used, because it expresses the relationship between profit and actual production costs. the business level of the trader in the use of those factors. Beside that, it can be market indices such as price per share to book equity - MBVR, Tobin's Q index.

Hypothesis

H1: Capital structure has an effect on firm performance (ROA & ROE) of listed pharmaceutical industries in Vietnam. (+/-)

H2: Investment decision has a positive and significant effect on firm performance (ROA&ROE) of listed pharmaceutical industries in Vietnam. (+)

H3: Dividend decision has a significant effect on firm performance (ROA&ROE) of listed pharmaceutical industries in Vietnam. (+/-)

Variable

For the purpose of understanding the influence of financial decisions on the performance of the business, based on the theories examined and inheriting the research model of the previous authors, within the scope of this article, The proposed research model includes the following variables:

Table 1. Variable definitions and description

Variables	Description
Return on Assets (ROA)	Profit after tax / Total asset
Return on Equity (ROE)	Profit after tax / Shareholders' equity
Liquidity (LD)	Current assets / Current liabilities
Capital structure (CS)	Debt / Equity
Investment decision	Total longterm assets/ Total assets
Dividend decision	Dividend payout ratio = Dividend per share / EPS

4. Data and methodology

This study is a quantitative analysis of the population of pharmaceutical industry firms listed on the HOSE and HNX between 2017 and 2022. This study employs a technique of purposive sampling with the criteria of companies listed on the exchange market consecutively and submitting annual financial statements during the study period. Based on the processed data, 46 research samples were created. This research utilizes secondary data and documentation methodology. The author utilized Excel to collect data, such as total asset, total debt, fixed asset, current asset current liability, and EBIT, and calculate the required ratios. To analyze and evaluate the regression model, the data were analyzed with the STATA 16.0 software.

This study employs panel data and three commonly employed methods, namely Pooled OLS Model, Fixed

Effects Model (FEM), and Random Effects Model (REM), to determine the correlation relationship between variables and the influence of explanatory variables on the debt ratio of listed companies.

The authors will use quantitative methods to address the shortcomings of the model chosen as the study's outcome. Last but not least, the Feasible Generalized Least Square (FGLS) method is selected to propose the final regression model.

This paper analyzes a number of determinants affecting financial performance of entities: liquidity decision, capital structure, investment decision, dividend decision.

The model of study:

$$ROA = \beta_0 + \beta_1 \times CS + \beta_2 \times LD + \beta_3 \times DV + \beta_4 \times ID + \varepsilon \quad (1)$$
$$ROE = \beta_0 + \beta_1 \times CS + \beta_2 \times LD + \beta_3 \times DV + \beta_4 \times ID + \varepsilon \quad (2)$$

Where:

ROA: Return on Assets

ROE: Return on Equity

CAPITAL (CS): Capital Structure

LD: Liquidity ratio

DIVIDEND (DV): Dividend Decision

INVEST (ID): Investment Decision

5. results

Descriptive Statistics

Table 2. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	282.0000	0.0861	0.0716	-0.1704	0.4503
ROE	282.0000	0.1377	0.1079	-0.3460	0.5572
CS	282.0000	0.7878	0.7963	0.0000	7.8274
LD	282.0000	4.3623	3.6336	0.0000	40.6760
DV	282.0000	733.5589	10834.1586	-53.2650	1.820e+05
ID	282.0000	97.8031	1,281.4520	0.0000	21470.2000

Source: Results from STATA 16 software

Table 2 reveals that the average value of return on assets (ROA), a metric of corporate performance, is 0.08. Since the lowest value is -0.17 and the highest is 0.45, it is evident that the profitability of pharmaceutical enterprises is relatively low compared to other enterprises in the economic structure. Similarly, the average return on equity (ROE) is 0.13 percentage points larger than the return on assets (ROA), ranging from -0.34 to 0.55. Capital of 0.78 indicates that the debt-to-equity ratio of companies in the pharmaceutical and pharmaceutical industries is relatively high. Liquidity averaging 4.36 from 2017 to 2022, with a maximum of 40.67, is an excellent level of liquidity that pharmaceutical companies need to maintain stable business operations. The average dividend yield of 733.55 is less than the standard deviation of 10834.15, indicating that the ratio between the mean and standard deviation will reflect

the variation in dividend payout ratio among more than 47 pharmaceutical companies. As a consequence of the long-term ratio between investment budget and total investment capital, the average investment decision over the years is 97.8 while the maximum investment decision is 21470. This mean value indicates the relative difference between the expected investment budget and the corporation's long-term investment, indicating that businesses exert considerable effort to stabilize and concentrate on the investment budget of the corporation.

Correlation analysis

Correlation analysis is "analysis that shows the correlation relationship between the variables in the model, especially the correlation between the independent variable and the dependent variable and between the dependent variables. The correlation coefficient (r) is a statistical indicator that measures between two variables and has a value ranging from -1 to 1. The larger the correlation coefficient, the higher the correlation between the two variables and each other. cause the research model to have multicollinearity. If the r value ranges from 0.8 to 1, it shows a strong correlation, and if it is lower than 0.8, there is little correlation between the two" variables (Gujrati, 2008).

Table 3. The correlation coefficient of the variables

	CAPITAL	LIQUID	DIVIDE	INVEST
CAPITAL	1.0000			
LIQUID	-0.4077*	1.0000		
DIVIDE	-0.0383	0.0734	1.0000	
INVEST	-0.0037	-0.0306	-0.0048	1.0000

Source: Results from STATA 16 software

According to the results of Table 3 showing the correlation between the independent variables in the research model, a high correlation appears between the capital structure variable (CAPTIAL) and liquidity, which is negatively correlated with the correlation coefficient r. -0.40 reached significance at the 5% level. In addition, there is no correlation coefficient between the two independent variables, which shows that the model is less likely to have multicollinearity during the regression run.

After performing the defect tests, both ROA and ROE models do not have serious multicollinearity in the model, but autocorrelation. Therefore, the GLS model is used to overcome the autocorrelation.

Estimarion results of GLS regression model

From the model results, there exists a negative relationship of capital structure (CAPITAL) on the dependent variable ROA at 1% significance level. Accordingly, when the debt-to-equity ratio of a food business increases to 1%, the return on total assets representing the business performance will decrease by 2.45% in the condition that other factors remain unchanged.

Table 4. Results of GLS regression model

	(1) GLS - ROA	(1) GLS – ROE
CAPITAL	-0.0245***	-0.0021
	(0.001)	(0.811)
LIQUID	0.0307***	-0.0019
	(0.004)	(0.315)
DIVIDE	0.0002	-0.0000
	(0.407)	(0.625)
INVEST	0.0008*	0.0000
	(0.051)	(0.937)
_cons	0.0411	0.1505***
	(0.125)	(0.000)
N	282	282

Note: * $p<0.1$; ** $p<0.05$; *** $p<0.01$

Source: Results from STATA 16 software

A positive relationship of liquidity decision (LIQUID) on return on assets (ROA) at 1% significance level. This shows that when increasing the liquidity decision of the food industry enterprises by 1 unit, the return on total assets representing the business performance will also increase to 0.0307 units in this condition. other factors remain unchanged.

No significant impact of corporate dividend decision was found on ROA and ROE as a proxy for corporate performance. Besides, the ROE model does not give any significant results on the impact of variables on the return on equity of food businesses.

Finally, there exists a relative positive effect between investment decision variable (INVEST) on return on total assets (ROA) at 10% significance level. This shows that when the investment decision of a enterprise increases by 1 unit, the return on total assets representing business performance will also increase to 0.0008 units in the condition that other factors remain unchanged.

6. Conclusion

Research results have led to the conclusion that debt-to-equity ratio or capital structure can have a significant effect on return on total assets, but not on equity. The balance between a company's liabilities and equity and total assets, through financing with more debt and fewer assets, leads to improved financial performance in terms of return on total assets. produce. The study also concludes that when listed pharmaceutical companies have a better balance between current assets and liabilities, there will be a positive and significant impact on return on assets. A better balance between current assets and liabilities, through reducing liabilities, to increase the ratio, leads to improved financial performance in terms of return on assets (Mwangi, Makau and Kosimbei, 2014).

The study also found that liquidity decisions of pharmaceutical firms have a significant effect on return on total assets instead of equity. Accordingly, the decision to increase liquidity will increase the business performance of the enterprise through an increase in net working capital, specifically, if the enterprise holds high circulating cash, it will be able to generate higher profits than other companies in the same industry. This conclusion is in line with Mousavi and Jari (2012), who investigated the impact of working capital on firm performance among Iranian listed companies and established a meaningful relationship positive relationship between net working capital and company performance as measured by ROE, ROA.

The results show that there is no significant impact of the dividend ratio decision on financial performance, which shows that when a company considers paying dividends, it is necessary to consider other factors to realized a significant improvement in its financial performance (Velnampy, Nimalthasan and Kalaiarasi, 2014). Dividend decision has a negative and positive effect in both ROA and ROE models on the performance of listed pharmaceutical companies although this effect is not significant i.e. when a pharmaceutical company increases its share dividend payments, it will have a negative or positive but insignificant effect on its financial performance.

The study concludes that investment decisions have a positive impact on financial performance of pharmaceutical companies listed on HOSE and HNX with ROA alone. It can be seen that when a company invests more in its machinery, plant, equipment and assets, it leads to a significant improvement in return on assets and equity (Muiruri et al. & Wepukhulu, 2018).

References:

Ardina Zahrah Fajaria, Linda Purnamasari, Isnalita. The Effect of Investment Decisions, FundingDecision and Dividend Policy on Company ValueStudy on Manufacturing Company Listed inIndonesia Stock Exchange Period 2009-2013. Advances in Economics, Business and Management Research (AEBMR), volume 35

Faulkender, M., & Wang, R. (2006). Corporate financial policy and the value of cash. The Journal of Finance, 61(4), 1957-1990

Jensen, M. C., and Meckling, W. H. (1976), "Theory of the firm: Managerial behavior, agency costs and ownership structure", Journal of Financial economics, 3,(4), 305-360.

Lintner, J., & Gordon, M. (1974). Thirty-third Annual Meetings American Finance Association San Francisco, California, December 28–30, 1974. The Journal of Finance, 29(4), 1356- 1361.

Miller, M. H., & Modigliani, F. (1961). Dividend policy, growth, and the valuation of shares. Journal of Business, 34(4), 411-433.

Modigliani, F., and Miller, M. H. (1958), "The cost of capital, corporation finance and the theory of investment", The American economic review, 48, (3), 261-297.

Modigliani, F., and Miller, M. H. (1963), "Corporate income taxes and the cost of capital: a correction", The American economic review, 53, (3), 433-443.

Mousavi, Z., and Jari, A. (2012). The relationship between working capital management and frim performance: Evidence from Iran. International Journal of Humanities and Social Sciencies. 2 (2),56-78

Muiruri, N.W. & Wepukhulu, J.M. (2018). Effect of financing decisions on financial performance of listed companies at the Nairobi Securities Exchange, Kenya. Journal of International Business, Innovation and Strategic Management, 1(7), 101 – 114

Mwangi, L.W., Makau, S.M., and Kosimbei, G., (2014). Relationship between Capital Structure and Performance of Non-Financial Companies Listed In the Nairobi Securities Exchange, Kenya. Global Journal of Contemporary Research in Accounting, Auditing and Business Ethics.1 (2), 23-45

Nguyễn Thị Kiều, Nguyễn Hồng Huệ (2013). Ảnh hưởng của quản trị tài chính đến hiệu quả hoạt động doanh nghiệp. Tạp chí khoa học trường đại học mở TP HCM. 8(3), 2013

Nguyen Thi Thanh Ha, Ho Linh Trang (2021), Factors Affecting the Capital Structure of Pharmaceutical-Medical Companies Listed on Vietnam's Stock Exchanges, Advance in Economics, Business and Management Research, volume 196

Triani, N., Tarmidi, D. (2019). Firm Value: Impact of Investment Decisions, Funding Decisions and Dividend Policies, International Journal of Academic Research in Accounting, Finance and Management Sciences 9 (2): 158-163

Velnampy, T., Nimalthasan, P. and Kalaiarasi, K. (2014). Dividend policy and firm performance: Evidence from manufacturing companies listed in Colombo stock exchange. Global Journal of management and Business Research: Administration and Management. 14(6), 8-10.

THE IMPACT OF GEOPOLITICAL RISKS ON FIRM PERFORMANCE IN VIETNAMESE LISTED FIRMS

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*Abstract: **This study examines the impact of geopolitical risks (GPR) on firm performance of Vietnamese listed companies from 2010 to 2022. GPR is designed to measure adverse geopolitical events and associated risks based on a tally of 10 prestigious newspaper articles covering geopolitical tensions and examining its evolution and economic effects available on Dario Caldara and Matteo Iacoviello's website. The findings from multivariate regression models show a negative relationship between geopolitical risks and firm performance measure in Vietnamese listed firms during the period of 2010-2022. This study suggests that the government should promote policies to reduce geopolitical risks and formulate strategies to derive benefits from geopolitical positions.***

1. Introduction

The world is witnessing unpredictable social upheavals more pronounced than ever in recent years. These fluctuations span many areas, from trade disputes such as the US-China trade war (Steinbock and Dan, 2018) to international tensions occurring in the Israel-Hamas relationship. One undeniable cause of these disturbances is the dispute over the economic potential arising from the geographical location and political activities of countries. This potential is based on their unique inherent characteristics. In socioeconomic terms, the risks stemming from the economic and political potential associated with this geographical location are termed "Geopolitical Risks" (Cheng & Chiu, 2018). Geopolitical risks have become a paramount concern on the global stage, transcending national borders and challenging the prosperity of nations and corporations alike. Even those with abundant resources and preparedness are not immune to unpredictable repercussions, which have drawn significant attention from both scholars and practitioners (Lu et al., 2020). Geopolitical risks, by their nature, are events occurring in one part of the world that can trigger a ripple effect with far-reaching consequences. Trade tensions between major economies can disrupt global supply chains, altering the operating environment for firms, regardless of their location. Therefore, understanding how geopolitical risks manifest on a global scale is crucial to effectively assess their impact on the national economy, especially concerning firm performance.

With a rapidly growing economy and increasing integration into the global market, Vietnam has become a country with an important role in international trade and investment. The country's strategic location in Southeast Asia, located at the crossroads of regional and global powers, makes the country particularly vulnerable to geopolitical risks (Amer & Thao, 2007). Geographically, Vietnam shares borders with countries including China, Laos, and Cambodia, while its extensive coastline along the East Sea further makes Vietnam vulnerable to disputes. Back in 1979, there were two tense disputes over the Chinese-Vietnamese border region, the Northern Bay, the Hoang Sa Archipelago, and the Truong Sa Archipelago, prolonging the ongoing maritime border dispute to today (Oishi & Quang, 2017). Given the complex interaction between Vietnam's political position and economic vulnerabilities, it is clear that strong management and mitigation of geopolitical risks are important for the economic prosperity and national security of the country. Besides, as a country actively integrating globally, Vietnam has attracted significant attention from foreign investors thanks to many advantages coming from its political position. The direct impact of geopolitical risks on the performance of Vietnamese businesses is especially evident in cases related to the East Sea dispute. In case a Vietnamese-listed enterprise arbitrarily imports goods with images and content related to the "nine-dash line", it can cause serious consequences. The Ministry of Industry and

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Trade confiscated and strictly handled these products, leading to significant losses for non-compliant businesses. This highlights the particular importance for Vietnam's listed companies to be cautious and strategic in navigating the geopolitical landscape to protect their interests and maintain their ability to be resilient to such risks.

The term "geopolitics" first appeared in Vietnam in the mid-20th century. This occurred when the country experienced significant political changes and geopolitical shifts, especially during the period of French Colonialism, and later participated in the American Resistance (Burn et al., 2017). However, researchers in Vietnam have not given this concept much attention. Major studies primarily concentrate on specific geopolitical fluctuations, neglecting the examination of occurring risks (McMahon, 2010; Giovannini, 2018), or the impact of geopolitical risks on specific subjects such as financial assets only (Yang & Chan, 2023). In the context of Vietnam, given its critical economic significance, increased vulnerability in global markets, and investor confidence in the country, it is necessary to have comprehensive historical studies, analyzing the effects of geopolitical risks to business operations and the economy in general. This study examines the impact of Geopolitical Risks (GPR) on the performance of Vietnamese listed companies during 2010-2022 as Vietnam strives toward an international economy.

This study has contributed to the extant literature by providing additional evidence in Vietnam to reinforce the negative impact of GPR on firm performance that has been shown in previous studies (Danneels, 2002; Behrendt & Khanna, 2003; Demir et al., 2019; Le & Tran, 2021; Agoraki et al., 2022; Ugurlu-Yildirim & Ordu-Akkaya, 2022; Pringpong et al., 2023). In addition, the study proposes measures to mitigate the negative effects of GPR on firm performance.

The remainder of this paper is organized as follows. Section 2 reviews the previous studies and develops the hypothesis. The data collection, model and research method are presented in Section 3. The empirical results and discussion are reported in Section 4. Finally, Section 5 summarizes major findings and provides some recommendations.

2. Literature review and hypothesis development

Previous studies have demonstrated the serious influence of geopolitical risks on overall economic performance. They exert substantial influence on corporate investment dynamics (Le & Tran, 2021), seriously distort corporate investment profit forecasts in a negative direction, and challenge small and medium-sized enterprises to operate stably in a changing environment with weak risk management capacity (Danneels, 2002). This observation underscores different ways in which localized geopolitical shocks can influence financial market expectations. These insights into the impact of geopolitical risks on financial markets are also supported by Agoraki et al. (2022). The paper establishes that the impact of geopolitical risks on stock returns is both negative and statistically significant. Shifting focus to firm value, Pringpong et al. (2023) conducted an investigation on non-financial firms in 14 emerging market countries. The evidence reveals a consistent association between heightened geopolitical risk and reduced firm value. Particularly, the study identifies country-specific idiosyncratic geopolitical risks as the primary drivers of the negative impact on firm value, offering valuable insights into the localized manifestations of geopolitical uncertainties. In contrast, the study by Demir et al. (2019) centered on specific industry sectors, examining 166 companies from seven countries. The results also shed light on the negative impact of geopolitical risks on the cash holdings of hospitality firms. This underscores the sector's high dependence on geopolitical dynamics, necessitating tailored risk management strategies within the industry. More significantly, an analysis of the geopolitical risk index reveals a negative impact on the profitability performance (Ugurlu-Yildirim & Ordu-Akkaya, 2022). This observation contributes to the extensive narrative, emphasizing the far-reaching consequences of geopolitical risks across diverse sectors of the economy. In synthesizing these insights, it becomes apparent that geopolitical risk holds a clear and universally relevant meaning for business performance. This conceptualization is crucial for comprehending the broader implications of geopolitical risks on firms' strategic decision-making processes to maximize profit efficiency (Behrendt & Khanna, 2003).

Vietnam's strategic geopolitical location exposes it to significant fluctuations, impacting both the economy and listed businesses. Situated in Southeast Asia, a pivotal region with bustling trade routes and dynamic development prospects, Vietnam contends with intense geopolitical competition among major powers. The US-China trade war has notably affected financial markets, with Vietnam experiencing a downturn despite positive economic indicators. For instance, in just under a month in 2018, foreign investors withdrew significant capital from Vietnamese stock exchanges. Additionally, conflicts like the Russia-Ukraine war in 2022 have further exacerbated challenges for domestic businesses, leading to disruptions in import-export activities and price hikes for essential commodities. Despite these pressing issues, research on the direct

impact of geopolitics on business performance remains scarce in Vietnam. Building on global studies and adapting to Vietnam's economic context, the research hypothesis is developed as follows:

H1: Geopolitical risks have a negative impact on the performance of Vietnamese listed firms.

3. Research methodology

3.1. Data and sampling

The research analyzed data from 774 companies listed on the Ho Chi Minh Stock Exchange (HOSE) and the Hanoi Stock Exchange (HNX) between 2010 and 2022. Secondary data, sourced from financial statements, annual reports, and the FiinPro database, was utilized. Approximately one-third of the initial data was excluded, particularly from the banking and finance sectors, to prevent bias and ensure objectivity. Additionally, companies not meeting criteria for financial disclosure were omitted for data consistency. Data points outside the 5th and 95th percentiles for each variable were removed to enhance analysis robustness. Following this selection process, the final sample comprised 556 companies with 6172 observations (Table 1).

Table 1. Sample selection

Total number of listed companies	774
(1) Eliminate companies in the banking and finance industry	148
(2) Eliminate companies that do not have enough information on annual reports and financial statements	70
Total number of remaining companies	556
The ratio of the sample to the total number of original samples	61.35%

3.2. Empirical models and research method

To assess the impact of the Geopolitical Risks (GPR) on firm performance, we applied three regression models, including Ordinary Least Square (OLS), Random Effect Model (REM), Fixed Effect Model (FEM) and relevant statistical tests such as Variance Inflation Factor (VIF), to Equation (1):

$$FP_{it} = \alpha_0 + \alpha_1 GPR_t + \alpha_2 SO_{it} + \alpha_3 LEV_{it} + \alpha_4 AGE_{it}$$
$$+ \alpha_5 REV_{it} + \alpha_6 BVPS_{it} + \alpha_7 LIQ_{it} + \alpha_8 RM_{it} + \varepsilon_{it} \quad (1)$$

The subscripts i and t represent firm i and year t respectively. The dependent variable FP (Firm Performance) is measured by two indices: Return on Assets (ROA) and Return on Equity (ROE). In terms of the independent variable, GPR will be sourced from the website of Dario Caldara and Matteo Iacoviello (2022). This website is designed to measure adverse geopolitical events and associated risks based on a tally of 10 prestigious newspaper articles covering geopolitical tensions, examining their evolution and economic effects since 1985. Along with dependent and independent variables, all the controlling variables are presented in Table 2 below.

Table 2. Definitions of the variables in model (1)

Variable	Description
Dependent variables	
ROA	Net income divided by total assets
ROE	Net income divided by total equity
Independent variable	
GPR	Geopolitical risks
Firm-level controlling variables	
SO	Proportion of state ownership or state-controlled organizations in the firm
LEV	Total debt divided by total equity
REV	Natural logarithm of revenue
AGE	Natural logarithm of years since the business was established
BVPS	The ratio of common equity divided by the number of shares outstanding
LIQ	Current assets divided by current liabilities
RM	Risk Management - A dummy variable, taking the value of 1 in the following cases and 0 otherwise: (1) The firm has a Risk Management Board/Risk Committee (2) The firm has the position of Director of Risk Management/Chief Risk Officer (3) The firm has stated a clear Risk Map

Notes: Table 2 presents the detailed calculations for each variable identified in model (1) as discussed in the Empirical Model and Research Method section above.

4. Results and discussion

4.1. Descriptive statistics and correlation matrix

Table 3 provides descriptive statistics for all variables in Eq. (1). The total sample size for all variables is 6172 observations.

Table 3. Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
ROA	6172	0.069	0.081	-0.625	0.812
ROE	6172	0.116	0.181	-1.514	2.27
GPR	6172	0.075	0.041	0.035	0.206
SO	6172	0.252	0.258	0	1
LEV	6172	1.519	1.682	0	13.751
AGE	6172	3.138	0.687	0	4.357
REV	6172	27.167	1.668	17.752	33.348
LIQ	6172	2.144	1.987	0	15.741
BVPS	6172	0.757	0.409	-0.202	7.921
RM	6172	0.183	0.387	0	1

Note: Table 4 presents descriptive statistics of the variables used in the study. The definitions of these variables are provided in Table 2.

The ROA variable exhibits a broad spectrum of values, ranging from -0.625 to 0.812, with a mean of 0.069 and a standard deviation of 0.081. While, on average, firms display a positive return on assets, the wide range of values underscores the significant variability in this aspect among the companies. This variation reflects the diverse nature of their business activities and financial performance. For the ROE variable, the range extends from -1.514 to 2.27, with a calculated mean of 0.116 and a corresponding standard deviation of 0.181. Although some companies report negative income, the overall mean remains positive, indicating that, on average, there is growth in the business activities of the firms under study.

The GPR variable exhibits values ranging from 0.035 to 0.206, with a calculated mean of 0.075 and a standard deviation of 0.041. These data patterns highlight the relatively low emphasis placed on geopolitical risk

during the period from 2010 to 2022 within the research sample. This is supported by the notably low proportion of articles related to this topic, suggesting a lower level of concern and attention among the firms.

The AGE variable indicates the number of years the business has been established, with an average of 3.138, equivalent to 23 years. The youngest firm has been established for 5 years, while the oldest firm is 75 years old. Vietnamese listed companies are relatively young, compared to other economies, which are usually equitized from state-owned enterprises. The REV variable represents company revenue, averaging 27.167 and corresponding to total assets of VND 754.257 billion. This variation can be supported by the diversity in industries and business fields. The mean value of the LEV variable is 1.519, considered a safe threshold for all firms. The SO variable ranges values from 0 to 1, with a mean of 0.252 and a standard deviation of 0.258. This variable implies the extent of government ownership in a company, with higher values indicating a broader government stake. The LIQ variable ranges from 0 to 15.741, with a mean of 2.144 and a standard deviation of 1.987. This variable indicates a firm's short-term capability to meet its obligation, with higher values implying enhanced liquidity and reduced default risk. The BVPS variable ranges from -0.045 to 7.921, with a mean value of 0.757 and a standard deviation of 0.409. BVPS represents a firm's net asset value on a per-share basis. The variable's range and distribution inform about the relative undervaluation or overvaluation of the companies' stocks within the sample. Higher BVPS values indicates more undervalued stocks. The RM variable spans values from 0 to 1, with a mean of 0.183 and a standard deviation of 0.387. This shows that risk management activities in Vietnam are still underrated, with considerable potential for improvement in operations quality in the future.

Table 4 displays the Pearson correlation results for variables in the model (1). It is evident that GPR clearly has a negative impact on both the ROA and ROE indices, which is consistent with our expectations. Furthermore, all independent variables had correlation coefficients less than 0.4, indicating that collinearity is not present in the model.

	ROA	ROE	GPR	SO	LEV	AGE	REV	BVPS	LIQ	RM
LEV	-0.332 **	-0.014 **	-0.045 **	0.05 **	1					
AGE	-0.016 ***	0.018 ***	0.110 ***	0.018 ***	0.119 ***	1				
REV	0.078 ***	0.078 ***	0.076 ***	0.08 ***	0.221 ***	0.158 ***	1			
BVPS	0.292 ***	0.123 ***	0.003 ***	-0.007 ***	-0.118 ***	0.167 ***	0.221 ***	1		
LIQ	0.288 ***	0.001	0.029 ***	-0.003 ***	-0.377 ***	-0.059 ***	-0.293 ***	0.08 ***	1	
RM	0.029 ***	0.012 ***	0.094 ***	0.033 ***	-0.034 ***	0.141 ***	0.087 ***	0.067 ***	0.018 ***	1

Note: Table 4 presents the correlation coefficient results of the variables used in the study. The definitions of these variables are provided in Table 2.

4.2. Empirical results

The regression results from three methods including Ordinary Least Squares (OLS), Fixed Effects Model (FEM), and Random Effects Model (REM) to evaluate the impact of Geopolitical risks (GPR) on the performance of Vietnamese listed companies are presented in Table 5 below. The Variance Inflation Factor (VIF) values, all below 2, signified the absence of multicollinearity issues. The F-test, with a Prob>F value below 5%, suggested that OLS was unsuitable for the analysis. The Hausman test, with a Prob>chi2 value below 5%, led to choosing FEM over REM to examine the impact of GPR on both ROA and ROE.

Table 4. Pearson correlation

	ROA	ROE	GPR	SO	LEV	AGE	REV	BVPS	LIQ	RM
ROA	1									
ROE		1								
GPR	-0.055 **	-0.032 **	1							
SO	0.064 **	0.014 **	-0.017 **	1						

Table 5. Regression results for the impact of geopolitical risks on firm performance of Vietnamese listed companies during 2010-2022

Variables	Exp	ROA			ROE			VIF
		OLS	REM	FEM	OLS	REM	FEM	
GPR	-	-0.158*** (-7.04)	-0.136*** (-7.78)	-0.065*** (-3.63)	-0.162*** (-2.88)	-0.107*** (-3.82)	-0.052** (-1.82)	1.03
SO	+	0.023*** (6.37)	0.006 (1.30)	0.001 (0.05)	0.007 (0.81)	0.001 (0.11)	0.004 (0.53)	1.04
LEV	-	-0.013*** (-21.21)	-0.011*** (-15.60)	-0.012*** (-15.35)	-0.002 (-1.03)	-0.001 (-0.91)	-0.002 (-1.57)	1.23
AGE	-	-0.004*** (-3.15)	-0.017*** (-8.03)	-0.065*** (-17.65)	-0.002 (-0.48)	-0.036*** (-8.25)	-0.070*** (-11.95)	1.12
REV	+	0.008*** (12.78)	0.016*** (15.16)	0.027*** (20.77)	0.007*** (4.37)	0.013*** (6.76)	0.018*** (8.71)	1.23
BVPS	+	0.043*** (18.24)	0.043*** (15.16)	0.039*** (13.07)	0.048*** (8.12)	0.059*** (12.52)	0.057*** (11.89)	1.13
LIQ	+	0.009*** (17.50)	0.005*** (8.50)	0.005*** (8.14)	0.0004 (0.35)	0.001 (0.99)	0.002** (1.89)	1.25
RM	+	0.0003 (0.14)	0.007** (2.41)	0.004 (1.23)	0.001 (0.24)	0.002 (0.36)	0.001 (0.28)	1.04
Const	-	-0.153*** (-9.40)	-0.318*** (-11.78)	-0.488*** (-14.62)	-0.083** (-2.03)	-0.163*** (-3.31)	-0.201*** (-3.79)	
Obs.		6172	6172	6172	6172	6172	6172	
R²		0.234	0.178	0.182	0.118	0.112	0.106	

*Notes: Table 6 presents regression results for the impact of GPR on firm performance of Vietnamese listed companies in Eq. (1). The definitions of these variables are provided in Table 3. The symbols **, *** indicate statistical significance at 5%, and 1%, respectively.*

The results from Table 5 reveal that the coefficients for geopolitical risks are both negative and significant at the 1% level for both ROA and ROE. This suggests a negative association between geopolitical risks and firm performance in Vietnam. These findings not only support the hypothesis but also align with previous studies by Danneels (2002), Behrendt & Khanna (2003), Demir et al. (2019), Le & Tran (2021), Agoraki et al. (2022), Ugurlu-Yildirim & Ordu-Akkaya (2022), and Pringpong et al. (2023). The regression coefficient between the variables GPR and Return on Assets (ROA) is approximately -0.065, revealing that as the geopolitical risks index ascends, there will be a corresponding decrease in the enterprises' performance. The same situation occurs with the correlation between GPR and ROE when the coefficient for these two indexes stands at -0.052, once again confirming the negative relationship between GPR and firm performance in the context of Vietnam.

In Vietnam, the negative correlation between geopolitical risks (GPR) and listed companies' financial performance (ROA, ROE) can be explained based on a complex interplay of factors. The nation's reliance on international trade makes it vulnerable to geopolitical uncertainties. Investor confidence decreases in the face of political instability and trade tensions, resulting in reduced investments and hampered returns. Regulatory shifts following geopolitical events pose challenges, increasing compliance costs for businesses. Vietnam's sensitivity to currency fluctuations further compounds issues, impacting companies engaged in global trade. Disruptions in supply chains, a common outcome of geopolitical tensions, disrupt production and distribution networks. Moreover, as consumers adopt a more cautious stance amidst uncertainties, spending decreases, directly affecting companies' revenues and profitability. In essence, the observed negative relationship reflects the intricate web of challenges - investor confidence, regulatory changes, currency risks, supply chain disruptions, and altered consumer behavior - that collectively contribute to the decline in financial performance metrics in the Vietnamese context.

The findings are also supported by previous studies conducted in emerging markets such as China and some other countries in Southeast Asia. For instance, a study by Ren et al., 2023 in China revealed that GPR affects firms' ability to make decisions on investing or spending money and reduces the willingness to take risks for profit. Another study by Pringpong et al., 2023 found that increasing GPR is associated with reducing firm value. Overall, these studies all provide evidence to support the hypothesis that GPR has a negative relationship with the performance of enterprises.

Concerning the control variables, the results illustrate that the majority of these variables are positively correlated with firm performance. Typically, companies tend to perform better when they possess a higher degree of revenue, liquidity and risk management index. On the other hand, it appears that companies with longer operating periods or higher financial leverage exercise more caution in utilizing capital to enhance their ROA or ROE.

5. Conclusion and recommendations

This study examines the impact of geopolitical risks (GPR) on the performance of Vietnamese listed companies from 2010 to 2022. Using OLS, FEM, and REM regression methods on a sample of 556 enterprises with 6172 observations, the research reveals a negative impact of GPR on performance. This trend is influenced by Vietnam's prominent political position and the Party's focus on foreign affairs, coupled with its open economy and Party-controlled domestic policies. As Vietnam aims for global prominence, understanding and managing these risks becomes crucial. Vietnamese firms must conduct tailored geopolitical risk assessments, stay updated on geopolitical developments, and collaborate with stakeholders. Building adaptability, diversifying supply chains, and investing in technology are vital. Collaboration between the private sector and government is essential for fostering resilience and seizing opportunities amidst geopolitical uncertainties.

References:

Agoraki, M.E.K., Kouretas, G.P. and Laopodis, N.T. (2022). Geopolitical risks, uncertainty, and stock market performance. Economic and Political Studies, 10(3), 253-265.

Amer, R. and Thao, N.H. (2007). Vietnam's Border Disputes—Assessing the Impact on Its Regional Integration. Vietnam's New Order: International Perspectives on the State and Reform in Vietnam, 71-87.

Behrendt, S. and Khanna, P. (2003). Geopolitics and the Global Corporation. Strategy & Business.

Burns, K., Corrigan, B., Sanders, F. and Burns, K. (2017). The Vietnam War. Penguin Random House Audio Publishing Group.

Caldara, D. and Iacoviello, M. (2022). Measuring geopolitical risk. American Economic Review, 112(4), 1194-1225.

Cheng, C.H.J. and Chiu, C.W.J. (2018). How important are global geopolitical risks to emerging countries?. International economics, 156, 305-325.

Danneels, E. (2002). The dynamics of product innovation and firm competencies. Strategic Management Journal, 23(12), 1095-1121.

Demir, E., Díez-Esteban, J.M. and García-Gómez, C.D. (2019). The impact of geopolitical risks on cash holdings of hospitality companies: Evidence from emerging countries. Journal of Hospitality and Tourism Management, 39, 166-174.

Giovannini, G. (2018). Power and geopolitics along the Mekong: The Laos–Vietnam negotiation on the Xayaburi Dam. Journal of Current Southeast Asian Affairs, 37(2), 63-93.

Le, A.T. and Tran, T.P. (2021). Does geopolitical risk matter for corporate investment? Evidence from emerging countries in Asia. Journal of Multinational Financial Management, 62, 100703.

Lu, Z., Gozgor, G., Huang, M., & Lau, C.K.M. (2020). The Impact of Geopolitical Risks on Financial Development: Evidence from Emerging Markets. Journal of Competitiveness, 12(1), 93–107.

McMahon, R.J. (2010). The politics, and geopolitics, of American troop withdrawals from Vietnam, 1968–1972. Diplomatic History, 34(3), 471-483.

Oishi, M. and Quang, N.M. (2017). Brothers in trouble: China-Vietnam territorial disputes and their bilateral approach to conflict management. International Journal of China Studies, 8(3), 287-319.

Pringpong, S., Maneenop, S. and Jaroenjitrkam, A. (2023). Geopolitical risk and firm value: Evidence from emerging markets. The North American Journal of Economics and Finance, 68, 101951.

Steinbock, D. (2018). US-China trade war and its global impacts. China Quarterly of International Strategic Studies, 4(04), 515-542.

Ugurlu-Yildirim, E., & Ordu-Akkaya, B. M. (2022). Does the impact of geopolitical risk reduce with the financial structure of an economy? A perspective from market vs. bank-based emerging economies. Eurasian Economic Review, 12(4), 681-703.

Ren, X., Cao, Y., Liu, P.J. and Han, D. (2023). Does geopolitical risk affect firms' idiosyncratic volatility? Evidence from China, International Review of Financial Analysis, 90, 102843.

Yang, C. and Chan, D.Y.T. (2023). Geopolitical risks of strategic decoupling and recoupling in the mobile phone production shift from China to Vietnam: Evidence from the Sino-US trade war and COVID-19 pandemic. Applied Geography, 158, 103028.

STRATEGIC COST MANAGEMENT ACCOUNTING TECHNIQUES IN ENTERPIRSES

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Abstract: *This study aims to introduce various concepts of strategic cost management accounting (SCMA), with a particular focus on the strategic cost management accounting techniques (SCMATs) employed in enterprises, as evidenced by previous studies. The research aims to elucidate the main features of SCMA and identify the core SCMATs applied in enterprises. To achieve these objectives, a qualitative approach was employed, involving a systematic literature review to synthesize existing literature and enhance understanding of the SCMA concept and SCMATs. The findings reveal the presence of seven SCMATs in enterprises.*

1. Introduction

In the contemporary business environment, effective cost management is crucial for creating a competitive advantage for enterprises (Cooper and Slagmulders, 1998). The significance of strategic cost management has grown exponentially in recent years, primarily due to intensified competition (Cooper and Slagmulders, 1997). In this dynamic landscape, managers require accurate and timely cost information to facilitate the decision-making process. However, as business environments and competition have evolved, traditional cost management accounting has faced numerous criticisms. For instance, Johnson and Kaplan (1987) argued that traditional cost management accounting systems have lost relevance in the modern accounting environment, proving inadequate for controlling product costs and evaluating managers' performance. Traditional techniques fall short in providing useful, timely, and relevant information for current business managers in planning, controlling, and decision-making. Hansen and Mowen (2000) noted that traditional costing systems using standard costs and cost estimates for financial reporting purposes have become unsuitable for strategic decision-making. Moreover, traditional costing systems may fail to offer timely and useful information, potentially weakening a company's competitive position (Johnson and Kaplan, 1991). The solution proposed to address these challenges is Strategic Cost Management Accounting (SCMA) (Vu and Mai, 2021). The introduction of SCMA not only aids in decision-making but also enhances competitive advantage in an increasingly competitive business environment (Cinquini & Tenucci, 2010).

Despite being a research topic for over 40 years since Simmonds's initial work in 1981, SCMA remains without a unified concept and a clear count of Strategic Cost Management Accounting Techniques (SCMATs). Furthermore, both SCMA and SCMATs are relatively new concepts in both theoretical and practical domains. This research aims to address these gaps and provide a comprehensive understanding of SCMA and its associated techniques.

2. Research methodology

The article employs a qualitative research method involving the collection, analysis, and systematization of previous studies worldwide and in Vietnam, focusing on definitions and features of SCMA. Various online databases, including Science Direct, Google Scholars, and Scopus, were utilized for this purpose. After reviewing relevant articles, a selection of 23 articles and 2 textbooks was made, aligning with the objectives

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of the current research regarding the definitions and characteristics of SCMA, as well as SCMATs. The research process is illustrated in Figure 1 below.

Figure 1. The research process
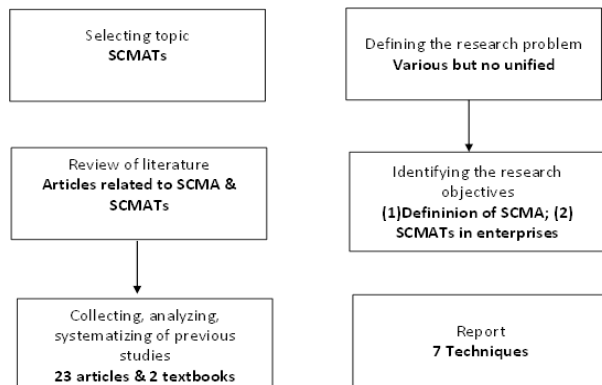
Source: Created by author

3. Research results

3.1. Concepts of strategic cost management accounting

According to Simmonds (1981), strategic management accounting (SMA) is utilized for the development and monitoring of business strategy. Porter (1980 and 2012) has outlined several competitive strategies that companies may adopt, including cost leadership strategy, product differentiation strategy, and focus strategy. In its early stages, SMA primarily focused on the low-cost leadership model, leading to its characterization as strategic cost management (Govindarajan and Shank, 1994). Consequently, SMA is commonly referred to as strategic cost management accounting (SCMA) (Nguyen and Mai, 2019).

Since the initial definition proposed by Simmonds (1981), several attempts have been made to refine the definition of SMA in general, and SCMA in particular, reflecting various scholars' perspectives. Regarding a firm's competitive positioning, Simmonds (1981) asserted that SCMA offers an analysis of management accounting data about a business and its competitors, aiding in the development and monitoring of business strategy. In the context of the strategic management cycle, SCMA serves as a component of SMA, responsible for collecting, processing, analyzing, and providing cost-related information to aid managers in planning cost strategies, controlling

costs, and evaluating the effectiveness of these strategies (Ngo and Dinh, 2022).

Concerning techniques in strategic management accounting, SCMA involves the application of management accounting techniques and models to assist enterprises in gaining competitive advantages through low-cost leadership (Nguyen and Mai, 2019). Based on these concepts, it can be summarized that 'SCMA is a subset of SMA that applies management accounting techniques and models to furnish cost information to managers. This aids them in strategically planning, controlling, and making decisions with the objective of gaining a competitive edge through low-cost leadership.

3.2. Review of previous research about strategic cost management accounting techniques in enterprises

Numerous studies including domestic studies and foreign studies have been conducted in the past to determine the level at which SCMA techniques have been used:

3.2.1. Studies in Viet Nam

Doan (2012) identified various tools within the realm of SMA, encompassing comprehensive quality management, performance-based management, balance scorecard, product life cycle, and analysis of the value chain and value added. In a study conducted by Bui (2019), SMA was found to comprise six components: total quality management, performance-based management, balance scorecard, product life cycle, value chain analysis, and additional value. In contrast, a study by Thai (2019) concluded that SMA consists of four techniques, and among them, SCMATs comprise three techniques: value chain costing, target costing, and product life cycle costing. However, during the same year, Nguyen and Mai (2019) proposed that SCMATs include seven techniques: activity-based costing (ABC), target costing (TC), kaizen costing, life cycle costing (LCC), quality costing (QC), value chain costing (VCC), and attribute costing (AC).

One year later, Tran and Tran (2020) asserted that SMA comprises 12 techniques divided into five groups: Costing, Planning, Controlling and Measuring Performance, Strategic Decision-Making, Competitor Accounting, and Customer Accounting. Within these groups, cost techniques encompass Attribute Costing (AC), Target Costing

(TC), Life Cycle Costing (LCC), and Quality Costing (QC). The research findings indicate that the level of application of attribute costing, target costing, life cycle costing, and quality costing techniques is only at an average level. Despite a relatively modest number of enterprises fully implementing the content of quality management accounting techniques, there are clear indications that Vietnamese enterprises are increasingly interested in external information and leverage accounting as a tool to provide strategy-oriented information.

However, in another study conducted by Nguyen (2021), SCMA was indicated to consist of six techniques: ABC, TC, Kaizen costing, LCC, QC, and Just-in-Time (JIT). Despite the lower usage reported, the surveyed companies perceived benefits from the application of SMATs. Similarly, another study by Dinh and Nguyen (2021) showed that SCMATs include six tools, with the techniques comprising ABC, AC, TC, Kaizen costing, LCC, and VCC. Ngo and Ngo (2022) emphasized that SCMA must utilize suitable techniques to provide managers with useful information, helping them manage costs strategically. The research proposed four types of SCMATs, including: (i) costing techniques (AC, QC, VCC, ABC, and Kaizen costing); (ii) planning, controlling, and measuring results; (iii) strategic decisions; and (iv) evaluating competitors' costs.

3.2.2. Studies in the world

Simmonds (1981) was the first to coin the term 'strategic management accounting,' but it took 19 years to investigate the adoption status of SMA techniques since its inception. Guilding et al. (2000) were the first to provide empirical evidence on the usage of 12 SMA techniques in the context of New Zealand, the United States, and the United Kingdom. The study identified the 12 most commonly used SMA techniques in these companies, considered the first set of SMA techniques in studying SMA. Among them, SCMATs include five specific techniques: AC, LCC, QC, TC, and VCC. The study revealed that most of the SCMATs were not widely used in the sample companies, indicating a relatively low level of application for these techniques.

One year later, Cravens and Guilding (2001) conducted another survey in the USA, expanding the list of SMA techniques studied by Guilding et al. (2000) to include three more techniques:

ABC, benchmarking, and integrated performance measurement. Their study documented that competitive position monitoring, competitor performance appraisal based on published financial statements, and benchmarking are the most widely used SMA techniques in the USA. This finding confirmed the popularity of competitor-focused SMA techniques in the USA.

Cadez and Guilding (2007) expanded the list of 15 SMA techniques studied by Cravens and Guilding (2001) by adding three more techniques: customer profitability analysis, lifetime customer profitability analysis, and valuation of customers as assets. Similar to the findings of Guilding et al. (2000) and Cravens and Guilding (2001), competitor-focused techniques, benchmarking, and strategic pricing were identified as the top SMA techniques in both countries. However, SCMATs were more widely adopted in Slovenian companies compared to their counterparts in Australia. In the same year, Cinquini and Tenucci (2007) consolidated three customer-focused SMA techniques (customer profitability analysis, lifetime customer profitability analysis, and valuation of customers as assets) into a single technique categorized as 'customer accounting,' reducing the list from 16 techniques to 14 from that of Cadez and Guilding (2007). Their findings indicated extensive use of SMA techniques in the sample firms, with Attribute Costing (AC) and customer accounting being the most widely adopted SMA techniques. However, similar to the findings of Guilding et al. (2000), Cravens and Guilding (2001), and Cadez and Guilding (2007), competitive position monitoring and strategic pricing were also highly adopted by Italian manufacturing firms.

In another study conducted by Cadez and Guilding (2008), the research classified SMA techniques into five categories: strategic costing, strategic planning, management and control, strategic decision making, competitor accounting, and customer accounting. Among these, six major techniques fall under the umbrella of SCMA: AC, LCC, QC, TC, VCC, and ABC. However, the tools of SMA described in the research by Alnawaiseh (2013) include ABC, Benchmarking, Competitor Analysis, Valuing Customers, Integrated Performance Measurement, LCC, QC, Brand Value Monitoring, Managing and

Budgeting, Strategic Pricing, TC, VCC, and Balanced Scorecard.

Cescon et al. (2018) conducted a study in Italian manufacturing firms to examine the relationship between strategic choices and the use of SMA techniques in large manufacturing companies. They investigated whether external factors, such as environmental uncertainty and competitive forces, affect the SMA system. Their work identified 12 SMA techniques, among which five are considered SCMATs: VCC, TC, QC, LCC, and AC. Utilizing qualitative data collected from interviews in seven large companies, the survey results revealed that SMA usage does not depend on strategy type and only marginally depends on geographic orientation. The research also documented a significant positive effect of environmental uncertainty and competitive forces on the adoption of SMA techniques. In contrast, Junidi (2022) believed that four techniques were chosen in the study, including ABC, LCC, TC, and total quality management.

Based on previous studies, the SCMATs include 7 core techniques given in Table 1 as below:

Table 1. Strategic cost management accounting techniques

TT	SCMATs	Source
1	Attribute costing (AC)	Guilding et al. (2000); Cravens and Guilding (2001); Cinquini and Tenucci (2007); Cravens and Guilding (2008); Cescon et al. (2018), Fowzia (2011); Nguyen and Mai (2019); Tran and Tran (2020); Ngo and Dinh (2022)
2	Activity-based costing (ABC)	Cravens and Guilding (2001); Cinquini and Tenucci (2007); Cravens and Guilding (2008); Alnawaiseh (2013); Nguyen and Mai (2019); Nguyen (2021); Ngo and Dinh (2022); Junidi (2022)
3	Life cycle costing (LCC)	Guilding et al. (2000); Cravens and Guilding (2001); Cinquini and Tenucci (2007); Cravens and Guilding (2008); Fowzia (2011); Alnawaiseh (2013); Pavlatos (2015); Cescon et al. (2018); Nguyen and Mai (2019); Tran and Tran (2020); Nguyen (2021); Junidi (2022)
4	Quality costing (QC)	Guilding et al. (2000); Cravens and Guilding (2001); Cinquini and Tenucci (2007); Cravens and Guilding (2008); Fowzia (2011); Alnawaiseh (2013); Cescon et al. (2018); Nguyen and Mai (2019); Tran and Tran (2020); Nguyen (2021); Ngo and Dinh (2022)
5	Target costing (TC)	Guilding et al. (2000); Cravens and Guilding (2001); Cinquini and Tenucci (2007); Cravens and Guilding (2008); Alnawaiseh (2013); Cescon et al. (2018); Nguyen and Mai (2019); Tran and Tran (2020); Nguyen (2021); Ngo and Dinh (2022); Junidi (2022)
6	Value chain costing (VCC)	Guilding et al. (2000); Cravens and Guilding (2001); Cinquini and Tenucci (2007); Cravens and Guilding (2008); Fowzia (2011); Alnawaiseh (2013); Cescon et al. (2018); Nguyen and Mai (2019); Nguyen (2021); Ngo and Dinh (2022)
7	Kaizen costing	Nguyen and Mai (2019); Nguyen (2021); Ngo and Dinh (2022)

Source: Author synthesized

Target costing: This technique is determined by subtracting the target profit from the target selling price of the products or services (Tran et al., 2021). The target selling price is understood as the selling price determined by the market or the price that customers are willing to pay for a new product that is unavailable on the market. The target profit is set based on the strategic plan of the enterprise. The use of target costing as a tool for cost reduction over the product's life cycle helps companies sustain themselves and face severe competition effectively.

Life-Cycle Costing: The tool is a method for estimating the total costs associated with procurement, maintenance, and product handling throughout the product life cycle (Jagtap, 2013). The assessment depends not only on the annual cost and the time frame related to the cost lifecycle but also on each stage of the product's life cycle. Similarly, according to Wilson (1995), life-cycle costing is the total cost of a product type for each stage of its life cycle, starting from the design stage, introduction stage, growth stage, maturity stage, and finally, the decline stage. Wilson (1995) notes that, instead of estimating yearly costs, time should be spent calculating costs occurring in each stage of the product life cycle.

Value chain costing: The technique involves determining costs for each activity in the value chain, from the manufacturing stage to the distributing stage. This is in contrast to the traditional accounting method, which allocates costs by factory and manufacturing process. The aim is to help enterprises focus on improving activities to create additional value for customers and increase profits for the enterprises (Shank & Govindarajan, 1991). According to Cadez and Guilding (2008), the value chain technique employs an activity-based costing approach, attributing costs to activities required for the design, procurement, production, marketing, distribution, and service of a product or service.

Quality costing: Quality costs are those costs related to the creation, identification, repair, and prevention of defects, and they can be categorized into three groups: prevention costs, appraisal costs, and internal and external failure costs (Cadez and Guilding, 2008). The purpose of identifying and classifying quality costs is to assist managers in predicting, measuring, and analyzing costs to ensure long-term effectiveness. Quality cost is

also a measure of managers' efforts in the quality management process (Tran et al., 2021). As a result, this technique classifies and monitors costs, supporting the pursuit of quality.

Kaizen costing: Kaizen costing is the systematic cost reduction goal that the management department sets for each manufacturing stage, empowering employees to find continuous improvement solutions to achieve the target goals. Subsequently, management accountants compare the difference between the target Kaizen costing and the actual level of cost reduction achieved to find solutions in case the Kaizen cost target is not met (Tran et al., 2021). Kaizen costing involves a strategy to reduce costs for each production stage until the improvement goal of the product cycle is achieved (Ojra, 2014).

Activity-based costing: This technique consists of three stages. In the first stage of activity-based costing, activities are identified, costs are associated with individual activities, and activities are classified as primary or secondary (Hansen and Mowen, 2007). In the intermediate stage, the costs of secondary activities are reassigned to primary activities. In the final stage, the costs of primary activities are assigned to products or customers.

Attribute costing: Attribute costing involves the cost accumulation of specific product attributes that appeal to customers (Cadez and Guilding, 2008). These attributes include the following list: satisfaction, reliability, warranty arrangements, product differentiation, and the combination of attributes that align with consumers' tastes and after-sales services.

4. Conclusions, limitations, and direction for future research

The study contributes to the literature on SCMA and SCMATs, as well as the application of SCMATs in enterprises. The research results have shown that there are seven SCMATs in enterprises, including ABC, VCC, Kaizen costing, TC, QC, LCC, and AC. However, a major limitation of the research is that the paper is based on a review of previous articles, which means that the selected articles may not be enough to serve as a representative sample. Therefore, insufficient information was gathered to fully identify SCMATs. In the future, empirical studies should use other research methodologies such as surveys and case studies to verify the application

of SCMATs in each industry and specific field. The findings from these studies will serve as foundations for recommendations to facilitate the application of SCMATs in Vietnamese enterprises in the current context.

References:

Alnawaiseh, M.A.L.I (2013), "The Extent of Applying Strategic Management Accounting Tools in Jordanian Banks", International Journal of Business and Management, Vol. 8, No. 19, 2013

Bui, T. T. Q. (2019), "Factors affecting the strategic management accounting application in Vietnamese enterprises", Industry and trade magazine, 6, 356-361.

Cadez, S. and Guilding, C. (2007), "Benchmarking the incidence of strategic management accounting in Slovenia", Journal of Accounting and Organizational Change, Vol. 3 No. 2, pp. 126-146.

Cadez, S., & Guilding, C. (2008), "An exploratory investigation of an integrated contingency model of strategic management accounting", Accounting, Organizations and Society, 33(7-8), 836-863.

Cravens, K.S. and Guilding, C. (2001), "An empirical study of the application of strategic management accounting techniques", Advances in Management Accounting, Vol. 10, pp. 95-124

Cescon, F., Costantini, A. and Grassetti, L. (2018), "Strategic choices and strategic management accounting in large manufacturing firms", Journal of Management and Governance, Vol. 23, No. 3, pp. 605-636

Cinquini, L. and Tenucci, A. (2007), "Is the adoption of strategic management accounting techniques really 'strategy-driven'? Evidence from a survey", available at: https://mpra.ub.uni-muenchen.de/11819/1/MPRA_paper_11819.pdf (accessed 15 September 2023).

Dixon, R. and Smith, D.R. (1993), "Strategic management accounting", OMEGA Int.J. of Mgmi Sci. Vol 21, No.6, pp. 605-618

Doan, N. P. A. (2012), "Factors affecting the strategic management accounting application in Vietnamese enterprises", Journal of Development Economic, 264, 9-15.

Jagtap, K.N (2013), "Life cycle costing – a tool for Strategic management accounting - A case study original article", Tactful Management Research Journal, 1(11), 1-3.

Hansen & Mowen (2007), Managerial accounting, 8th Editon, Thomson South-Western Corporation

Junidi, M. A (2022), "Strategic Management Accounting Techniques and their effect on the capital structure", Academy of Strategic Management Journal, Volume 21, Issue 5, 2022

Nguyen Vu Viet, Mai Ngoc Anh (2019), Corporate management accounting textbook, Financial Publishing House

Ngo The Chi and Dinh Thi Kim Xuyen (2022), "Strategic cost management accounting-roles and applied techniques, accessed 15/11/2022": https://www.tapchicongthuong.vn/bai-viet/ke-toan-quan-tri-chien-luoc-chi-phi-vai-tro-va-cac-ky-thuat-ap-dung-98314.htm

Ojra, J. (2014), "Strategic management accounting practices in Palestinian companies : application of contingency theory perspective" Academy of management Review, 16(1),145-179.

Porter, M. E. (2012), "Competitive strategy: Techniques for analyzing industries and competitors", Revista Inteligência Competitiva, 2(2).

Roslender, R., & Hart, S. J., (2003), "In search of strategic management accounting: Theoretical and field study perspectives", Management Accounting Research, 14(3), 255–279.

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

Guilding, C., Cravens, K. S., & Tayes, M. (2000), "An international comparison of strategic management accounting practices", Management Accounting Research, 11(1), 113–135. https://doi.org/10.1006/mare.1999.0120

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

Shank, J.K. and Govindarajan, V. (1994), "Strategic Cost Management - The New Tool for Competitive Advantage", The Free press, New York

Tran Hong Van & Tran Thi Phuong Lan (2020), "Level of application of strategic management accounting in Vietnamese enterprises", Industry and Trade Magazine. No. 19. August 2020

SUSTAINABLE ACCOUNTING IN VIETNAMESE ENTERPRISES

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Abstract: *Sustainable accounting integrates principles from conventional financial models and employs various methodological approaches to evaluate the intersection of accounting practices with sustainability considerations. It involves the measurement, disclosure, and interpretation of data regarding an enterprise's environmental, social, and financial performance. This process provides stakeholders with a comprehensive understanding of the impacts of the enterprise. This study focuses on the growing significance of sustainable accounting in Vietnamese enterprises, emphasizing its role in effectively managing environmental, social, and economic factors to maintain a competitive advantage. Practical applications within these enterprises encompass educational initiatives, regulatory backing, collaborative endeavors, integration of sustainability into business strategies, stakeholder involvement, and transparency efforts. For Vietnamese enterprises, embracing sustainable accounting yields advantages such as risk mitigation, enhanced stakeholder confidence, and increased access to financial resources. Nonetheless, challenges include resource constraints, cultural norms, and regulatory complexities that impede its practical adoption. Addressing these challenges necessitates cooperative endeavors among enterprises, government, and civil society organizations. It underscores the significance of capacity building, stakeholder engagement, and regulatory frameworks.*

• Keywords: *sustainable accounting, sustainable development.*

1. Concept of sustainable accounting

Primarily, sustainable accounting emerges as an inevitable trend, commanding considerable scholars and enterprises globally. Sustainability accounting is a unique concept that leverages insights from the conventional financial accounting model (Elkington, 1993). The framework is structured, while its substantive components are informed by diverse methodological approaches adopted by accounting scholars to elucidate the nexus between accounting practices and sustainability concerns over the past decade (Lamberton, 2005). More precisely, sustainable accounting entails measuring, disclosing, and interpreting data concerning an enterprise's environmental and social performance and financial standing (Schaltegger & Burritt, 2017). Its objective is to give stakeholders a holistic perspective of the enterprise's environmental and societal impact. Unlike conventional financial reporting, sustainable accounting records carbon emissions, energy consumption, waste generation, and social initiatives (Caeiro et al., 2012).

In the theoretical background, the evolution of sustainability accounting unfolds along two distinct paths. Firstly, a critical theory perspective that scrutinizes enterprise sustainability accounting through a lens of inherent systemic challenges exists. Many scholars (e.g., Aras & Crowther, 2009; Gray, 2010; Maunders & Burritt, 1991) contend that conventional accounting norms inadequately capture and disclose the complex interplay of corporate social and environmental impacts. They argue that the contested nature of "sustainability" poses a formidable obstacle, limiting the efficacy of sustainability accounting initiatives (Gray, 2002; Gray & Bebbington, 2000). Notably, Gray (2010) further posits that, from this vantage point, sustainability accounting is perceived as a transitory phenomenon susceptible to eventual obsolescence.

Contrastingly, a managerial perspective forms the second path, emphasizing the centrality of enterprise decision-making processes in shaping sustainability initiatives. In this context, sustainability accounting assumes the role of a toolbox, aiding managers in navigating multifaceted decision landscapes. Esteemed management and accounting scholars (e.g., Burritt et al., 2002; Gabel & Sinclair-Desgagné, 1993) advocate for the pivotal role of accounting information in underpinning enterprise sustainability decision-making processes. It is the cornerstone for evaluating and deliberating

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appropriate courses of action across diverse sustainability contexts.

Another positive perspective of sustainable accounting will be clarified when considering an enterprise facing the resource allocation dilemma between reducing carbon emissions and investing in community development projects. In such a scenario, sustainability accounting furnishes managers with quantifiable metrics and insights, facilitating informed decisions aligned with environmental and social imperatives. Furthermore, it enables the assessment of the long-term impacts of these decisions on the enterprise's financial performance and stakeholder relationships.

It can be seen that while the critical theory perspective underscores the inherent limitations and ambiguities in sustainability accounting, the managerial viewpoint accentuates its instrumental role in guiding strategic decision-making toward sustainable outcomes. These divergent perspectives enrich sustainability accounting discourse, offering complementary insights into its evolving landscape and potential implications for enterprise practice.

2. The sustainable accounting framework

Initial, Gray (1993) delineates three distinct methodologies within the realm of sustainability accounting, which are outlined as follows:

(1) Sustainable cost.

(2) Natural capital inventory accounting.

(3) Input-output analysis.

To begin with, sustainable cost is oriented towards accounting practices that incorporate sustainability principles. It entails evaluating costs while considering their implications for environmental and social aspects alongside financial factors. This process typically involves assessing the enduring repercussions of business operations, such as environmental degradation or depletion of resources, and integrating these considerations into cost analyses. Furthermore, natural capital inventory accounting systematically documents natural resources and ecosystems affected by an enterprise's operations. It typically involves evaluating the quantity, quality, and intrinsic value of natural assets that are utilized or impacted by enterprise activities. Such accounting

practices enable enterprises to comprehend their reliance on natural capital and discern avenues for enhancing sustainable resource management. Additionally, input-output analysis scrutinizes the interconnectedness among different economic sectors. Within the sustainability accounting framework, this methodology evaluates the environmental and social ramifications associated with the inputs and outputs of diverse economic activities. It facilitates pinpointing areas of intensive resource utilization or sources of pollution and waste, thereby enabling targeted interventions to enhance sustainability performance. These methodologies represent diverse strategies for incorporating sustainability considerations into accounting frameworks. They underscore the significance of accounting for financial performance and environmental and social impacts, aligning with sustainable development's objectives.

3. Sustainable accounting in Vietnamese enterprises

In recent times, the pursuit of sustainable development has emerged as a paramount concern globally, compelling enterprises worldwide to adopt strategies that harmonize economic advancement with environmental preservation and societal accountability. Like numerous other nations, enterprises in Vietnam are progressively acknowledging the significance of integrating sustainability into their operations, including accounting methodologies (Tu et al., 2023). Hereafter is a practical application of sustainable accounting within Vietnamese enterprises.

Education and training: Efforts to provide education and training initiatives focusing on sustainability and sustainable accounting are indispensable in enhancing awareness and facilitating the implementation of sustainable practices. Such initiatives should target executives, accounting practitioners, and other pertinent stakeholders. By equipping individuals with the necessary knowledge and skills, these initiatives can effectively enhance the capacity of enterprises to integrate sustainability principles into their operations.

Regulatory support: Governmental intervention is crucial in advancing sustainable accounting practices by establishing regulatory frameworks

and incentives. This intervention may involve introducing mandatory reporting requirements and compel enterprises to disclose environmental and social data in their financial reports. Additionally, tax incentives can be provided to encourage investments in sustainable practices, while penalties may be imposed for non-compliance. These regulatory measures serve to create a conducive environment for the adoption of sustainable accounting practices within enterprises.

Collaboration and partnerships: Collaboration among governmental bodies, enterprises, civil society entities, and academic institutions is imperative for driving progress in sustainable accounting. By leveraging collective expertise and resources, stakeholders can share knowledge and disseminate best practices, thereby overcoming barriers and achieving common goals. Collaborative endeavors facilitate the exchange of ideas and experiences, fostering innovation and enhancing the effectiveness of sustainability initiatives.

Integration of sustainability into business strategies: Vietnamese enterprises must integrate sustainability considerations into their overarching business strategies and decision-making processes. This entails setting clear sustainability objectives that align with their goals and values. Moreover, environmental and social criteria should be incorporated into investment assessments to ensure that sustainability considerations are integrated into business decisions. By aligning performance appraisal and incentive frameworks with sustainability goals, enterprises can incentivize adopting environmentally and socially responsible practices throughout their operations.

Stakeholder engagement and transparency: Engagement with stakeholders is essential for gaining insights into their expectations and concerns regarding sustainability. Vietnamese enterprises should foster transparent communication with stakeholders, including employees, customers, suppliers, investors, and communities. This communication should encompass the achievements and successes of sustainability initiatives and the challenges and obstacles encountered. By engaging stakeholders

in dialogue and involving them in decision-making processes, enterprises can build trust and credibility, thereby enhancing their reputation and legitimacy in the eyes of the public.

Figure 1 presents the framework for sustainable accounting in Vietnamese enterprises. In particular, these perspectives are directly derived from examining how Vietnamese enterprises have integrated sustainable accounting as a strategic measure to foster lasting sustainability within the heightened environmental awareness.

Figure 1. Synthesized by the authors
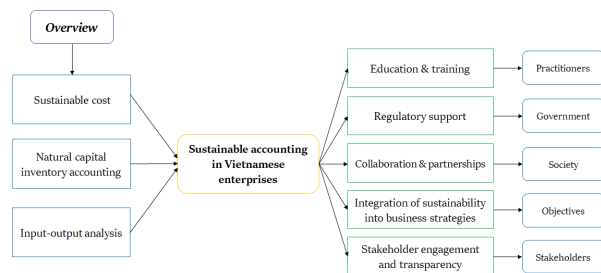
4. Implications

This study posits that sustainable accounting is increasingly imperative for Vietnamese enterprises to effectively manage their environmental, social, and economic footprint, thereby preserving their competitive advantage. Sustainable accounting can benefit Vietnamese enterprises by incorporating environmental, social, and economic dimensions into financial reporting and strategic decision-making processes. As global awareness of sustainability issues grows, Vietnamese enterprises face increasing pressure to adopt practices that mitigate adverse environmental and societal impacts while ensuring long-term profitability (Nguyen et al., 2023; Tu et al., 2023). In Vietnam, where rapid economic development is reshaping the business landscape, sustainable accounting is pivotal in promoting social responsibility and advancing sustainable development objectives.

Firstly, sustainable accounting in Vietnamese enterprises entails measuring and disclosing environmental performance indicators. This encompasses monitoring metrics such as energy consumption, greenhouse gas emissions, water utilization, and waste generation. By quantifying these environmental impacts, these enterprises can identify areas for improvement

and implement strategies to reduce their ecological footprint (Vo et al., 2023). For example, manufacturing enterprises may invest in energy-efficient technologies or adopt waste management practices to enhance their environmental performance (Tu et al., 2023; Vo et al., 2023). Nevertheless, numerous Vietnamese enterprises encounter difficulties in accurately capturing and reporting environmental data due to resource constraints and technological limitations (Nguyen et al., 2023). Moreover, the absence of standardized frameworks and guidelines for sustainable reporting complicates performance comparisons across enterprises.

Furthermore, social accounting constitutes an integral component of sustainable accounting practices in Vietnamese enterprises. This involves evaluating the social ramifications of business operations on stakeholders such as employees, communities, and consumers. Labor rights, occupational safety, and community engagement in Vietnam assume heightened significance. Sustainable accounting encourages enterprises to uphold ethical labor standards, foster diversity and inclusivity, and positively contribute to local communities. For instance, enterprises may institute equitable labor policies, offer employee training and development initiatives, and support community-based projects. Nonetheless, cultural norms and regulatory constraints pose obstacles to social accounting endeavors in Vietnam, with some enterprises prioritizing short-term financial gains over enduring social responsibilities.

Additionally, economic sustainability represents a fundamental facet of sustainable accounting within Vietnamese enterprises. This ensures that business activities generate enduring shareholder value while contributing to broader economic development objectives. Sustainable accounting practices enable enterprises to assess their financial performance in light of environmental and social considerations, fostering transparency and accountability. In Vietnam, where economic progress is intimately linked to industrialization and urbanization, sustainable accounting can mitigate risks associated with resource depletion, environmental degradation, and social disparities. However, achieving economic sustainability necessitates carefully balancing competing interests and negotiating trade-offs between short-term profitability and long-term sustainability objectives.

Lastly, sustainable accounting presents numerous advantages for Vietnamese enterprises, including bolstered risk management capabilities, augmented stakeholder confidence, and improved access to capital. By integrating environmental, social, and economic dimensions into decision-making processes, these enterprises can generate shared value for society while safeguarding their long-term viability. However, unlocking the full potential of sustainable accounting in Vietnam demands concerted efforts from enterprises, governments, and civil society organizations. This entails investing in capacity-building initiatives, fostering stakeholder engagement, and establishing regulatory frameworks that incentivize sustainable practices. Ultimately, sustainable accounting transcends mere compliance or corporate social responsibility, which catalyzes meaningful change toward a more sustainable and inclusive future for Vietnam and the global community.

References:

Aras, G., & Crowther, D. (2009). *Corporate sustainability reporting: a study in disingenuity?*. Journal of Business Ethics, 87, 279-288.

Burritt, R. L., Hahn, T., & Schaltegger, S. (2002). *Towards a comprehensive framework for environmental management accounting-Links between business actors and environmental management accounting tools. Australian Accounting Review, 12(27), 39-50.*

Caeiro, S., Ramos, T. B., & Huisingh, D. (2012). *Procedures and criteria to develop and evaluate household sustainable consumption indicators. Journal of Cleaner Production, 27, 72-91.*

Elkington, J. (1993). *Coming clean: The rise and rise of the corporate environmental report. Business Strategy and the Environment, 2(2), 42-44.*

Gabel, H. L., & Sinclair-Desgagné, B. (1993). *Managerial incentives and environmental compliance. Journal of Environmental Economics and Management, 24(3), 229-240.*

Gray, R. (1993). *Accounting for the environment. London: Paul Chapman.*

Gray, R. (2002). *The social accounting project and Accounting Organizations and Society Privileging engagement, imaginings, new accountings and pragmatism over critique?. Accounting, Organizations and Society, 27(7), 687-708.*

Gray, R. (2010). *Is accounting for sustainability actually accounting for sustainability… and how would we know? An exploration of narratives of organisations and the planet. Accounting, Organizations and Society, 35(1), 47-62.*

Gray, R., & Bebbington, J. (2000). *Environmental accounting, managerialism and sustainability: Is the planet safe in the hands of business and accounting?. In Advances in Environmental Accounting & Management, 1, 1-44.*

Lamberton, G. (2005). *Sustainability accounting-a brief history and conceptual framework. In Accounting Forum, 29(1), 7-26.*

Maunders, K. T., & Burritt, R. L. (1991). *Accounting and ecological crisis. Accounting, Auditing & Accountability Journal, 4(3), 9-26.*

Nguyen, N. M., Hoai, T. T., Vo, H. V., & Nguyen, N. P. (2023). *Digital approach toward environmental sustainability in supply chains: Evidence from Vietnamese firms. Sustainable Development, 31(5), 3303-3317.*

Schaltegger, S., & Burritt, R. (2017). *Contemporary environmental accounting: issues, concepts and practice. Routledge.*

Van, H. V., Hoai, T. T., Minh, N. N., & Nguyen, N. P. (2023). *Green Transformational Leadership and Green Mindfulness as Contributors to Green Innovation and Environmental Performance: Evidence From Manufacturing Firms in Vietnam. SAGE Open, 13(3), 21582440231193919.*

Tu, T. H., Nguyen, M. N., Vo, V. H., & Nguyen, N. P. (2023). *Accounting going green: The move toward environmental sustainability in Vietnamese manufacturing firms. Corporate Social Responsibility and Environmental Management, 3(1), 1-14.*

FACTORS AFFECTING STUDENTS' INTENTION TO USE GREEN VEHICLES IN HO CHI MINH CITY

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Abstract: *The purpose of this study is to identify factors that influence students' intention to use green vehicles in Ho Chi Minh City. The research was conducted using a non-probability sampling method with 200 survey participants who are all studying in Ho Chi Minh City. The study used SPSS software to perform: Descriptive statistics, Cronbach's alpha test, EFA, linear regression and anova to process data. The results showed 6 factors: (1) Environmental awareness, (2) Attitude, (3) Attractiveness of other means, (4) Perceived behavioral control, (5) Subjective norms, (6) Promotion policies have an impact on students' intention to use green vehicles in Ho Chi Minh City. Therefore, this research topic will provide a multi-dimensional view of the process of changing traditional means to green means. It is hoped that the results from this study will contribute to building a green transportation system that is efficient, sustainable, and beneficial to both the community and the environment.*

1. Introducion

The trend of using green vehicles is gradually becoming more familiar to Vietnamese consumers in recent years. This trend comes from the urgent demands of the times, when the environmental situation is becoming more polluted than ever. Evidence shows that, according to the global air quality report of (IQAir, 2023), in 2022, the concentration of PM2.5 fine dust in all provinces and cities nationwide in Vietnam is 5 times higher than 4 times the WHO's guaranteed air level, ranked 36th worldwide in air pollution. From here, products that are neither harmful to human health nor affect the natural balance of the ecosystem, or in other words, environmentally friendly products are born.

Keeping up with this trend, global students have been encouraged to choose to use green means of transportation. In fact, there are certain differences in encouraging students to use green transportation and the actual behavior of students using green transportation. Only by researching and pointing out the importance of these factors can we promote and encourage students to develop in the right direction of

green consumption in the current period of serious environmental pollution. At the same time, these studies also promote students' sense of responsibility to contribute their efforts to preserving and protecting Vietnam's natural environment.

However, until now there have not been many studies. science, or other forms of promoting propaganda and influencing consciousness to discuss the behavior of using green transportation. From the above reasons, the author conducted the topic: "Factors affecting the intention to use green vehicles of students in Ho Chi Minh City" as a research topic as necessary, meeting the requirements. needs of human resource development in particular and building a strong country in general.

2. Literature review

2.1. Background theory

Currently, the issue of using electric vehicles among students is becoming increasingly important and reflects the general trend of society in the process of transitioning to clean, environmentally friendly means of transportation. Using electric vehicles not only brings personal benefits but also positively contributes to the

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goal of protecting the environment and reducing greenhouse gas emissions. Specifically within the birth community, there are a number of trends and driving forces behind this change. Theoretical basis for students' intention to use electric vehicles.

Intention, as defined by Ajzen (1991), signifies an individual's endeavor to engage in a specific behavior and serves as a measure of one's capability to execute said behavior. Ajzen & Fishbein (1975) posit that behavioral intention is shaped by two key factors: the consumer's attitude toward the behavior and subjective norms. Usage intention, according to Lu et al. (2014), denotes a consumer's plan to acquire a product or service, often driven by necessity or circumstances. Ajzen (2002) further delineates behavioral intention, influenced by behavioral, normative, and control beliefs. Zhang et al.'s (2012) research underscores the significance of usage intention in consumer behavior, particularly in determining actual behavior. Consequently, this study delves into the determinants of students' intention to use green transportation. In essence, usage intention reflects a consumer's preconceived inclination toward utilizing a product or service in the future, transitioning from intention to action is complex and subject to various influencing factors.

2.2. Research model

Figure 1. Research model on factors affecting students' intention to use green vehicles in the Ho Chi Minh City
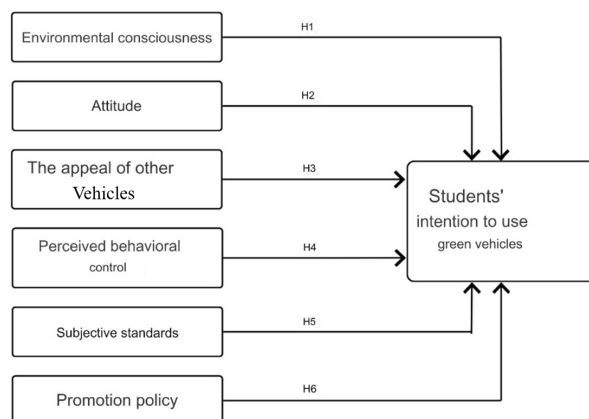
Source: General Research Group

Above is the proposed model including 6 factors included by the author: Environmental awareness, Attitude, Perceived behavioral control, Attractiveness of other means, Subjective norms and finally Promotion policy.

• Environmental awareness: Research by Yi-Chang & Gwo-Hshiung (1999) links environmental awareness to behaviors regarding environmental pollution, knowledge, and energy-saving practices. Variables such as environmental awareness, social responsibility, and perceived benefits from actions are observed in Dung's (2012) study. Additionally, Thogersen (1999) shows that environmentally friendly behavior extends to areas like waste sorting and green transportation, making environmental awareness a pertinent variable for studying students' green vehicle intentions.

• Attitude: Attitude, according to Ajzen & Fishbein (1975), directly influences behavioral intention, supported by TRA and TPB. Thoa's (2016) research on electric motorbikes assesses safety, pricing, and environmental friendliness. Huang & Ge (2019) note favorable consumer attitudes towards government policies promoting electric vehicle adoption.

• Appeal of other vehicles: Chen & Chao (2010) find personal vehicle habits greatly affect public transport use in Kaohsiung and Vietnam. Dung (2012) highlights advantages of traditional motorbikes, hindering green vehicle adoption, thus including this factor in student intention studies.

• Perceived behavioral control: Ajzen (1991) defines perceived behavioral control as awareness of behavior ease or difficulty. Thuy & Hong (2019) link it to electric vehicle use in Hanoi. Huang & Ge (2019) show it affects electric vehicle purchasing decisions.

• Subjective standards: Influential figures and government policies impact vehicle choices, per Chen & Chao (2010). Businesses also influence consumer behavior through marketing and promotions (Kotler et al., 2014).

• Promotion policies: Liao et al. (2016) highlight effective policies like pricing and cost reduction in encouraging electric vehicle use. Huang & Ge (2019) suggest monetary incentives

positively influence Chinese consumers' electric vehicle purchases.

The project aims to enhance students' green vehicle intentions in Ho Chi Minh City by identifying and prioritizing influential factors. The research team identifies "Attitude" as pivotal, urging government and businesses to address it to foster green vehicle adoption.

2.3. Research method

2.3.1. Building a measurement scale

The study mainly uses the Likert scale from 1 (strongly disagree) to 5 (strongly agree). This is a commonly used scale in research describing the effects on the intention to use green public transport:

Table 1. Preliminary scale

Factor	Source
Environmental awareness	(Yi-Chang & GwoHshiung, 1999) (Dung, 2012) (Thøgersen, 1999)
Attitude	(Thoa, 2016) (Huang & Ge, 2019) (Ajzen &Fishbein, 1975) (Tra, 2019)
The appeal of other media	(Dung, 2012) (Chen & Chao, 2010)
Perceived behavioral control	(Ajzen, 1999), (Thuy & Hong, 2019), (Ajzen & Fishbein, 1975)
Subjective standards	(Ajzen, 1991) (Huang & Ge, 2019), (Kotler & al., 2014), (Chen & Chao, 2010), (Lim & al., 2017)
Promotion policy	(Liao & al., 2016), (Glerum & al., 2014), (Hackbarth & Madlenner, 2013), (Huang & Ge, 2019)

Source: Synthezised by authors

2.3.2. Data collection and analysis methods

According to (Hair & al., 2009), the minimum sample size for analysis will be n = 5*6 + 5*4 + 5*4 + 5*5 + 5*4 + 5*4 = 135 (sample). Thus, the minimum sample level for this study is 135 observations. The author used a non-probability sampling method to collect samples and decided to conduct 200 survey samples by sending questionnaires directly or surveying online.

The overall research subjects are students in Ho Chi Minh City with the age range from 18 to 25 years old. The official survey was conducted in Ho Chi Minh City with the survey subjects being those who have and have not Use green vehicles. Subjects answered a number of questions about the influence of factors on the intention to use green vehicles. Due to objective factors, the research team conducted 100% quantitative research using an online survey. Of the ballots received after the survey,

after filtering invalid ballots, the group used 135 ballot samples to conduct official analysis. The study used Cronbach's Alpha as the most popular test score reliability coefficient with single management and eliminated variables with small correlation coefficients between total variables, testing the preliminary scale using the EFA exploratory factor. Build a regression model to analyze the influence of factors on students' intention to use green vehicles.

2.3.3. Analyze results

Among the 200 samples of surveyed subjects, in terms of age, because the research subjects were students who intended to use green vehicles, the age range included in the survey was 18 years or older, ensuring the objectivity of the intention. use green vehicles, but the research analysis will focus on people aged 18-25 years old. Regarding personal occupation, statistical results show that the majority of consumers participating in the survey are students with a number of 200 accounting for 92.96% of the total survey participants. These are people who have experienced and used green vehicles.

* Average evaluation results of factors

Table 2. Average factor results

	Mean		Mean		Mean		Mean		Mean		Mean
Encryption	MT	Encryption	TĐ	Encryption	KSHV	Encryption	SHD	Encryption	CQ	Encryption	CSKM
MT1	3.67	TĐ1	3.61	KSHV1	3.49	SHD1	3.14	CQ1	3.49	CSK M1	3.83
MT2	3.69	TĐ2	3.48	KSHV2	3.50	SHD2	3.20	CQ2	3.42	CSK M2	3.73
MT3	3.67	TĐ3	3.58	KSHV3	3.42	SHD3	3.22	CQ3	3.46	CSK M3	3.69
MT4	3.71	TĐ4	3.55	KSHV4	3.50	SHD4	3.08	CQ4	3.50	CSK M4	3.69
		TĐ5	3.48			SHD5	3.99				
		TĐ6	3.57								

Source: Author's data source for analysis

The results of table 2 show that the average values range from 3.42 to 3.83, which is considered quite good.

* Results of reliability analysis of Cronbach's Alpha scale

Table 3. Analysis of Cronbach's alpha results

No	The scale	Encryption	Number of observed variables	Cronbach's Alpha coefficient if variables are eliminated
1	Environmental awareness	MT	4	0.775
2	Attitude	TD	6	0.904
3	Perceived behavioral control	KSHV	4	0.883
4	The appeal of other vehicles	SHD	5	0.909
5	Subjective standards	CQ	4	0.922
6	Promotion policy	CKSM	4	0.827

Source: Author's analysis data source

From Table 3, we see that the Cronbach's Alpha coefficients are quite high, all > 0.6, in which the variables TD, SHD, and CCQ are said to be very well measured by these scales. The variables in the scale are continued for the next steps.

* Results of EFA factor analysis

Table 4. EFA factor analysis

	Independent variables											
Encryption	TD	Encryption	SHD	Encryption	CQ	Encryption	KSHV	Encryption	CSKM	Encryption	MT
Rotation 1	0.851	SHD1	0.817	CQ1	0.901	KSHV1	0.780	CSKM1	0.760	MT1	0.738
Rotation 2	0.838	SHD2	0.842	CQ2	0.859	KSHV2	0.867	CSKM2	0.730	MT2	0.775
Rotation 3	0.643	SHD3	0.829	CQ3	0.846	KSHV3	0.873	CSKM3	0.799	MT3	0.721
Rotation 4	0.749	SHD4	0.799								
TD5	0.741	SHD5	0.810	CQ4	0.917	KSHV4	0.001	CSKM4	0.807	MT4	0.819
TD6	0.894										
KMO	0.5 x 0.817 ≤ 1										
Sig	0.000 <0.05										
Total variance extracted	71.571% 50%										
Dependent variable											
Encryption	YD1	YD2	YD3								
	0.825	0.817	0.798								
KMO	0.5 ≤ 0.688 ≤ 1										
Sig	0.000 <0.05										
Total variance extracted	66.136% 50%										

Source: Author's analysis data source

Analyzing results of Table 4, we see that both variables have convergent value and acceptable discriminant value. The research data is suitable for EFA analysis when the KMO coefficient of the independent variable is 0.817 (0.5 KMO 1) and the KMO coefficient of the dependent variable is 0.688 (0.5 KMO 1). In the Bartlett test, the coefficient sig. = 0.000 (<0.05) so that the observed variables are correlated with each other overall. Total variance extracted of independent variable = 71.571% (>50%). This gives the 6 independent variables of the total variance extracted to explain 71.571% of the variation in the observed data. As for the dependent variable, the total variance extracted is 66.136% (>50%) of the variation of the observed data. Thus, the hypotheses in the author's proposed model are maintained as follows:

H1: Environmental awareness has a positive impact on students' intention to use green vehicles

H2: Attitude affects students' intention to use green vehicles in the same direction.

H3: Perceived behavioral control has a positive impact on students' intention to use green media.

H4: The attractiveness of other means has a negative impact on students' intention to use green means.

H5: Subjective norms have a positive impact on students' intention to use green vehicles.

H6: Promotion policies have a positive impact on students' intention to use green vehicles.

* Correlation test

Table 5. Pearson correlation results table

Factors to evaluate	Sig coefficient	Pearson correlation coefficient
MT - Environmental awareness	0	0.368
TD - Attitude	0	0.564
KSHV - Perceived behavioral control	0	0.445
SHD - The appeal of other media	0	-0.602
CQ - Subjective standard	0.009	0.402
CSKM - Promotion policy	0	0.476

Source: Author's analysis data source

Factors such as MT, TD, KSHV, SHD, CQ, CSKM have a close relationship with "Intention to use" because the coefficient sig < 0.05. We conclude that MT, TD, KSHV, SHD, CQ, CSKM are correlated with the factor "Intention to use".

* Regression results

We see that when analyzing ANOVA variance, the F test results have a very small Sig value (Sig.= 0.000 < 0.05), the linear regression model is said to be suitable for the whole population. In addition, the adjusted R2 coefficient = 0.619 is in the multivariate regression model, 6 independent variables are included to influence 61.9% of the change in the dependent variable, the remaining 38.1% is due to variables outside the model and errors. random number.

The Sig coefficients of the 6 independent variables are all < 0.05, these independent variables all meet the conditions and are meaningful in the model. No variables were eliminated. VIF coefficients are all < 2 so multicollinearity does not occur.

In summary, the order of factors affecting students' intention to use green vehicles in Ho Chi Minh City is arranged from high to low as follows:

• The factor Attractiveness of other media (β= -0.301) has the strongest impact and has a negative relationship (- sign).

• The Attitude factor (β= 0.264) has the second strongest impact and is related in the same direction (+ sign).

• The factor Environmental awareness (β= 0.220) has the third strongest impact and is related in the same direction (+ sign).

• The factor Perceived behavioral control (β= 0.170) has the fourth strongest impact and is related in the same direction (+ sign).

• The Subjective Norm factor (β= 0.169) has the fifth strongest impact and is related in the same direction (+ sign).

• And the last factor, Promotion policy (β= 0.168) has the lowest impact and a positive relationship (+ sign).

3. Proposal

3.1. Organizing seminars to promote the use of green vehicles

The increasing use of personal vehicles has led to many problems such as congestion, traffic accidents, air pollution, noise pollution and climate change. This directly affects people's health and quality of life. To move towards a healthy and sustainable future, many countries around the world, including Vietnam, are encouraging people to gradually change their means of daily transportation. Using means of transport such as bicycles, electric motorbikes, electric cars, buses, trains... to limit CO_2 emissions and other harmful emissions into the environment is the right direction in the process. "greening" transportation means, bringing fresh air to people.

However, students have environmental concerns but these concerns do not translate into actual adoption or purchase of green products. This explains why students rarely participate in propaganda activities using green vehicles to protect the environment. Realizing that, many organizations working for the community have joined hands to organize seminars aimed at awareness of green vehicle consumption or green vehicle use campaigns that have attracted many students. participating member.

3.2. Enhancing and improving green vehicles

Green vehicles, pure electric vehicles, and vehicles using environmentally friendly fuel are increasingly receiving attention and are more popular in Vietnam. With a population of 100 million people and high economic growth, Vietnam is facing the opportunity to advance in the field of electric vehicle production and use, contributing to reducing greenhouse gas emissions and protecting the environment. According to consumer reviews, green vehicles today have many types such as electric bicycles, electric motorbikes, electric cars,... many models with many segments; Diverse and modern designs; meet the diverse needs of the majority of consumers today, especially young people. Therefore, it is necessary to enhance and improve green vehicles with many different car models, diverse designs, fashionable, eye-catching and modern designs.

3.3. Maximum cost savings for consumers

In addition to functioning as a clean vehicle, green vehicles also help save costs for students. Compared to gasoline engine vehicles, electric vehicles are cheaper. Therefore, users can optimize initial investment costs and save maximum costs for consumers by making the prices of green vehicles corresponding to product quality.

In addition to the initial purchase cost, during operation, vehicles using gasoline and diesel engines also cost more to operate. Because petroleum fuels are increasingly expensive and even scarce. Therefore, the cost to operate the vehicles will increase. Difficulties and inconveniences when using gasoline will be solved when you choose electric vehicles. Instead of having to depend on gasoline suppliers, with green vehicles, users can proactively charge at any time to maintain the vehicle. Using renewable energy sources can make the use of green vehicles more environmentally friendly. Electricity costs can be reduced further if charging is done with the help of renewable energy sources installed at home, such as solar panels.

3.4. Enhancing smart automation features, and green vehicle flexibility

Green vehicles are designed without gears and are very convenient to drive. No

complicated controls like conventional vehicles, just accelerate, brake and steer. Green vehicles are also very quiet when running, so they reduce the noise pollution that traditional vehicles contribute to. Green vehicles make no noise when operating because they do not have an engine under the hood. The electric motor is so quiet that it is sometimes necessary to look at the dashboard to check if the vehicle is turned on. In addition, Green Vehicles' electric car line is equipped with the most advanced "driving assistance" technology. Automated driving technology not only helps people feel less stressed during rush hour congestion but also helps significantly reduce the number of traffic accidents.

In the future, cars will become smarter. They can find parking by themselves, read traffic signs, maintain a safe distance and avoid accidents. Not only cars, some manufacturers also promise to apply these technologies to pedestrians and cyclists. Accordingly, the driver and vehicle can automatically stop before a collision occurs. Therefore, current and future green vehicles will ensure safety and ease of use for users. Green vehicle manufacturing businesses only need to improve smart automation features, and the flexibility in operation of new generation green vehicles ensures safety and ease of use.

4. Conclusion

In conclusion, the research on factors affecting students' intention to use green vehicles in Ho Chi Minh City has shed light on crucial determinants that influence environmentally conscious transportation choices. Through the examination of six significant factors including environmental awareness, attitude, attractiveness of other means, perceived behavioral control, subjective norms, and promotion policies, this study underscores the multifaceted nature of decision-making regarding green vehicle usage among students.

While the findings provide valuable insights, it's important to acknowledge the limitations inherent in the research. One notable constraint is the reliance on limited demographic data, focusing solely on students due to resource constraints. Future investigations should strive to broaden the scope by incorporating diverse demographic variables and consulting expert opinions to enrich the depth of analysis.

Despite these limitations, the study contributes to the burgeoning literature on sustainable transportation by offering a nuanced understanding of the factors shaping individuals' intentions to adopt green vehicles. By addressing these limitations and exploring additional variables in future research endeavors, scholars and policymakers can further refine strategies aimed at promoting eco-friendly transportation practices in Ho Chi Minh City and beyond. Ultimately, fostering a culture of sustainability necessitates continuous exploration and collaboration across disciplines to propel meaningful change towards a greener future.

References:

IQAir, 2023. Air quality index (IQAir) and PM2.5 air pollution in Vietnam, 2023. https://www.iqair.com/vi/vietnam [January 3, 2024].

Ajzen, I. ,2002. Residual effects of past on later behavior: Habituation and reasoned action perspectives. SageJournals, issue 2, volume 6, pages 107-122.

Chen & Chao, 2010. Habitual or reasoned? Using the theory of planned behavior, technology acceptance model, and habit to examine switching intentions toward public transit. Science Direct magazine, issue 2, volume 14, pages 128-137.

Glerum et al., 2014. Forecasting the demand for electric vehicles: Accounting forattitudes and perceptions.

Hackbarth & Madlenner, 2013. Consumer Preferences for Alternative Fuel Vehicles: A Discrete Choice Analysis.

Huang & Ge, 2019. Electric vehicle development in Beijing: An analysis of consumer purchase intention. Science Direct magazine, volume 216, pages 361-372.

Kotler et al., 2014. Principles of Marketing. https://library.wbi.ac.id/repository/212.pdf [January 4, 2024].

Liao et al., 2016. Consumer preferences for electric vehicles: a literature review. Taylor&Francis Online Magazine, issue 3, volume 37, pages 252-275.

Lim et al., 2017. The Impact of Social Media Influencers on Purchase Intention and the Mediation Effect of Customer Attitude. Mag Scholar Magazine, No. 2, Volume 7, pp. 19-31.

Lu et al., 2014. Consumer Attitudes toward Blogger's Sponsored Recommendations and Purchase Intention: The Effect of Sponsorship Type, Product Type, and Brand Awareness. Science Direct magazine, volume 34, pages 258-266.

Zhang et al., 2012. A meta-analysis of mobile commerce adoption and the moderating effect of culture. Science Direct magazine, number 5, volume 28, pages 1902-1911.

FACTORS INFLUENCING THE PROFITABILITY OF LISTED COMMERCIAL BANKS IN VIETNAM

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Abstract: *This research examines the impact of factors on the Return on Average Assets (ROAA) of commercial banks in Vietnam. The results indicate that Off-Balance Sheet activities (OBS), Net Interest Margin (NIM), and Total Asset Size (SIZE) have a positive influence on ROAA. OBS presents opportunities for profit generation, contingent on careful risk management. A higher NIM reflects profitability from interest rate spread, while a larger asset size enables diversification of operations and risk reduction. Conversely, Credit Balance (CB) has a negative impact on ROAA since increased credit exposure can lead to credit risk and reduced profitability. Factors include Cost-to-Income Ratio (CIR), Non-Performing Loan ratio (NPL), and Loan Loss Reserves (LLR) do not significantly affect ROAA. The article emphasizes the importance of credit risk and market risk management to ensure the long-term sustainability and growth of commercial banks in Vietnam.*

• Keywords: *profitability, commercial bank, return on average assets.*

1. Introduction

Financial institutions play a pivotal role in ensuring financial stability and economic growth through their financial mobilization activities across the entire economy (Masood & Ashraf, 2012). Banks are among the key financial institutions that act as intermediaries in the economy by channeling funds from surplus to deficit areas. This role is particularly significant in developing economies (Ayadi F. et al., 2008, Zhang et al., 2013). A robust and profitable banking system has the potential to enhance financial stability and economic growth as it equips the economy to better withstand negative shocks and external pressures (Athanasoglou et al., 2008).

Conversely, the insolvency of the banking system can lead to economic crises (Chaplinska, 2012, Fang et al., 2014, and Fu et al., 2014). Furthermore, profitability is considered a prerequisite for the efficiency and productivity of the banking system (Chen & Liao, 2011). Therefore, researching the factors influencing the profitability of commercial banks is of paramount importance for the development and stability of the entire economy. In this paper, I focus on examining the influence of seven pivotal factors

on profitability (ROAA) of commercial banks, including SIZE, NIM, NPL, LLR, CIR, OBS and CB.

2. Literature review

Mitchell & Onvural (1996), using the SFA model for U.S. commercial banks with total assets exceeding $100 million during the 1986-1990 period, found that larger banks tend to be more cost-effective than smaller ones. Altunbas et al. (2001) used DFA and SFA methods and discovered that, in Germany between 1989 and 1996, banks with similar ownership structures, larger in scale, exhibited cost-efficiency compared to smaller banks. Shehzad et al. (2013), used dynamic panel data models with data from over 15,000 banks in 148 countries between 1998 and 2010, observed a positive relationship between size and business efficiency for banks in OECD countries.

However, other studies, such as De Haan & Poghosyan (2012a, b) with U.S. bank samples, found an inverse relationship between bank size and profitability volatility, indicating that larger banks tend to have more stable business efficiency. Couto (2002), Albertazzi & Gambacorta (2009) previously suggested that

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excessive business efficiency fluctuations could lead to the destabilization of shareholder equity. Le et al. (2017) examined factors influencing the profitability of Vietnamese banks during 2007 and 2013, revealing a counteractive effect between scale and profit generation, suggesting that increasing scale did not enhance financial efficiency for larger banks.

In contrast, studies by Dang et al. (2019) and My (2020) demonstrated a positive relationship between bank's size and financial performance, indicating that Vietnamese banks achieve economies of scale. Moreover, Tran et al. (2020) found evidence of a non-linear relationship between bank's size and profit generation, suggesting that bank's size improves profitability until an optimal threshold, after which profit generation declines. Chi et al. (2021) used Bayesian methods and data from 31 Vietnamese banks, also discovered an inverse relationship between total assets and financial efficiency during the 2007-2017 period. Cohen et al. (1997) gauged accounting profitability using the ROA, indicating that ROA is widely used by market analysis as a measure of financial efficiency because it assesses the effectiveness of assets in generating income. ROA is a primary ratio for evaluating a bank's profitability because it is not distorted by high levels of equity, whereas Return on Equity (ROE) downplays financial leverage risks, in other words, ROE does not address debts (Abate et al., 2019). Kristianti et al. (2016) selected ROA as the dependent variable, with independent variables including CAR, operational efficiency, NIM, NPL, and the credit-to-deposit ratio. Vu (2014) presented a theoretical research model based on Wooldridge's model, with the dependent variable being ROA. Hanh (2021) indicated that the scale of capital and loans has a significant and positive impact on bank profitability, while the scale of assets, deposits, liquidity risk, and NPL have significant and negative effects on bank profitability. The result of Athanasoglou et al. (2006) showed that labor productivity had a positive effect on business efficiency, credit risk had a negative impact on efficiency, management expenses negatively influenced ROA, bank's size had no effect on ROA, ownership structure affected business efficiency, and inflation had a positive impact on the efficiency of Southeast European commercial banks.

Furthermore, Gupta et al. (2020) conducted research on 64 Indian commercial banks over 19 years (from 1998 to 2016). They found that capital adequacy, revenue diversification, employee productivity, GDP growth rate had a positive effect on ROA and ROE, while bank size, NPL, NIM, interest expenses, and inflation had a negative impact on ROA and ROE. Another study by Berger (1995) suggested a relationship between capital and bank income. Bank size, inflation, and GDP growth rate positively influence the interest rate, while excess credit growth and substandard loans negatively affect the bank's interest rate (Alper & Anbar, 2011). The efficiency of a bank's operations is influenced by intrinsic factors such as bank size (measured by the logarithm of total assets) and the NIM (Khrawish, 2011). Schiniotakis (2012) conducted research on factors influencing the profitability of banks in Greece, showing that the number of employees per branch, the ratio of equity to loans, and the loan-to-deposit ratio had a positive impact on ROA, while bank size and the NPL had a negative impact. Adelopo (2018) analyzed data from 123 West African commercial banks and found that independent variables related to the banking sector such as bank size, capital, credit risk, management expenses, liquidity, and macroeconomic variables had an impact on the financial efficiency of banks. According to Pervan (2015), credit risk and inflation had a negative impact on ROA, while bank size had a positive impact. Avery & Berger (1991) conducted an empirical study and found that OBS have a mild impact on the increase in profitability rates. Angbazo (1997) and Calmes & Theoret (2010) identified the positive impact of OBS on NIM to offset the increased potential risks from OBS activities. Kashian & Tao (2014) agreed with the aforementioned studies, stating that OBS items, including loan commitments, can help increase profitability to a reasonable extent. In general, OBS play a significant role in generating income for the bank rather than directly contributing to the bank's risk (Aktan et al., 2013).

3. Methodology

To examine impact of factors on the profitability of listed commercial banks in Vietnam, I employ a research model as follows:

Profitability ratios are indicators that reflect the operational efficiency and financial strength of commercial banks. Commonly used profitability ratios in previous studies include ROA, ROE, and NIM. ROA is considered a critical measure when assessing the profit generation of commercial banks (Athanasoglou et al., 2008), while ROE can provide misleading information because it is influenced by financial leverage. To measure profitability, I use the ROAA which reflects the level of income generation from assets as well as the asset management capability of bank managers (Dietrich et al., 2011). Additionally, other profitability ratios are mentioned, such as the NIM, adjusted risk-based profitability ratios, and so on.

Vietnam is currently following the Basel II standards and classifying OBS activities into four groups. Specifically, commitment to guarantee loans, commitment in L/C transactions, commitment in foreign exchange transactions, other commitments, and other guarantees.

CIR is calculated by dividing operating costs by operating income. Jaouad et al. (2018) draw conclusions about the counterproductive impact of this ratio on operational efficiency, whereas Tze et al. (2013), as well as Long (2019) have contrary findings.

In Vietnam, NPL is defined as loans categorized under sub-standard, doubtful, and loss categories. Among these, NPL is classified based on both quantitative and qualitative criteria. According to Hung (2018), NPL has a counterproductive impact on the operational efficiency of banks.

NIM is the difference between the income and expenditure of the bank interest divided by the total value of bank assets (Tarus et al., 2012). Increased competition drives banks to improve efficiency through lower NIM (Angori et al., 2019). Wide NIM makes it difficult for banks to expand their functions as financial intermediary institutions, because low deposit rates reduce the motivation to save and vice versa, with high loan rates being a heavy burden for companies in investing

(Claessens et al., 2017). Information related to the bank's NIM is also part of the signal in investment decision making (Endri et al., 2020). As a result, banks able to perform an intermediary function at the lowest possible cost to boost overall economic growth. According to Whalen (1988), the ratio of bad debt provisions to total average income-generating assets is positively related to risk, but it lacks statistical significance. On the other hand, Halling (2006) showed that the ratio of risk cost to expected operating income is positively related to risk but lacks significance due to variations during the recovery process.

Abreu et al. (2001) investigated the relationship between the bank net interest margin and profitability in the European banking and found that well-capitalized commercial banks were more efficient and hence enjoyed better profitability. According to Ayaydin et al. (2014), banks with high NPLs will make provisions as required, and provisioning costs will reduce profitability, thus adversely affecting the bank's business efficiency.

LLR is a set-aside fund created to cover potential losses that are yet to be determined during the loan classification process. This fund includes both general credit loss reserves and specific reserves allocated when the quality of loans deteriorates. A higher LLR indicates a bank's capacity to cover potential losses resulting from non-repayment risks, emphasizing its preparedness to offset potential loan losses (Oke et al., 2012). In contrast, research conducted by Lee & Hsieh (2013), Dietrich & Wanzenried (2011), Brahmaiah & Ranajee (2018) suggests an inverse relationship between the LLR and the profitability of commercial banks, implying that a lower ratio of credit risk provisions corresponds to higher bank profits.

The size of total assets impacts profitability in two ways. It can enhance profitability through diversification of products, risk dispersion, and capitalizing on economies of scale. However, excessive growth in a bank size can lead to increased operational costs, such as office expenses and management expenditures (Dietrich et al., 2011). Similarly, Zhao (2013) and Perera (2013) have concluded that bank's size tends to be positively associated with bank profitability.

Large banks are often less exposed to risks, can offer a wider range of loan products, and benefit from economies of scale, resulting in significantly reduced cost of capital and higher profits (Perera et al., 2013). Athanasoglou et al. (2006) had found that the impact of bank's size on profitability is negligible, arguing that small banks often grow rapidly, even at the expense of profitability. Besides, newly established banks usually prioritize market share expansion over immediate profitability, so these banks may not generate profits in the first few years after establishment (Athanasoglou et al., 2006). Consequently, many other researchers have also suggested that there is no significant relationship between bank's size and profitability (Micco et al., 2007).

According to the perspective of the author, the CB has an impact on ROAA. CB represents loans provided by the bank to customers. The income generated from these loans, including interest, fees, and related costs, significantly contributes to the bank's total income. An increase in credit balance may lead to higher ROAA. However, it's crucial to note that along with an increase in the credit balance comes credit risk. If there are many loans with the potential for late or non-payment, the bank needs to set aside reserves to handle these loans. Therefore, I introduce variable CB into the research model.

Table 1. Describing the variables in the research model

Variables	Variable name	Measurement	Expectation sign	Theoretical basis
Dependent variable				
ROAA	Return On Average Assets	Net Profit After Tax/Total Average Assets		Athanasoglou et al. (2008), Dietrich et al. (2011)
Independent variables				
OBS	Off Balance Sheet activities	The values of OBS item in the financial statements	+	Angbazo (1997), Sayilgan et al., Perera et al. (2014)
CIR	Cost-Income Ratio	Operating costs/ Operating Income	+/-	Elouali et al. (2018), Tze et al. (2013), Long (2019)
NPL	Non-Performing Loan	Total Non-Performing Loans/Total Outstanding Loans	-	Hung (2018)
NIM	Net Interest Margin	(Investment returns - Interest Expenses)/ Average Earning Assets	+	Abreu et al. (2001)

Variables	Variable name	Measurement	Expectation sign	Theoretical basis
LLR	Loan Loss Reserve	Credit Risk Provision/ Total Outstanding Loans	+/-	Oke et al. (2012), Lee & Hsieh (2013), Dietrich & Wanzenried (2011) Brahmaiah & Ranajee (2018)
SIZE	Size of Bank	Natural logarithm of total assets	+/-/*	Zhao (2013), Perera et al. (2013), Pasiouras et al. (2007), Berger et al. (1987), Micco et al. (2007)
CB	Credit Balance	The values of credit balance item in the financial statements	+/-	The author's suggestion

: Not effect

Based on the research methodology described above, the author proposes the following regression model:

$$ROAA_{it} = \beta_{1i} + \beta_{2i}OBS_{it} + \beta_{3i}CIR_{it} + \beta_{3i}CIR_{it} + \beta_{4i}NPL_{it} + \beta_{5i}LLP_{it} + \beta_{6i}SIZE_{it} + \beta_{7i}CB_{it} + \varepsilon_{it}$$

Research data

This study conducts quantitative analysis on aggregated data from a 10-year period from 2013 to the end of 2022 extracted from the financial reports of the ten largest listed Vietnam joint-stock commercial banks on the stock exchange, thus resulting in 100 observations. These are the ten banks with the largest asset sizes according to the financial reports of banks traded on the stock market.

To evaluate the impact of OBS activities, CIR, NPL, NIM, LLR, SIZE and CB to ROAA of joint-stock commercial banks, the author employs the FEM and REM using panel data. The independent variables are OBS, CIR, NPL, NIM, LLR, SIZE, CB and the dependent variable is ROAA. Subsequently, the Hausman test will be conducted to choose between the FEM and REM models, and the results suggest that the REM model is more appropriate. Therefore, the REM model will be chosen to run the official data. Then, to test for model deficiencies, the author performs the Breusch and PLM test for random variance errors. If Prob>chibar2 = 1.0000 > Sig. level 5%, $\alpha = 0.05$, then the hypothesis is accepted, and it is concluded that the model does not experience the phenomenon of random variance errors changing. Lastly, the author employs the GLS model to correct deficiencies and presents the results.

4. Results

The study was conducted using panel data through FEM and REM. The research sample consists of 100 observations, with an average ROAA of banks at 7.17%. Among them, the bank with the highest ROAA is 27.48%, and the lowest is 0.3%. The minimum overall solvency is 0.2656, while the maximum is 90.99.

Table 2. Descriptive statistics

Variable	N	Sd	Min	Max	Cv
ROAA	100	1.28	0.80	0.03	3.8
OBS	100	1.63	1.72	1977763	9.33
CIR	100	47.31	12.38	22.71	86.96
NIM	100	3.68	1.55	0.55	8.77
NPL	100	0.02	0.01	0.005	0.07
LLR	100	1.03	0.70	0.03	4.20
SIZE	100	19.87	0.75	18.27	21.47
CB	100	0.38	0.33	0.04	1.52

Based on the correlation among variables (Table 3), it is evident that NIM has a positive impact on ROAA. The relatively low correlation coefficients among independent variables indicate no signs of multicollinearity among the variables in the model.

Table 3. Correlation matrix of variables

	ROAA	OBS	CIR	NIM	NPL	LLR	SIZE	CB
ROAA	1							
OBS	0.56	1						
CIR	-0.44	-0.4489	1					
NIM	0.59	0.3146	-0.3593	1				
NPL	-0.19	-0.1899	0.3065	0.1144	1			
LLR	0.29	0.3488	-0.2003	-0.0383	-0.5899	1		
SIZE	0.09	0.5352	-0.3958	-0.1117	-0.3471	0.5549	1	
CB	-0.07	0.4623	-0.2958	-0.2053	-0.3194	0.5349	0.9131	1

The variance inflation factors for the independent variables in the average model are 3.25, suggesting that multicollinearity is not too severe (Table 4).

Table 4. Variance inflation factor

Variable	VIF	1/VIF
SIZE	7.26	0.137684
CB	6.55	0.152585
LLR	2.09	0.478065
OBS	1.8	0.556273
NPL	1.75	0.571745
CIR	1.69	0.590421
NIM	1.6	0.624161
Mean VIF	3.25	

Table 5. Estimation results of FEM, REM and GLS models

	(1)	(2)	(3)
	ROAA	ROAA	ROAA
OBS	1.42e-09***	2.20e-09***	1.82e-09***
CIR	-0.0200**	-0.0106**	-0.00667
NIM	-0.0566	0.146***	0.213***
NPL	-2.895	-2.011	-1.014
LLR	0.285**	0.356***	0.330***
SIZE	0.690***	0.241	0.245**
CB	-1.504***	-1.587***	-1.331***
Constant	-11.18***	-3.622	-4.227*
Observations	*100*	*100*	*100*

Standard errors in parentheses

* p < 0.10, ** p < 0.05, *** p < 0.01

Initially, the research team estimated the FEM (Model 1), REM (Model 2) in Table 5. I used the Hausman test to choose between the FEM and REM. The estimation results indicated that the FEM is more appropriate than the REM. The Modified Wald and Wooldrige tests were used to check for model FEM's heteroskedasticity, and the estimation results indicated that this model exhibited changing random error variance. To address the issue of changing random error variance in the FEM model, the research team employed the GLS method to remedy it, resulting in the outcomes presented in Model 3 (Table 5).

The results indicate that OBS, NIM, and SIZE have a positive impact on ROAA, while CB has a negative impact on CB at a 5% significance level. Therefore, the regression model is as follows:

$$ROAA = -4.227 - 1.82 * 10^{-10} OBS - 0.006677 CIR + 0.213 NIM - 1.014 NPL + 0.33 LLR + 0.245 SIZE - 1.331 CB + \varepsilon$$

5. Discussion

From the model results, OBS, NIM, and SIZE have a positive impact, while CB has a negative impact on ROAA. This finding aligns with studies by Angbazo (1997), Sayilgan et al., Perera et al. (2014), Abreu et al. (2001), Zhao (2013), and Perera et al. (2013), but contrasts with the conclusions about the impact of SIZE on ROAA by Pasiouras et al. (2007), Berger et al. (1987), and Micco et al. (2007). The mechanisms behind these effects can be explained as follows:

OBS: These activities involve financial activities that a bank engages in, such as credit guarantees, collateral, trade finance, and derivative financial services. These activities can generate

profit opportunities and contribute to the bank's revenue. However, they also come with credit and market risks. If risk management is not effective, OBS activities can lead to asset losses and reduce the bank's profitability.

NIM: NIM is calculated by subtracting the interest earned from lending and bonds from the interest paid on deposits and other funding sources. A high NIM indicates that the bank is generating significant profits from its interest rate structure. However, NIM also depends on the scale of the bank's assets, as larger scale can lead to better performance.

SIZE: A larger size can create opportunities for diversification of activities, better negotiation of transaction terms with clients, and reduced lending risk. However, larger size also comes with higher risk management requirements and capital needs.

CB: CB has a negative impact on ROAA. When credit lending increases, the bank faces a higher level of credit risk. If customers cannot or do not repay their debts on time, the bank incurs losses from asset write-offs. This can lead to decreased profitability and increased risk, reducing ROAA. Moreover, credit lending often includes both fixed and variable interest rate loans. If market interest rates rise, the market value of variable-rate loans (e.g., bonds) may decrease, reducing the value of bank assets and profitability. This can also lower the ROAA.

CIR, NPL, LLR: These variables do not have a direct impact on ROAA. CIR measures cost efficiency in managing the bank's expenses relative to income. A lower CIR indicates that the bank is managing costs effectively but does not directly impact ROAA. Similarly, NPL is the ratio of non-performing loans to total outstanding loans, indicating a high credit risk. However, it does not directly affect ROAA. LLR represents the amount set aside by the bank to deal with credit risk but does not have a direct impact on ROAA. The impact of these variables on ROAA depends on various factors and how credit risk is managed.

In conclusion, OBS, NIM, and the size of assets have a positive impact on ROAA, while CB has a negative impact. Understanding these relationships is crucial for banks to efficiently manage their financials and ensure long-term sustainability and growth. This study provides a deeper insight into the impacts of these factors and can help banks make strategic decisions accordingly.

References:

Abreu, M., & Mendes, V. (2001). Commercial Bank Interest Margins and Profitability: Evidence from Some EU Countries. Pan-European Conference Jointly Organised by the IEFS-UK & University of Macedonia Economic & Social Sciences, 34, 17-20

Adelopo, I., Lloydking, R., & Tauringana, V. (2018). Determinants of bank profitability before, during, and after the financial crisis. International Journal of Managerial Finance, 14(4), 378-398

https://doi.org/10.1108/IJMF-07-2017-0148

Angbazo, L. (1997). Commercial Bank Net Interest Margins, Default Risk, Interest-Rate Risk, and Off-Balance Sheet Banking. Journal of Banking and Finance, 21, 55-87

http://dx.doi.org/10.1016/S0378-4266(96)00025-8

Angori G., Aristei, D., Gallo, M. (2019). Determinants of Banks' Net Interest Margin: Evidence from the Euro Area during the Crisis and Post-Crisis Period. Sustainability 2019, 11(14), 3785

https://doi.org/10.3390/su11143785

A. Perera, D. Ralston, J. Wickramanayake. (2014). Impact of off-balance sheet banking on the bank lending channel of monetary transmission: Evidence from South Asia, Journal of International Financial Markets, Institutions and Money. Vol.29, March 2014, 195-216

https://doi.org/10.1016/j.intfin.2013.12.008

Athanasoglou, P., Brissimis, S. N., & Delis, M. D. (2008). Bank-Specific, Industry-Specific and Macroeconomic Determinants of Bank Profitability. Journal of International Financial Markets, Institutions and Money, 18, 121-136

http://dx.doi.org/10.1016/j.intfin.2006.07.001

Athanasoglou, P., Delis, M. D., Staikouras, C. (2006). Determinants Of Bank Profitability in The South Eastern European Region. Journal of Financial Decision Making. Volume 2, Number 2, December 2006

Berger, A.N. (1995) The Profit-Structure Relationship in Banking—Tests of Market-Power and Efficient-Structure Hypotheses. Journal of Money Credit and Banking, 27, 404-431

http://dx.doi.org/10.2307/2077876

Claessens, S., Ayhan Kose, M. (2017). Asset Prices and Macroeconomic Outcomes: A Survey. SSRN Electronic Journal

Cohen, S. G., Chang, L., & Ledford Jr, G. E. (1997). A hierarchical construct of self-management leadership and its relationship to quality of work life and perceived work group effectiveness. Personnel psychology, 50(2), 275-308

Elouali Jaouad, Oubdi Lahsen (2018), Factors Affecting Bank Performance: Empirical Evidence from Morocco. The European Scientific Journal

https://doi.org/10.19044/esj.2018.v14n34p255

Gupta, N., Mahakud, J. (2020), CEO characteristics and bank performance: evidence from India. Managerial Auditing Journal

Hanh, H. T. (2021), Analyzing Accounting Profit of Vietinbank under Effects of Internal Factors-A Case Study in Vietnam Listed Banks. Turkish Journal of Computer and Mathematics Education (TURCOMAT), 12(12), 4003-4010

Hung, N. V. (2008), Analyzing the factors influencing the effectiveness of operations of commercial banks in Vietnam. Doctoral dissertation, National Economics University

Long, V., M. (2019), The factors influencing the effectiveness of operations of joint-stock commercial banks, Financial Magazine, 2(5), 53-55

Pervan, M., Pelivan, I. and Arnerić, J. (2015). Profit Persistence and Determinants of Bank Profitability in Croatia. Economic Research-Ekonomska Istraživanja, 28, 284-298

https://doi.org/10.1080/1331677X.2015.1041778

Sayilgan, G., & Yildirim, O. (2009). Determinants of Profitability in Turkish Banking Sector: 2002-2007. International Research Journal of Finance and Economics, 28, 207-214

Schiniotakis. (2012). Profitability factors and efficiency of Greek banks. Euromed Journal of Business DOI:10.1108/14502191211245606 ID: 154605267

Tze & Teh. (2013). Factors affecting the profitability of Malaysian commercial banks. African Journal of Business Management. Vol. 7(8), pp. 649-660,

http://www.academicjournals.org/AJBM

CORPORATE SOCIAL RESPONSIBILITY AND EXPORT PERFORMANCE IN VIETNAM: EVIDENCE AND POLICY RECOMMENDATIONS

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Abstract: *According to the 12th Party Central Committee's Resolution No. 10-NQ/TW of 2017 on developing the private sector into an important momentum of the economy, Vietnamese business people should have a sense of law observance, social responsibility and good leadership skills. Moreover, they should focus on building corporate culture and business ethics significanlty. This paper investigates the effect of corporate social responsibility on export performance in a transition economy. Our research sample includes 270 firm-years from 50 listed firms. We use three regression models namely pooled OLS, fixed effects and random effects. CSR is measured by CSR disclosure score developed by Branco et al. (2006). We find that CSR is positively related to export performance. Based on the finding, we suggest some recommendations for the government to improve CSR in Vietnamese firms.*

1. Introduction

From the begining of the "Doi moi" reform in 1986, Vietnam has placed great emphasis on exporting activities. Vietnam became official members of the World Trade Organization (WTO) in January 2007 and the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) in November 2018. However, Vietnamese exporters face severe competition, many technical barriers and requirements from importers when exporting their products to foreign markets especially US, EU and Japan. Recently, beside technical requirements, foreign importers are more likely to use CSR as an additional requirement in order to meet their customers' CSR awareness. On the other hand, CSR has become a new norm in Vietnamese business environment in recent years (Hieu, 2011). With this interesting instutional environment, we posit that Vietnam is a promising laboratory to investigate impact of CSR on export performance.

We develop a research model in which export intensity is a function of CSR and control variables. CSR is measured by CSR disclosure score proposed by Branco et al. (2006). Control variables include firm size, business experience, tangibility and dummies for large foreign shareholders and state-owed enterprises (SOEs). With a sample of 270 observations from 50 firms listed in both Ho Chi Minh City and Hanoi stock exchanges, we find a positve relationship between CSR and export performance in three regression models namely pooled OLS, fixed effects and random effects. Based on the finding, we suggest some recommendations for the government to improve CSR in Vietnamese firms. The rest of this paper includes the following sections. Section 2 reviews the extant literature and develops the research hypothesis. Section 3 is research methods. Section 4 reports research findings. Section 5 presents and policy recommendations and Section 6 is main conclusions.

2. Literature review and hypothesis development

According to Bowen (1953), CSR "refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of action which are desirable in terms of the objectives and values of our society". The following decades witnessed enormous attempts to conceptualize CSR with many viewpoints; however, the most commonly accepted definition is from the World Business Council For Sustainable Development: "CSR is a continuous commitment of corporations though their business to moral behaviors, contribution to economic development,

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improvements in living standards of the labor force and their family as well as the community and society as a whole". Carroll (1979) posits that CSR is measured by five dimensions including the economic, legal, ethical, and discretionary responsibilities. Wartick et al. (1985) modify Carroll's model to obtain three main dimensions namely principles, processes and policies.

Many prior studies show that there is a significantly positive association between CSR and firm performance. Firm-level CSR increases customers' perceived value (Bhattacharya et al., 2009) and enhances consumer-company identification through strengthening customers' loyalty, advocacy and brand identification (Du et al., 2007). Product-level and firm-level CSR reputational resources are especially related to competitiveness that other firms find difficult to imitate (Hall, 1992). With a sample of Turkish firms over the period from 1970 to 1979, Cochran et al. (1984) find that corporate financial performance is positively affected by CSR. Supporting evidence of this relationship is documented in many following studies (Waddock et al., 1997; Berman et al., 1999; Brammer et al., 2006). Conducting a meta-analysis based on prior 52 studies, Orlitzky et al. (2003) conclude that a positive relationship between CSR and firm performance is significant. Furthermore, CSR is also deemed as a promising competitive advantage (Branco et al., 2007; Porter et al., 2006). In the light of prior studies and the institutional environment, we hypothesize that CSR is likely to affect export performance positively.

H1: CSR is positively related to export performance.

3. Research methods

3.1. Research model

To examine the relationship between CSR and export performance, we propose a research model in which export performance is the dependent variable while CSR is an exploratory variable. Beside CSR, there are other variables affecting corporate export performance. First, Majocchi et al. (2005), Baldauf et al. (2000) show that there is a positve correlation between firm size and export performance improvement, even in small open economies. Second, several studies find a significant effect of business experience and export performance. Majocchi et al. (2005)

find business experience proxied by firm age positively influences export performance in Italy while Fryges (2006) find the opposite impact among German and British companies. Third, it is also found that foreign-owned firms are more likely to export than domestic ones (Cole et al., 2010). Ngoc et al. (2009) document a significant relationship between foreign ownership and export performance of multinational firms in Vietnam. Moreover, we also control corporate tangibility and state ownership. Firms with more fixed assets have larger production capacity and they are more likely to export. SOEs are deemed to be less efficient and active than non-SOEs; therefore, SOEs export less than non-SOEs. The research model is presented by Equation (1) as follows.

$$\exp = \alpha + \beta_1 csr + \beta_2 size + \beta_3 age + \beta_4 foreign + \beta_5 soe + \beta_6 tang + \epsilon \quad (1)$$

Where exp is firm export performance measured by export revenue divided by net sales. Csr is corporore social responsibility measured by CSR disclosure score proposed by Branco et al. (2006) ranging from 0 to 23. Higher values of csr indicate that firms conduct and disclose more CSR activities. Size is firm size calculated by natural logarithm of number of employees. Age is measured by natural logarithm of firm age. Foreign is a dummy variable which is assigned 1 if firms have at least 1 large foreign shareholders who hold 5% of common equity or more and 0 otherwise. Soe is also a dummy which receives the value of 1 if firms are SOEs and 0 otherwise. Tang is firm tangibility measured by net fixed assets divided by total assets.

3.2. Data collection

The research data is from firms listed in Ho Chi Minh and Hanoi stock exchanges. Accounting information is provided by Stoxplus. Only firms disclosing export revenue are scrutinized for CSR information. CSR disclosure is collected by content analysis of annual reports from 2010 to 2020. Content analysis is the most popular way to collect information of CSR. This collection method is initially used by Bowman et al. (1975) and then Abbott et al. (1979) use annual reports of Fortune 500 firms to analyse their CSR. Recently, Branco et al. (2006) conduct content analysis based on their consolidated measures of CSR to examine the relationship between CSR disclosure pattern and

selection of disclosure channel. The simplest form of content analysis includes detecting the presence or absence of social responsibility information. The analysis of CSR disclosure in this paper is measured using a scoring system assigning a point for each CSR disclosure theme pertaining to any of the categories considered. Information of CSR used in this research merely comes from annual reports without any assumption or inference from other sources. After eliminating firms in finanial sector and observations with missing information, we obtain a final research sample with 270 observations from 50 firms.

4. Research findings

4.1. Descriptive statistics

Table 1 reports desriptive statistics of research variables. On average, export revenue of selected firms accounts for about 2% of net sales. CSR disclosure scores ranges from 0 to 15 and has a mean value of 6.46. There are approximately 54% observations with large foreign shareholder. This implies that foreign investors pay attention to firms with internationalization. About 23% firm-years are from SOEs.

Exp is firm export performance measured by export revenue divided by net sales. Csr is corporore social responsibility measured by CSR disclosure score proposed by Branco et al. (2006) ranging from 0 to 25. Higher values of csr indicate that firms conduct and disclose more CSR activities. Size is firm size calculated by natural logarithm of number of employees. Age is measured by natural logarithm of firm age. Foreign is a dummy variable which is assigned 1 if firms have at least 1 large foreign shareholders who hold 5% of common equity or more and 0 otherwise. Soe is also a dummy which receives the value of 1 if firms are SOEs and 0 otherwise. Tang is firm tangibility measured by net fixed assets divided by total assets.

Table 1. Descriptive statistics

Variables	N	Mean	Standard deviation	Min	Max
exp	270	0.02	0.02	0.01	0.06
csr	270	6.46	2.86	0	15
size	270	6.92	0.84	5.26	8.68
age	270	2.99	0.64	1.10	4.95
foreign	270	0.54	0.50	0	1
soe	270	0.23	0.42	0	1
fa_ta	270	0.20	0.11	0.01	0.67

4.2. Regression analysis

Table 2 shows results of three regression models namely pooled OLS, fixed effects and random effects. CSR is positively related to export intensity at 1% of significance; therefore, H1 is supported. This implies that firms focus more on CSR tend to have better export performance. Moreover, there is a positive relationship beween firm size and export performance. Firms with larger size have better reputation and more resources to penetrate international market. Consequently, their export intensity is higher.

The dependent variables is export performance measured by export revenue divided by net sales. Csr is corporore social responsibility measured by CSR disclosure score proposed by Branco et al. (2006) ranging from 0 to 25. Higher values of csr indicate that firms conduct and disclose more CSR activities. Size is firm size calculated by natural logarithm of number of employees. Age is measured by natural logarithm of firm age. Foreign is a dummy variable which is assigned 1 if firms have at least 1 large foreign shareholders who hold 5% of common equity or more and 0 otherwise. Soe is also a dummy which receives the value of 1 if firms are SOEs and 0 otherwise. Tang is firm tangibility measured by net fixed assets divided by total assets. *** denotes significance at 1%. ** denotes significance at 5%. * denotes significance at 1%.

Table 2. Regression results

Variables	Pooled OLS	Fixed effects	Random effects
csr	0.0005***	0.0001***	0.0002***
size	0.0003*	0.0006**	0.0004*
age	0.0033	0.0055	0.0038
foreign	0.0015*	0.0012***	0.0012**
soe	-0.0107***	-0.013***	-0.0015***
fa_ta	0.0132*	0.0031	0.0033
Intercept	0.0066**	0.0033**	0.0069***
F-statistics	8.23***	5.79***	33.19***
R-squared	0.1586		
No. Observations	270	270	270

Besides, estimation results report that firms with large foreign shareholders tend to achieve higher export performance. This can be explaied that the foreign shareholders can help firms develop their exporting activities and increase export revenue. Furthermore, soe is negatively related to export perfomance at 1% in three models. These findings indicate that SOEs have lower export intensity than non-SOEs.

5. Policy recommendations

According to the 12th Party Central Committee's Resolution No. 10-NQ/TW of 2017 on developing the private sector into an important momentum of the economy, Vietnamese business people should have a sense of law observance, social responsibility and good leadership skills. Moreover, they should focus on building corporate culture and business ethics significanlty. Our study shows empirical evidence supporting this orientation. Consequently, we suggest the following recommendations for the government to enhance CSR in Viennamese firms.

First, the government should provide firms, especially small and medium-sized firms, with awareness and understandings of CSR. Although the term CSR has been widely spread in recent years, the implementation of CSR in Vietnam is still limited. According to a recent study of World Bank in Vietnam, the obstacles in conducting CSR in Vietnam encompass (1) Constrained awareness of CSR concept; (2) Affected productivity during the simultaneous implementation of multiple Codes of Conduct (COC); (3) Lack of financial and technological resources for CSR exercise (especially for small- and medium-sized enteperises); (4) Misunderstanding between CSR regulation and Labor Law; (5) The effects of domestic regulations on the practice of COC. (http://philosophy.vass.gov.vn). Awareness and understanding is considered the first and foremost difficulty faced by firms. Though most firms have a general idea of CSR, their understanding is not adequate. Many firms mistake CSR for philanthropy only without knowing that CSR must be integrated in every stage of operation and production. Many firms are conducting CSR as a mandatory regulation. They fail to recognize that CSR can enhance their competitive advantages.

Second, the government should provide necessary training courses and guidelines for firms to better involve CSR. The lack of knowledge, technical and financial capacity is a big obstacle for firms to conduct CSR. The guidelines should be consistent with the technical and financial capacity of Vietnamese firms. The government may issue different guidlines for various groups of firm size (large, medium and small) in different industries. Financial support can act as a good initial incentive and a starting point for firms to engage in CSR. Besides, it is extremely important for export firms to learn about the CSR requirements of foreign countries and large importers, especially the market or partnet that they are targeting at.

Third, the government may have appreciation and recognition high-quality CSR firms. The "Award for corporate responsibility" granted by The Ministry of Labor, Invalids and Social Affairs, the Ministry of Industry and Trade, the General Confederation of Labor of Vietnam in cooperation with the Vietnam Chamber of Commerce and Industry, the Leather and Footwear Association and the Vietnam Textile and Apparel Association is a good example of regconition. The award does not only recognize and encourage the awarded firms to maintain good CSR performance, but also show the real cases of firms with successful CSR. Therefore, other firms have good models to follow.

Finally, the government should issue legal regulations on CSR and assure their enforceability in order to improve Vietnamese firms' CSR. The regulations should be consistent with international rules and practices in CSR and the current situation of Vietnamese firms. At first, these regulations may be mandatory to large firms and their coverage may be expanded later. Moreover, supervising activities are also important to ensure that firms strictly follow the CSR regulations./.

References:

Abbott, W. F., and Monsen, R. J. (1979), "On the measurement of corporate social responsibility: Self-reported disclosures as a method of measuring corporate social involvement", Academy of management journal, Vol. 22, No. 3, pp. 501 – 515.

Baldauf, A., Cravens, D. W., and Wagner, U. (2000), "Examining determinants of export performance in small open economies", Journal of World Business, Vol. 35, Iss.1, pp. 61-79.

Bhattacharya, C.B., Korschun, D. and Sen, S. (2009), "Strengthening stakeholder– company relationships through mutually beneficial corporate social responsibility initiatives", Journal of Business Ethics, No. 85, pp. 257-272.

Berman, S. L., Wicks, A. C., Kotha, S., and Jones, T. M. (1999), "Does stakeholder orientation matter? The relationship between stakeholder management models and firm financial performance", Academy of Management journal, Vol. 42, Iss. 5, pp. 488-506.

Boehe, D. M., and Cruz, L. B. (2010), "Corporate social responsibility, product differentiation strategy and export performance", Journal of Business ethics, Vol. 91, Iss. 2, pp. 325-346.

Bowen, H. R. (1953), Social responsibility of the businessman. New York: Harper & Row.

Fryges, H. (2006), "Hidden champions-how young and small technology-oriented firms can attain high export-sales ratios", ZEW-Centre for European Economic Research Discussion Paper, pp. 6-45.

Hall, R. (1992), "The strategic analysis of intangible resources", Strategic Management Journal, Vo. 13, pp. 135-144.

Hieu, P. D. (2011), "Corporate social responsibility: A study on awareness of managers and consumers in Vietnam", Journal of Accounting and Taxation, Vol. 3, Iss. 8, pp. 158-161.

Ngoc, P. M., and Ramstetter, E. D. (2009). "Foreign Ownership and Exports in Vietnamese Manufacturing", The Singapore Economic Review, Vol. 54, Iss. 4, pp. 569-588.

Orlitzky, M., Schmidt, F. L., and Rynes, S. L. (2003), "Corporate social and financial performance: A meta-analysis", Organization studies, Vol. 24, Iss. 3, pp. 403-441.

Porter, M. E., and Kramer, M. R. (2006), The link between competitive advantage and corporate social responsibility. Harvard business review, Vol. 84, Iss. 12, pp. 78-92.

RELATIONSHIP BETWEEN OWNERSHIP STRUCTURE AND FINANCIAL PERFORMANCE OF VIETNAMESE LISTED FIRMS IN THE MANUFACTURING INDUSTRY

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Abstract: As evidenced by previous studies, a firm's ownership structure is crucial in determining its financial performance, either positively or negatively. This research explores the relationship between different types of ownership (state, foreign, and board) and the financial performance of Vietnamese-listed firms in the manufacturing industry. The study analyzed 161 companies from 2014 to 2022, using multiple regression to examine the links between ownership structure and financial performance. The findings indicated a negative relationship between state ownership and financial performance, while foreign ownership showed no significant impact and board ownership had a positive impact. These findings are significant for various reasons: the type of ownership is vital for company performance, and potential investors should consider these ownership forms when investing.

1. Introduction

A company's primary goal is to increase its shareholders' value, with financial performance playing a crucial role in achieving this (Bacidore et al., 1997). Financial performance measures a firm's ability to generate profits and wealth by efficiently utilizing its resources (Batrancea, 2021). Essentially, it reflects the quality of a company's production and business activities within a certain period, evaluated through the collection and use of funds during that time (Fatihudin, 2018). Enhancing financial performance is vital for any business's success as it indicates production levels and provides insights on how to boost revenue, cut costs, and improve operational efficiency (Jemiriye, 2020). Consequently, analyzing financial performance benefits internal stakeholders like shareholders and managers and external stakeholders like investors and creditors. One of the firm's primary targets is maximizing shareholder value, with financial performance being critical to this aim (Bacidore et al., 1997). Financial performance describes a firm's economic development, showcasing its ability to use resources to generate profit and wealth (Batrancea, 2021). It reflects the quality of business activities over a given period, depicted by the collection and utilization of funds (Fatihudin, 2018). Improving financial performance is crucial for business success, as it shows production levels and helps identify ways to increase revenue, reduce costs, and enhance efficiency (Jemiriye, 2020). Therefore, studying financial performance benefits both internal users, such as shareholders and managers, and external users, such as investors and creditors.

Many studies have examined the determinants of financial performance in listed companies in developing countries (Cahyaningtyas & Muharram, 2022) and specifically in Vietnam (Le et al., 2021). However, these studies varied across industry groups, times, and characteristics, leading to inconsistent findings.

The paper is structured into five chapters. Following this introduction, chapter 2 reviews previous research on ownership structure determinants of financial performance. Chapter 3 details the model and research methods. Chapter 4 presents the results and discussion, and chapter 5 summarizes the paper.

2. Literature review

This chapter reviews the literature on ownership structure and financial performance. It starts by explaining ownership structure within various theoretical frameworks, followed by an empirical review of several studies, and concludes with a summary. The chapter examines agency and stakeholder theories to explain the relationships between ownership structure and a firm's financial

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performance. Agency theory suggests that agency costs arise from separating duties between firm owners and managers due to differing goals.

State ownership

High state ownership implies low private ownership, as state ownership is a percentage of total outstanding shares. Ng et al. (2009) note that a negative relationship between state ownership and performance suggests that privatization would be beneficial, as it would positively correlate with performance. This is because high state ownership necessitates hiring agents to protect state interests, which can lead to lower performance due to these agents acting in their interests rather than the state's (Wei & Varela, 2003). However, the authors also argue that if privatization reaches a certain level of control, market performance might decline because firms lose the benefits of government relations, such as support during financial difficulties. Sun et al. (2002) found an optimal level of government ownership, indicating a convex relationship between state ownership and performance, where excessive state control leads to costly bureaucracy and interference in profitable operations. In addition to the impact of state control, the authors consider agency costs or conflicts of interest between internal corporate decision-makers and external shareholders (Jensen & Meckling, 1976). Such conflicts are likely more pronounced between SOE managers, state institutions, and public shareholders. This complex agency context involves more significant conflict, and understanding this relationship can help determine whether privatization benefits Chinese firm's performance (Ng et al., 2009). Private control should reduce agency costs and allocate property rights to managers and owners, benefiting Chinese state-ownership enterprises (Wei & Varela, 2003). Therefore, privatization is necessary for improving state-owned firms (Shleifer, 1998). The authors propose the following hypothesis:

H1: State ownership has a negative impact on financial performance.

Foreign ownership

Previous research suggests that foreign firms investing abroad possess superior capabilities to their domestic counterparts (Porter, 2011). Agency Theory explains the relationship between different types of ownership concentration and firm performance, including the impact of foreign-concentrated ownership (Chhibber & Majumdar,

1999). It is generally believed that an increase in foreign ownership, regardless of industry, leads to better performance due to the superior capabilities and management experience of foreign firms compared to domestic ones (Chen et al., 2017).

H2: Foreign ownership has a positive impact on financial performance.

Board ownership

The impact of board ownership on financial performance is theoretically complex and empirically ambiguous, leading to inconclusive results in the literature. Studies have reported linear and curvilinear relationships, depending on the trade-offs between alignment and entrenchment effects. The entrenchment perspective suggests a negative or insignificant relationship between board ownership and financial performance (Farooque et al., 2020). Conversely, the alignment perspective indicates a positive relationship (Lin et al., 2008). Based on this, the following hypothesis can be proposed:

H3: Board ownership has a significant positive effect on financial performance

3. Research model and methodology

3.1. Research model

The study uses panel data collected from 161 enterprises in the food and beverage industry from 2014 to 2022. This dataset was obtained from audited financial statements and annual reports published on https://vietstock.vn/. After filtering and eliminating the firms that did not fully provide statements, the balanced dataset contains data from 161 enterprises.

The research model includes three ownership structure factors and two control variables that were transformed and computed from the original data. All variables are measured in percentage units. Table 1 describes these variables in detail.

Table 1. The list of variables in models

Index	Variable name	Description	Measure
Dependent variables			
1	ROA	Return on Asset	Annual net Income/Total Assets
Independent variables			
1	LEV	Financial Leverage	Total Liabilities/ Total Assets
	SIZE	Firm size	Logarit of Total Asset
2	SO	State Ownership	State Ownership Rate
3	FO	Foreign Ownership	Foreign Ownership Rate
4	BO	Board Ownership	Board Ownership Rate

3. Research methods

As usual, for the panel data regression model, the least squares estimator model (Pooled OLS) is an

average OLS model undifferentiated by objects over time, so the regression results are often unreliable. To determine the relationship between ROA and firm ownership factors, all these methods were used, evaluated, and compared to select the best-suit model.

From the hypotheses and research methods, the regression multivariable models for this study are described as follows:

$$ROA_{i,t} = \beta_0 + \beta_1 SIZE + \beta_2 LEV + \beta_3 SO + \beta_4 FO + \beta_5 BO + u_{i,t} \quad (1)$$

4. Result

4.1. Descriptive statistics of the variables in the model

Table 2. summarizes the number of observations and descriptive statistics of variables in the model. Firstly, the figure reveals that the manufacturing firm's ROA level expanded from -0,047 to around 0,784. Secondly, the state ownership varies from 0 to 79,7 percent, with the mean being 16,614 percent. Thirdly, the mean leverage of manufacturing firms was small at 0,0461 and fluctuated from 0.003 to 1.454. This shows that firms increased available capital from the equity. Fourthly, the proportions of foreign-owned capital in Vietnam manufacturing firms are not large, averaging at 6,197%. Finally, the board ownership means is about 5,606%.

Table 2: Describe the features of the variables in the model

Variable	Observation	Mean	Min	Max	Standard deviation
ROA	1.449	0,061	-0,047	0,784	0,078
SIZE	1.449	27,355	23,708	32,814	1,536
LEV	1.449	0,0461	0,003	1,454	0,211
SO	1.449	16,412	0	79,7	24,940
FO	1.449	6,197	0	94,11	15,090
BO	1.449	5,606	0	76,469	11,128

Source: Author's research

Table 3: The correlation of the variables in the model

Variable	ROA	SIZE	LEV	SO	FO	BO
ROA	1,000					
SIZE	0,104**	1,000				
LEV	-0,427**	0.246**	1,000			
SO	0,103**	0.034	-0,050**	1,000		
FO	0,010**	0.138**	-0,122**	-0,115**	1,000	
BO	-0,048	-0,061**	0,080**	-0,252**	-0,095**	1,000

Note: **:p_value < 0.01; *:p_value < 0.05; Standard deviations in parentheses.

Source: Author's research

Next, the research evaluates the correlation of the variables in the model. The correlations between the different variables in our study are illustrated in Table 3. With a statistical significance of 95%, there were

five variables, including SIZE, LEV, SO, FO, and BO, correlating with ROA. LEV and FO had a negative correlation, whereas REG and BCG had a positive correlation with CSD. Besides that, SIZE correlated with some variables, including IND, BCG, CG, SO, and FO. These results illustrate that it is possible there was a multicollinearity problem in our case.

4.2. Estimation results

The coefficients in the model (1) were estimated using the panel least-squares method, and the findings are displayed in Table 4. With the model's level of explanation being R2 equal to 23,47%, the results show that variables SIZE, LEV, SO and B) impact ROA at a statistically significant level, while variable FO does not find a statistically significant relationship with ROA.

Table 4: Regression result of the OLS model

Variable	Coef.	Std. Err.	t	P>t
SIZE	0,0110	0,0012	8,94	0,000**
LEV	-0,1767	0,0090	-19,68	0,000**
SO	-0,0002	0,0001	3,35	0,001**
FO	0,0001	0,0001	1,05	0,293
BO	0,0011	0,0005	2,24	0,025*
_cons	-0,1652	0,0329	-5,03	0,000
R-square	0,2347			

Note: **:p_value < 0.01; *:p_value < 0.05; Standard deviations in parentheses.

Source: Author's research

Based on the Multicollinearity test results in Table 5, it is evident that the model does not have Multicollinearity error because multicollinearity occurs when independent variables in a regression model are highly correlated, which can cause issues in estimating the coefficients reliably. Variance Inflation Factor (VIF) is a standard measure to detect multicollinearity. This model with VIF less than 10 is typically considered not to have problematic multicollinearity.

Table 5: Multicollinearity test

Variable	VIF	1/VIF
SIZE	1,11	0,9038
LEV	1,11	0,9048
SO	1,10	0,9120
FO	1,09	0,9158
BO	1,08	0,9270

Source: Author's research

5. Discussion and conclusion

State ownership and financial performance

State ownership positively impacts the financial performance of Vietnamese-listed firms in the manufacturing industry. Several factors explain this relationship. Firstly, state-owned enterprises (SOEs)

often enjoy better access to financial resources and government support, including subsidies, grants, and favorable loans, which can reduce operational costs and enhance profitability. Additionally, SOEs might benefit from favorable policies and strategic advantages, such as exclusive market rights, tax benefits, or regulatory advantages, which improve their competitive positioning and financial performance. Governments also typically adopt a long-term investment horizon, focusing on sustainable growth rather than short-term profits. As a result, SOEs investing in long-term projects and infrastructure often experience more stable financial performance.

Foreign ownership and financial performance

Foreign ownership does not significantly impact the financial performance of Vietnamese firms for several reasons. *Firstly,* Vietnam's regulatory and institutional environment poses challenges for foreign investors. Complex bureaucratic processes, inconsistent law enforcement, and protectionist policies can hinder the effective implementation of foreign management practices and strategies, limiting their impact on financial performance. *Secondly,* differences in corporate culture and management practices between foreign investors and local firms can lead to misunderstandings and conflicts. These differences can impede the integration of foreign expertise and reduce the potential benefits foreign ownership might bring to financial performance. Therefore, these contextual factors often mitigate the expected positive impact of foreign ownership.

Board ownership and financial performance

Board ownership percentage positively impacts financial performance, primarily due to agency theory and the alignment of interests between owners and managers. When board members own a significant percentage of a company's shares, their financial interests align closely with the shareholders. This alignment incentivizes board members to make decisions that enhance shareholder value, improving the firm's financial performance. Agency theory suggests that conflicts between owners (principals) and managers (agents) arise from differing objectives. Board ownership helps mitigate these conflicts because board members, as significant shareholders, are more likely to act in the company's best interests. This reduction in agency costs leads to more efficient and effective management practices, positively affecting financial performance. Additionally, board members with

substantial ownership stakes are more likely to monitor the company's management actively. This heightened oversight ensures that management's actions are closely scrutinized, reducing the likelihood of self-serving behaviors, and improving overall corporate governance. Effective monitoring leads to better decision-making and consequently better financial results.

Conclusion

In conclusion, the impact of ownership structures on the financial performance of Vietnamese-listed firms varies significantly. State ownership tends to enhance financial performance due to government support and long-term investment perspectives. In contrast, foreign ownership faces challenges due to regulatory and cultural barriers, limiting its positive impact. Board ownership aligns the interests of managers and shareholders, leading to better financial outcomes. These findings highlight the importance of considering contextual and structural factors when evaluating the effects of ownership on firm performance.

References:

Bacidore, J. M., Boquist, J. A., Milbourn, T. T., & Thakor, A. V. (1997). The search for the best financial performance measure. Financial Analysts Journal, 53(3), 11-20.

Batrancea, L. (2021). The nexus between financial performance and equilibrium: Empirical evidence on publicly traded companies from the global financial crisis up to the Covid-19 pandemic. Journal of Risk and Financial Management, 14(5), 218.

Cahyaningtyas, N. W., & Muharam, H. (2022). Determinants of capital structure and firm financial performance: empirical evidence on food and beverage sector in indonesian listed companies. Academy of Accounting and Financial Studies Journal, 26, 1-10.

Chhibber, P. K., & Majumdar, S. K. (1999). Foreign ownership and profitability: Property rights, control, and the performance of firms in Indian industry. The Journal of Law and Economics, 42(1), 209-238.

Chen, R., El Ghoul, S., Guedhami, O., & Wang, H. (2017). Do state and foreign ownership affect investment efficiency? Evidence from privatizations. Journal of Corporate Finance, 42, 408-421.

Fatihudin, D. (2018). How measuring financial performance. International Journal of Civil Engineering and Technology (IJCIET), 9(6), 553-557.

Al Farooque, O., Buachoom, W., & Sun, L. (2020). Board, audit committee, ownership and financial performance–emerging trends from Thailand. Pacific Accounting Review, 32(1), 54-81.

Jemiriye, A. E. (2020). Financial performance and investment decision of listed non-financial firms in Nigeria (Doctoral dissertation, Obafemi Awolowo University).

Le Thi Kim, N., Duvernay, D., & Le Thanh, H. (2021). Determinants of financial performance of listed firms manufacturing food products in Vietnam: regression analysis and Blinder–Oaxaca decomposition analysis. Journal of Economics and Development, 23(3), 267-283.

Lin, C. J. (2011). An examination of board and firm performance: Evidence from Taiwan. International Journal of Business and Finance Research, 5(4), 17-34.

Meckling, W. H., & Jensen, M. C. (1976). Theory of the Firm. Managerial Behavior, Agency Costs and Ownership Structure.

Ng, A., Yuce, A., & Chen, E. (2009). Determinants of state equity ownership, and its effect on value/performance: China's privatized firms. Pacific-Basin Finance Journal, 17(4), 413-443.

Porter, M. E. (2011). Competitive advantage of nations: creating and sustaining superior performance. simon and schuster.

Sun, Q., Tong, W. H., & Tong, J. (2002). How does government ownership affect firm performance? Evidence from China's privatization experience. Journal of Business Finance & Accounting, 29(1-2), 1-27.

Shleifer, A. (1998). State versus private ownership. Journal of economic perspectives, 12(4), 133-150.

Wei, Z., & Varela, O. (2003). State equity ownership and firm market performance: evidence from China's newly privatized firms. Global Finance Journal, 14(1), 65-82.

THE IMPACT OF THE CAPITALIZATION SIZE OF 4 TYPICAL STABLECOINS ON THE VALUE OF EXCHANGE RATES - CASE STUDIES IN 3 TYPICAL SOUTHEAST ASIAN COUNTRIES

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Abstract: *Currently, stablecoin transactions are playing an important, increasingly large role in currency transactions around the world. The study uses error correction vector modeling (VECM) to examine the impact of capitalization on stablecoins on the value of some national currencies in Southeast Asian countries (including Vietnam), between 2020 and 2023. The study provides empirical evidence on the impact of transaction sizes on USDT (Tether), USDC (Circle), DAI (Ethereum DeFi Ecosystem), BUSD (Binance) on the value of national currencies measured in hard currencies including USD/SGD, USD/THB, USD/VND, data is taken by day, thereby showing that SGD, THB currencies are strongly affected, VND is weaker but lasting.*

1. Introduction

Current payment systems are undergoing increasing disruption due to the global trend of digitizing payments and creating new business models using blockchain-based programmable digital currency. Several new payment initiatives have recently been announced, and stablecoins are also gaining importance. Central banks are also discussing the introduction of their own digital currencies, known as CBDCs (Central Bank Digital Currency). However, to date, these payment innovations have not been fully discussed and analyzed from the perspectives of different industries and sectors, as their implications remain unclear due to most initiatives not yet being launched (Sandner et al., 2020).

Stablecoins are second-generation cryptocurrencies designed to maintain their value stable relative to official currencies. The most famous example is probably Libra, the cryptocurrency announced by Facebook in 2019 and yet to be released. The most popular stablecoin is Tether, with a market cap of nearly $10 billion and a daily trading volume of nearly $50 billion, making it the most used cryptocurrency. The popularity of stablecoins is hardly surprising. By minimizing volatility - the main flaw of first-generation cryptocurrencies,

including bitcoin - stablecoins are expected to play an even more important role globally in the next few years (Fantacci et al., 2021).

The value of traditional currencies is also affected by stablecoins or digital currencies. The dynamic competition between national fiat currencies, cryptocurrencies, and Central Bank digital currencies (CBDCs) models a scenario where a country's financial power and currency strength mutually reinforce each other (Cong et al., 2022). Since cryptocurrencies are not issued by a centralized authority and do not rely on official legal tender status for acceptance, the principles of stablecoins and whether the rise of cryptocurrencies may or may not constitute monetary competition are still being debated (Fantacci, L., 2019).

Vietnam cannot be excluded from the spillover influence of digital currencies or stablecoins. If China-modeled CBDCs, such as DCEP (digital yuan), can overcome technological challenges and be recognized as effective in addressing issues such as safety, convenient payments, and the promotion of financial inclusion, it could spread to other emerging countries through a shortcut effect. Emerging economies face such challenges, and currency pricing is reducing the shock-absorbing properties of flexible exchange rates and changing

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the inflation-output volatility trade-offs faced by monetary policymakers (Carney, M., 2019).

However, existing studies have largely overlooked the capitalization of stablecoins or the value of some national currencies, focusing primarily on China. Therefore, research gaps remain relatively large for domestic scientific works. This study aims to examine the impact of stablecoin capitalization on the value of some national currencies in Southeast Asian countries.

2. Literature review

The related studies were synthesized into three research groups. The first direction of research concerns central bank cryptocurrencies and their implications. According to Claeys et al. (2019), the advent of CBDCs can also be disruptive and create risks, particularly regarding financial intermediation. This research paper sheds light on perceptions of payment initiatives by interviewing more than 50 senior experts. In this study, the team analyzes the impact of digitally programmable Euro initiatives, such as the Libra stablecoin and CBDC, on banks. The team found that both Libra and Euro CBDC could significantly impact European banks, potentially leading to large-scale dispersion of the financial sector and triggering digital bank withdrawals. Despite these risks, the team's findings suggest that banks also have opportunities to develop new business models stemming from these initiatives. Therefore, Libra and Euro CBDCs are not only seen as threats but also as opportunities (Sandner et al., 2020).

The second line of research concerns the role of stablecoins and their impact on various financial and geopolitical factors. According to Li et al. (2022), stablecoins are at the center of the debate around decentralized assets. The model streamlines many stablecoin management strategies commonly found in practice, and the study describes an instability trap: Stability can persist for a long time, but once devaluation occurs, price volatility continues. In particular, along with other alternative electronic payment systems, stablecoins can be used as a means to evade economic sanctions and ultimately challenge the hegemony of the US dollar in the international monetary system (Fantacci et al., 2021). In the digital currency economy, where stablecoins are an important means of payment, the domestic and international macroeconomic impact of a monetary policy shock may be smaller

or greater than in a predominantly cash-based economy, depending on how the assets supporting the stablecoin supply react to the shock. However, the standard transmission of the monetary policy shock could essentially be restored in the digital currency economy: 1) if the stablecoin is backed entirely by cash or 2) if the CBDC is a relevant means of payment (Cova et al., 2022).

The third direction of research focuses on digital currencies and stablecoins related to the competitiveness of the economy. According to Cong & Colleagues (2022), the research team models the dynamic competition between national fiat currencies, cryptocurrencies, and Central Bank digital currencies, whereby a country's financial strength and monetary strength are mutually reinforcing. The rise of cryptocurrencies hurts stronger fiat currencies but could benefit weaker fiat currencies by reducing competition from stronger ones. CBDCs should be seen in the context of the increasing digitization of the economy and the centrality of data - especially personal data - both economically and in the monetary system. However, data also brings new challenges to competition, privacy, and integrity. Since certain effects of the network effect on currencies have raised concerns that new buyers are individual investors, businesses outside of traditional members can control the monetary system, leading to serious competition and against the interests of society (Phong et al., 2022).

Thus, the studies have not mentioned the capitalization of stablecoins in relation to the value of some national currencies, especially since the above studies are not necessarily focused on Southeast Asian countries but rather on China. Therefore, research gaps are still relatively large for domestic scientific works.

3. Data and methodology

The study has 7 variables: USDT, USDC, DAI, BUSD, USD/SGD, USD/THB, USD/VND. Data is taken by date in 2020-2023.

The VECM model has a general form:

$Yt - Yt{-}1 = (A1 + A2 +...+ Ap{-} I)Y_{t-1} - (A2 +...+ Ap)(Yt{-}1 - Y_{t-2}) - (A3 +...+ App))(Yt{-}2 - Y_{t-3})$

$-...- A_p(AND_{t-p+1} - And_{t-p}) + ut$

$Y_t = Y_{t-1} + C1Y_{t-1} + C2Y_{t-2} +...+ Cp{-}1Y_{t-p+1} + C$

The model contains the term Y_{t-1}. This is the error correction part.

The VECM model is used because it does not distinguish between endogenous or exogenous variables, which is suitable for considering the causal effects of variables when included in the model. In addition, the VECM model integrates the functions of variance decay and pulse response to support the consideration and examination of the impact of capitalization levels on stablecoins on the value of some local currencies in Southeast Asian countries. The ECM equilibrium coefficient makes it possible to measure the degree of impact of variables in the short and long term.

4. Results

4.1. Model tests

4.1.1. Stoppage of data series

Apply the Dickey - Fuller unit test method to verify the stoppage for transaction size data series for USDT (Tether); transaction size for USDC (Circle); transaction size for DAI (Ethereum DeFi Ecosystem); trade size for BUSD (Binance); USD/SGD exchange rate; USD/THB exchange rate; exchange rate USD/VND.

Table 1. Stoppage testing of data series (d=1)

Chain stoppage verification	t-Statistic	Prob.*
USDT stops at the wrong tier 1	-3,351961	0,0140
USDC stops at the wrong tier 1	-4,266532	0,0007
DAI stops at the wrong tier 1	-10,69733	0,0000
BUSD stops at the wrong tier 1	-16,16720	0,0000
USD/SGD stops at the wrong tier 1	-13,85359	0,0000
USD/THB stops at the wrong tier 1	-11,28482	0,0000
USD/VND stops at the wrong tier 1	-11,25654	0,0000

Source: Compiled from regression results.

Test results with a significance of $\alpha = 0.05\%$ of USDT, USDC, DAI, BUSD, USD/SGD, USD/THB, USD/VND chains stopped at the same level of Tier 1 error. Thus, the data series stopped at the same level of differential differential.

4.1.2. Co-link inspection

The chains USDT, USDC, DAI, BUSD, USD/SGD, USD/THB, USD/VND all stop at the wrong tier 1: I(1). Use the Johansen test to check if USDT, USDC, DAI, BUSD, USD/SGD, USD/THB, USD/VND are co-linked.

Table 2. Co-link audit

External links	Own value.	Statistical value.	0.05 significance level	P-value
Not	0,796662	412,2014	125,6154	0,0000
At least 1	0,207063	111,1456	95,75366	0,0029
At least 2	0,116121	67,29539	69,81889	0,0782
At least 3	0,093789	43,96613	47,85613	0,1107
At least 4	0,069262	25,35285	29,79707	0,1492
At least 5	0,058524	11,78686	15,49471	0,1674
At least 6	0,002056	0,389011	3,841466	0,5328

Source: Compiled from regression results.

The test results show that the value P = 0.0000 < α, which should reject the Ho: r=0 hypothesis (there is no co-link between variables), there is co-bonding between strings at a significance level of α = 0.05.

The same results obtained for the maximum number of linked coins test show that USDT, USDC, DAI, BUSD, USD/SGD, USD/THB, USD/VND have co-links, at a significant level α = 0.05, when k = 1, p = 0.0180< α the Ho: r=1 hypothesis should be rejected (there is at least 1 copper associated between variables). Chains have 2 ways of combining co-links.

4.1.3. Verify optimal latency selection for the model

Use LogL, LR, FPE, AIC, SC, HQ criteria to determine the optimal latency for the model. In this case, LR, FPE, AIC, HQ criteria will be used to determine the optimal latency for the model. The optimal latency of the VECM model will be selected from the optimal latency of the VAR model after a one-step downfall. Thus, the optimal latency of the VECM model is latency 3.

**Table 3. Optimal latency selection of VECM model**

Selection of the optimal latency of the VAR model					
Latency	LogL	LR	FPE	AIC	SC	HQ
1	1857,777	ON	1:15e-17	-19,14049	-18,30004*	-18,80001
2	1971,641	210,8601	5:79e-18	-19,82689	-18,14599	-19,14592
3	2066,522	168,6763	3.58e-18	-20,31240	-17,79104	-19,29094
4	2181,658	196,1584*	1.79e-18*	-21,01226*	17,65044	-19,65030*

* indicates the latency selected according to the criteria.

Source: Compiled from regression results.

4.1.4. Model stability verification

Figure 1. Model stability verification
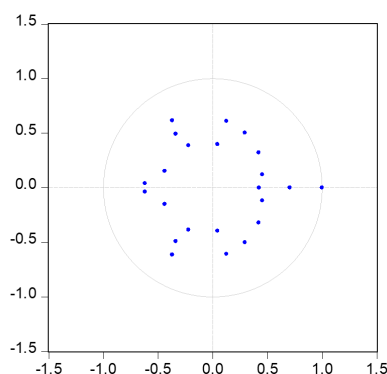
Source: Compiled from regression results.

To verify the stability of the VECM model, using AR Root Test to look at solutions or specific values that are not outside the unit circle, the VECM model will achieve stability.

4.1.5. Checking the white noise of the residual

Figure 2. Checking the white noise of the residual

VEC Structural Residuals using Cholesky (d.f. adjusted) Factors
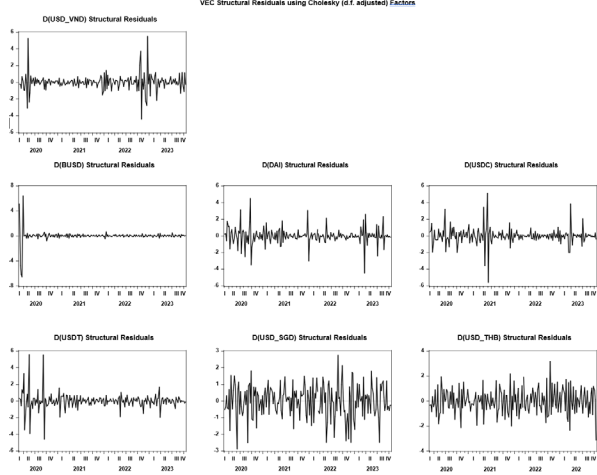
Source: Compiled from regression results

The residual part of the VECM model must be white noise for the VECM model to be used for forecasting.

The results show that the excess is within the permissible limits, so there is no self-correlation. The VECM model is suitable for regression.

4.2. Results of the model and discussion

Table 4. VECM regression model

Cointegrating Eq:	CointEq1						
D(BUSD(-1))	1,000000						
D(DAI(-1))	18,72320						
	(7,85789)						
	[2,38273]						
D(USDC(-1))	-15,42868						
	(9,97017)						
	[-1,54748]						
D(USDT(-1))	37,81206						
	(13,4733)						
	[2,80645]						
D(USD_SGD(-1))	1377,796						
	(87,8305)						
	[15,6870]						
D(USD_THB(-1))	-13,93826						
	(2,26526)						
	[-6,15306]						
D(USD_VND(-1))	-378,3429						
	(132,004)						
	[-2,86615]						
C	-0,024513						
Error Correction:	BUSD	Come on	USDC	USDT	USD/SGD	USD/THB	USDVND
CointEq1	-0,001937	-0,001476	-0,000374	-0,001826	-0,000802	-0,006262	8.82E-05
	(0,00687)	(0,00069)	(0,00050)	(0,00040)	(6:9E-05)	(0,00315)	(4:1E-05)
	[-0,28185]	[-2,1407]	[-0,75099]	[-4,53959]	[-11,6743]	[-1,98906]	[2,15127]

Source: Compiled from regression results.

The results of the VECM model, variance decay functions and integrated pulse response support the study to verify the interaction between data series. The equilibrium coefficient allows to consider relationships both in the short and long term, the impact graph shows no signs of fading but moves from one equilibrium to another thus allowing a full assessment of the dynamic interconnectedness of variables.

The results of the pulse reaction show that the direction of the USD/SGD reaction to shocks changes the capitalization of stablecoins is quite large from period 2 and shows no signs of fading after that. The USD/SGD exchange rate is strongly influenced by the capitalization of the stablecoins BUSD and USDC. The USD/THB exchange rate is strongly influenced by the capitalization of the stablecoins BUSD, USDT and USDC. The study results are consistent with previous experimental studies. Stablecoins are a new generation of cryptocurrencies, whose value is tied to and pegged to a basket of currencies or an asset. Stablecoins will combine the advantages of conventional bank money in terms of stability in value with the advantages of cryptocurrencies that do not require transactions through bank intermediaries and, therefore, higher privacy and possibly lower transaction costs (Popper &; Isaac, 2020).

The pulse response results show that the value of SGD is strongly affected by stablecoins, while the impact of stablecoins on the value of VND is recorded lower. This result is also in line with the actual situation, the level of internationalization of SGD is much greater than that of VND, on the other hand, the Vietnamese government has not yet recognized the legality of electronic currencies. The issuance of asset-backed stablecoins is seen as the creation of money by the shadow banking system, so it could threaten the position of a strong currency with a high degree of internationalization. The emergence of stablecoins could form an international monetary system that operates not on national governments but on private businesses and even on pure algorithms, with the advantages that stablecoins will compete with existing native currencies and impact the

value of these traditional currencies. International tensions between countries have also prompted the development and use of cryptocurrencies aimed at implementing protection strategies against possible disconnection from international payment networks. This was actually one of the reasons for bitcoin's reputation and appeal in 2010, when it began to be used as an alternative to conventional payment circuits (Fantacci, 2019).

The variance decay of the VECM model is intended to separate the degree of contribution of variables in the causal relationship. The results of decay in variance are consistent with the findings of the aforementioned pulse response function analysis and, more importantly, the determination of the impact of the capitalization of stablecoins on the value of traditional currencies. Although the contribution in the value fluctuation of VND due to the volatility of stablecoins is about 1% and the contribution in the value fluctuation of THB due to the volatility of stablecoins is about more than 2%. However, the impact of stablecoins on the value of THB and VND coins lasted long after and showed no signs of fading. On the other hand, the impact of stablecoins on the value of SGD currencies is quite large, especially the capitalization of BUSD affects over 12% on the USD/SGD exchange rate. The popularity of stablecoins is a phenomenon that should also be recognized in this international context. In fact, unlike first-generation cryptocurrencies like Bitcoin, stablecoins can be a good alternative to official currencies, as their value is backed by assets or strong currencies (Carney, 2019). Stablecoins are usually pegged to a currency or a basket of currencies. Before the global pandemic and sanctions policies from politics will affect the value, purchasing power, exchange rates of official currencies. This context also makes stablecoins potentially represent a more stable currency than official currencies, if they are pegged to value assets (Fantacci, 2017).

5. Conclusions and policy implications

Thus, the research results show that the USD/SGD exchange rate is strongly influenced by the capitalization of the stablecoins BUSD and USDC. The USD/THB exchange rate is strongly influenced by the capitalization of the stablecoins BUSD, USDT, and USDC, while the impact of stablecoins on the value of VND is recorded lower. However, the impact of stablecoins on the value

of THB and VND coins lasted long and showed no signs of fading. Stablecoins achieving high capitalization can have a significant impact on the relative value of currencies due to the buying and selling activity of this currency. Therefore, the choice of currency or asset and the proportion in which stablecoins attach value to that currency will determine how capitalized the stablecoins are. Stablecoins can amplify the depreciation of the strong currency to which it fixes its value. If a country's currency is depreciated sharply due to a characteristic shock, then liquidation of the stablecoin currency associated with that currency can further increase the depreciation of that currency.

Considering monetary management policies in the future, if transactions for stablecoins are acknowledged in line with integration trends, it is also possible to use additional regulatory policies to influence transactions of stablecoins, thereby impacting the value of national currencies, which can increase the capitalization of strong stablecoins. Some countries may focus on BUSD or USDC, while others may focus on all three currencies BUSD, USDT, and USDC, including Vietnam.

References:

Carney, M. (2019, August). The growing challenges for monetary policy in the current international monetary and financial system. In Remarks at the Jackson Hole symposium (Vol. 23, pp. 377-411).

Claeys, G., & Demertzis, M. (2019). The next generation of digital currencies: in search of stability (No. 2019/15). Bruegel Policy Contribution.

Cong, L. W., & Mayer, S. (2022). The coming battle of digital currencies. The SC Johnson College of Business Applied Economics and Policy Working Paper Series, (2022-04).

Cova, P., Notarpietro, A., Pagano, P., & Pisani, M. (2022). Monetary policy in the open economy with digital currencies. Bank of Italy Temi di Discussione (Working Paper) No, 1366.

Fantacci, L. (2017). Reconciling Money and Goods: Keynes's Commodity and Currency Plans for the Postwar World. Reconciling Money and Goods: Keynes's Commodity and Currency Plans for the Postwar World, 149-176.

Fantacci, L. (2019). Cryptocurrencies and the Denationalization of Money. International Journal of Political Economy, 48(2), 105-126.

Fantacci, L., & Gobbi, L. (2021). Stablecoins, central bank digital currencies and US dollar hegemony: The geopolitical stake of innovations in money and payments. Accounting, Economics, and Law: A Convivium, (0), 20200053.

Li, Y., & Mayer, S. (2022). Money creation in decentralized finance: A dynamic model of stablecoin and crypto shadow banking. Fisher College of Business Working Paper, (2020-03), 030.

Phong, N. D. & Vinh, V. X. (2022). Central Bank Digital Currency: Current situation and development trends implications for Vietnam. Institute of Business Studies, UEH University

Popper, N., & Isaac, M. (2020). Facebook-backed libra cryptocurrency project is scaled back. The New York Times, 16.

Sandner, P. G., Gross, J., Grale, L., & Schulden, P. (2020). The digital programmable euro, Libra and CBDC: Implications for European banks. Libra and CBDC: Implications for European Banks (July 29, 2020).

Son, T. H., Ly, H. T. N., Tin, H. H., Van, N. T. H. (2021). Effects of Digital RMB Issuance: Some Initial Takeaways. Banking Technology Development Research Institute, Vietnam National University Ho Chi Minh City

IMPACT OF INTERNATIONAL FINANCIAL FACTORS ON VIETNAM'S STOCK INDEX IN THE PERIOD 2020 - 2023

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Abstract: *The study aims to measure the impact of three macroeconomic factors including US stocks (Dow Jones index), exchange rate and gold price on Vietnam's stock market (through the stock price index: VN-Index) in the period 2020-2023 using the VAR model. Research results show that the Dow Jones index has a positive impact on the VN-Index. Meanwhile, the exchange rate and gold price have an inverse relationship with the VNIndex.*

1. Introduction

The COVID-19 outbreak has brought unprecedented challenges, with significant impacts on Vietnam's economic development. Furthermore, Vietnam's economy depends heavily on other economies in the world. Therefore, it is relevant that the impacts on Vietnam's economy are also correlated with the impacts on the economies of other countries after the COVID-19 pandemic outbreak. The epidemic caused numerous problems for the economy, yet the Vietnamese stock market, as measured by the VN-Index, had a "sublimation" year in 2020–2023 with new record milestones set on the route to progress. The trading scale of Vietnam's stock market has now surpassed Singapore, ranking second in ASEAN, after Thailand. Vietnam's stock market is among the TOP markets that bring high returns in the world. Besides domestic macroeconomic factors, there are still few studies examining the impact of international financial factors on Vietnam's stock index.

In order to verify that fluctuations in the Vietnamese stock market are influenced by both domestic and foreign financial factors, this study looks at the impact of international financial factors on the VN-Index, including the influence of US stocks, exchange rates, and world gold prices.

2. Literature review

Hussian et al (2009) studied the long-term relationship between macroeconomic variables and stock prices in the Karachi stock market in Pakistan during the period 1987 to 2008 for analysis. The research results show five correlations between variables and stock prices as follows: in the long run, the variables real exchange rate (RER), foreign exchange reserves (EXERS), wholesale price index (WPI), industrial production index (IIP), gross fixed capital formation (GFCF), money supply (M2), 3-month Government bond interest rate

(IR) have a positive correlation with stock prices, in when IR is insignificantly correlated and WPI is negatively correlated with stock prices.

Gan et al (2006) studied the relationship between seven macroeconomic variables and stock prices in the New Zealand stock market. The author uses monthly data to observe variables: Exchange rate (EX), consumer price index (CPI) - variables representing inflation rate, money supply (M2), long-term interest rates (LR), short-term interest rate (SR), domestic retail oil price (ROIL), gross domestic product (GDP) to study the impact on the New Zealand stock price index in the period 1-1990 to 1 -2003. The results of the Johansen test show that there exists a long-run relationship between NZSE40 and the macroeconomic variables considered. In which, GDP and ROIL covary with NZSE40, whereas CPI, M2, LR, SR and EX inversely change with NZSE40. Overall, the NZSE40 has always been influenced by interest rates, money supply and real GDP over the period 1990-2003.

Using data from January 2001 to December 2010, Hussain et al (2012) examined the long- and short-term relationships between macroeconomic factors in Pakistan and the KSE (Karachi Stock Exchange). The results demonstrate that, over the long term, the Wholesale Price Index (WPI), Exports (EX), Interest Rates (IR), Imports (IM), Money Supply (MS), and Foreign Exchange Reserves (FER) have a positive impact on stock prices, while the Exchange Rate (ER), Industrial Production Index (IPI), and Exports (EX) have a negative impact through statistical techniques like the Granger causality test, VECM, and KPSS. Results from the Granger causality test show that MS and WPI have a bidirectional relationship while ER, FER and IM have a unidirectional relationship with stock prices and IPI, IR, and X have no causal relationship.

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Using data from 1992 to 2010, Rafay et al (2014) investigated the causal link between the KSE 100 index and the following macroeconomic variables: consumer price index (CPI), imports (IM), exports (EX), interest rate (IR), and exchange rate (EXR). To obtain the following conclusions, the author employs the Granger causality test, ADF unit root test, and regression analysis method: While CPI, EXR, and EXPT have no association with the KSE 100 index, there is a positive relationship between IMP and the KSEI. The Granger causality test results indicate that there is a one-way relationship between EXR and IM and the KSE 100 index, but no causal relationship between CPI and EX and the KSE 100 index. In contrast, there is a two-way relationship between IR and the KSE 100 index.

Lone et al (2023) investigates how certain macroeconomic factors affect the performance of the stock market in the BRICS countries. For the years 2011-2021, monthly data were used in the study. The short-run and long-run associations were measured in the study using both the PMG/ARDL model and the ARDL bounds testing model. Except for South Africa, both models offer outcomes that are consistent for both long- and short-term relationships for each of the BRICS economies. Furthermore, it was discovered that the variables had a causal relationship throughout the sample period.

Phan Thi Bich Nguyet & Pham Duong Phuong Thao (2013) investigate the relationship between the six macroeconomic parameters that influence the Vietnamese stock market: money supply (M2), consumer price index (CPI), actual economic activity (IP), interest rates (R), exchange rates (EX), and oil prices (OP). The information that provides the state of the Vietnam Stock Market is the monthly VN-Index data for the months of July 2000 through September 2011. The correlation between the variables is represented by the authors' multiple regression estimation equations, which they further post-test using the Wald and Durbin-Watson tests to increase the regression equation's validity. The findings of the study indicate that the stock market is positively connected with the parameters M2, CPI, IP, and OP, and negatively correlated with R and EX.

Nguyen Thi Nhu Quynh & Vo Thi Huong Linh (2019) used the VECM model to study how various macroeconomic factors affected the Vietnamese stock price index from 2000 to 2018. According to research findings, interest rates have a negative long-term influence on the VN-Index, while inflation has a favorable long-term impact. The VN-Index is mostly influenced in the short term by the VN-Index from the prior month. Additionally, there is a negative correlation between the VN-Index and inflation as well as a positive correlation with the money supply, interest rates, and oil prices. In the short and long terms, the price of gold has little bearing on the VN-Index.

Trang Hong Doan & Nguyen Thu Huyen (2011) studied the influence of the US stock market on the Vietnamese stock market. The GARCH model is used in research to verify the impact of the US stock market on the Vietnamese stock market, on stock groups classified by size, growth and liquidity; and verify the mutual impact between these groups of stocks on the Vietnamese stock market in the period from January 2005 to December 2010 (a total of 1,204 trading days). Sample descriptive statistical results for the two daily SSL markets show that the average SSL and standard deviation of the VN-Index are exceptionally high, consistent with the inference that emerging markets are often profitable. High is commensurate with high risk. Skewness DJIA is highly positively skewed showing some days with outstanding positive SSL. Kurtosis of the SSL VN-Index series shows that the SSL series distribution of the VN-Index is more pointed and fluctuates less around the mean value.

3. Research models

Based on previous studies, the author has built a research model as follows:

$$DVNINDEX_t = \beta_1 DDOWJONES_t + \beta_3 DEX_t + \beta_4 DGOLD_t + \epsilon_t$$

In which the variables are described in table 1:

No	Name of research variable	Symbol	Unit	Expectation
1	Volatility of VN-Index stock index	DVNINDEX	%	
2	Volatility of Dow Jones Index	DDOWJONES	%	+
3	Fluctuations in Exchange rate USD/VND	DEX	%	-
4	Fluctuations in world gold price	DGOLD	%	-

Research data is collected weekly (time cycle) to avoid schedule differences, taken from January 1, 2020 to December 31, 2023.

Data type: Percentage change at the end of the day compared to the previous trading session.

Source of data collection from https://vn.investing.com/indices/vn-historical-data

The VAR model was employed in this essay. Using simultaneous equations (SEs) and univariate autoregression (AR), this autoregressive vector model combines two models. Combining the benefit of estimating numerous equations simultaneously in the same system with the ease of estimating AR using the least squares (OLS) approach, the VAR model combines these two advantages. VAR also gets around SEs' drawback in that all of the model's variables are regarded as endogenous, thus it doesn't have to take into account the endogeneity of economic factors. The lag of a variable and all other variables are used by VAR to estimate each equation for a variable.

4. Results and discussion

From the VAR model, variance decompositions and impulse response functions were performed, thereby evaluating the impact between variables in the research model.

The variance decomposition table shows that the variance fluctuation of more than 90% occurs mainly due to the VN-Index itself, the impact from Dow Jones
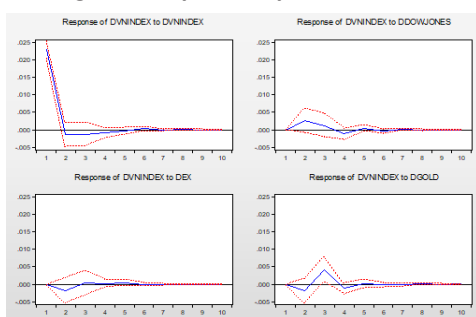
index factors, USD/VND exchange rate and Gold price contributing only ~10%.

Figure 1. Variance decomposition
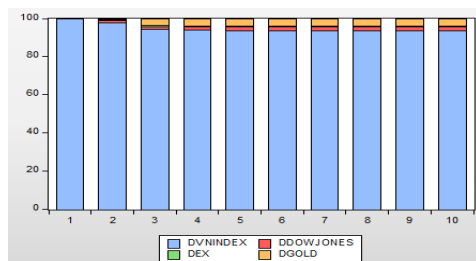
Source: Results from Stata

Figure 2. Impulse response function

Source: Results from Stata

The impulse response function shows evidence that the fluctuations of the VN-Index stock index are influenced by its fluctuations, the fluctuations of the US stock index - Dow Jones index, the fluctuations of the USD/VND exchange rate, and gold price fluctuations.

+ The reaction to the impact of the VN-Index on itself was immediate with a positive value - this is consistent with expectations and coincides with the research results of Nguyen Thi Nhu Quynh & Vo Thi Huong Linh (2019). The impact level decreased immediately in the following period (week), lasting for about 5 periods but was quite small.

+ The impact reaction of the Dow Jones index on the VN-Index occurred strongly in the second period, in the same direction - consistent with expectations and consistent with the results of Trang Hong Doan & Nguyen Thu Huyen (2011). The impact level decreases from period 3, period 4 and lasts up to 6 periods. With a relatively young stock market like Vietnam, the majority of investors are individual investors, so the transactions of individual investors play a large role in influencing stock prices and VN-Index. Therefore, the decision-making of these investors cannot avoid the psychological impact of fluctuations in major stock markets like the US.

+ The reaction of the impact of exchange rates on the VN-Index in period 2 is negative and decreases in period 3. The sign of negative impact is consistent with the research results of Gan et al (2006) and Phan Thi Bich Nguyet & Pham Duong Phuong Thao (2013). Exchange

rates have a negative impact on the VN-Index because when exchange rates increase, it will bring investors more business opportunities in the foreign exchange market than investing in the stock market. Therefore, investors will withdraw capital to invest in foreign currency.

+ The reaction to the impact of gold price fluctuations on the VN-Index was in the opposite direction in period 2 but in the same direction in period 3 and decreased from period 4, similar to the research of Samontaray & Alanuzi (2015). A sharp increase in gold prices can negatively impact the stock market and cause deposits in the population to decrease, thereby reducing the supply of lending funds to the economy. However, that influence is not large. Gold prices have a negligible impact on the VN-Index in both the short and long term. Although according to previous studies, gold prices have a negative impact on the stock market, in our country, gold is not a major investment channel, but gold is mainly considered a means of storing value.

5. Conclusion and policy implications

The study uses the VAR model to assess the effects of three macroeconomic variables (US stocks (Dow Jones index), exchange rates, and gold price) on Vietnam's stock market (via the stock price index, or VN-Index) in the years 2020–2023. The Dow Jones index positively affects the VN-Index, according to research findings. In the meantime, the VNIndex and the gold price are inversely related.

The above research results are evidence to help guide policy direction and forecast stock market fluctuations in the future. From there, it helps policymakers be alert to external fluctuations in devising appropriate operating mechanisms. The VN-Index is affected by the DowJones index, exchange rates and gold price fluctuations, proving that Vietnam's stock market is not only influenced by domestic factors but also influenced by international financial factors. Therefore, investors need to pay attention to domestic macro policies and external fluctuations.

References:

Gan, C., Lee, M., Yong, HHA, & Zhang, J. (2006). Macroeconomic variables and stock market interactions: New Zealand evidence. Investment management and financial innovations, (3, Iss. 4), 89-101.

Hussain, A., Lal, I., & Mubeen, M. (2009). Short run and long run dynamics of macroeconomics variables and stock prices: Case study of KSE (Karachi stock exchange). Kashmir Economic Review, 18 (1).

Hussain, M. M., Aamir, M., Rasool, N., Fayyaz, M., & Mumtaz, M. (2012). The impact of macroeconomic variables on stock prices: An empirical analysis of Karachi stock exchange. Mediterranean Journal of Social Sciences, 3 (3), 295-312.

Lone, UM, Darzi, MA, & Islam, KU (2023). Macroeconomic variables and stock market performance: a PMG/ARDL approach for BRICS economies. Macroeconomics and Finance in Emerging Market Economies, 16 (2), 300-325.

Nguyen Thi Nhu Quynh & Vo Thi Huong Linh (2019), "Tác động của một số yếu tố kinh tế vĩ mô đến chỉ số giá chứng khoán tại Việt Nam", Tạp chí Khoa học Đại học Mở Thành phố Hồ Chí Minh, 14(3), 47-63.

Phan Thi Bich Nguyet & Pham Duong Phuong Thao, (2013) "Phân tích tác động của các yếu tố kinh tế vĩ mô đến thị trường chứng khoán Việt Nam", Tạp chí Phát triển & hội nhập, 8(18), 34-41.

Rafay, A., Naz, F., & Rubab, S. (2014). Causal relationship between macroeconomic variables: Evidence from developing economy. Journal of Contemporary Issues in Business Research, 3(2), 88-99.

Samontaray, DP, & Alanuzi, AA (2015). The impact of gold price changes on Saudi stock market. In Managing in Recovering Markets (pp. 461-471). Springer India.

Trang Hong Doan & Nguyen Thu Huyen (2011), "Ảnh hưởng của thị trường chứng khoán Mỹ lên thị trường chứng khoán Việt Nam", Tạp chí Khoa học Đại học Mở Thành phố Hồ Chí Minh, 6(3), 14 – 23.

DEVELOPING THE BLUE ECONOMY: INTERNATIONAL EXPERIENCES AND LESSONS FOR VIETNAM

Nguyen Thi Thanh*

Abstract: *The development of blue economy has become a top priority for many countries around the world, amid dwindling marine resources and the threat of climate change to the marine environment. The article emphasizes the urgency of transitioning from traditional models of maritime development to blue economy models, based on successful international experiences. Applying and learning from these lessons will help Vietnam optimize the potential of its marine resources, while ensuring the protection of the marine environment and sustainable development for the future.*

1. Introduction

The concept of the blue economy, no longer unfamiliar, is gradually becoming one of the cornerstones in the sustainable development strategies of countries worldwide. In the context of globalization and climate change, developing a blue economy is not just a trend but also an urgent requirement for coastal nations, including Vietnam. The blue economy, also known as an economy oriented towards the sustainable development of marine-related industries, emphasizes the smart and responsible exploitation and utilization of marine resources. International experience shows that some developed countries have succeeded in establishing a robust blue economy by investing in research and development, as well as adopting new technologies to minimize pollution and enhance the protection of the marine environment.

For Vietnam, a country with a long coastline and great potential from the sea, the application and development of a blue economy are not only choices but also urgent needs in the context of climate change and intense resource exploitation. Learning from international experiences and applying them to the specific conditions of the country is crucial. Vietnam can develop its blue economy by promoting industries such as marine tourism, renewable energy from the sea, and sustainable fisheries. However, to achieve this goal, Vietnam needs to address and overcome numerous challenges, including improving legal policies, enhancing community awareness of marine environmental protection, and strengthening international cooperation. Only then can Vietnam fully leverage its potential in developing a blue economy, contributing to the sustainable development of the country and the region.

2. Current situation of Vietnam's blue economy development

Vietnam, with a coastline stretching 3,260 km and over 3,000 islands and archipelagos, holds a strategically important position in the Southeast Asia region. Along with a vast sea area of over 1 million km², Vietnam possesses incredibly rich natural resources. This diversity not only serves as a supply for the strong development of the marine economy but also as an endless source of inspiration for research and exploration. Vietnam also has great potential in maritime transportation and marine tourism, with many famous beaches and bays worldwide such as Ha Long, Nha Trang, and Da Nang. Vietnam's marine economy has long been seen as one of the main pillars in the country's economic development.

Vietnam's marine economy contributes significantly to the country's GDP, with a stable growth rate of about 20-25% per year. Industries such as seafood exploitation are increasingly thriving, with seafood export turnover reaching over $9 billion annually. At the same time, marine tourism also plays a crucial role, attracting both

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domestic and international tourists, contributing to economic development and enhancing community cultural life. The maritime transport system is developing strongly, with upgrades and expansions of seaports. Additionally, many coastal economic zones have been established, attracting investment from both domestic and foreign sources, providing favorable conditions for the development of related industries.

With 34 seaports with over 100 km of wharves, the seaport system is invested in along the North-South corridor. Vietnam's maritime fleet consists of 1,015 ships with a total tonnage of 10.7 million tons (ranking third in ASEAN and 27th in the world) and 839 coastal transport vehicles (VR - SB) that have handled 100% of domestic coastal cargo transportation and continue to develop in the future, with sufficient capacity to receive goods to reduce road transport loads, replacing some other transport methods, especially along the North-South corridor. The investment capital for the period 2011-2020 reached about 202 trillion VND, accounting for about 20.6% of the total investment capital for transportation infrastructure; of which, external capital sources mobilized for maritime investment account for a large proportion, about 173.4 trillion VND, approximately 86% of the total investment capital in the maritime sector. In 2020, despite the impact of the Covid-19 pandemic, maritime transport was the only sector among the 5 transportation sectors with increasing market share, reaching 692.2 million tons, exceeding the target of the planning period until 2020 (about 8.4 times in 2000). In the period of 2015-2022, the growth rate of goods through the seaport system exceeded 10%.

However, alongside great potentials, Vietnam also faces numerous challenges in achieving sustainable development of the blue economy. Climate change and rising sea levels are causing unforeseen impacts on economic activities and the livelihoods of coastal communities. Marine environmental pollution, along with illegal fishing and violations of maritime sovereignty, are urgent issues that need to be addressed. Moreover, there are many limitations in the fields of scientific and technological capacity and human resources, as well as deficiencies in transportation and logistics infrastructure connecting coastal areas, hindering comprehensive development of the marine economy. To overcome these challenges, Vietnam

needs consistent and strategic investment in developing and protecting the benefits of the sea, while promoting international cooperation to find sustainable and effective solutions.

Resolution No. 36-NQ/TW, issued on October 22, 2018, sets out general and specific objectives for the sustainable development strategy of Vietnam's marine economy until 2030, with a vision to 2045. The goal is to make Vietnam a strong maritime nation with sustainable development, prosperity, while ensuring security and safety for the maritime economy. To achieve this, Vietnam needs to implement a range of innovative, creative, and breakthrough solutions. To overcome these challenges, Vietnam needs to focus on raising awareness among the people about the position and role of marine resources in economic development, as well as the content and basic objectives of the Sustainable Development Strategy of the marine economy. Along with that, enhancing control over marine resource exploitation while ensuring the ecosystem's recovery capacity is essential.

3. Experiences in developing sustainable blue economy in some countries worldwide

There are several countries in the world that have achieved notable success in developing the blue economy in a sustainable direction.

3.1. Experience of norway

Norway is one of the pioneering and exemplary countries in applying measures to protect the marine environment and develop a sustainable blue economy. Norway's pioneering spirit is not only the result of long-term commitments to environmental protection but also reflects a deep understanding of the value of the marine environment and its crucial role in the country's development.

One of the strong measures Norway has implemented is the establishment of sustainable marine management areas. These areas are established as conservation areas, where strict regulations on exploitation and use of marine resources are applied. Additionally, these areas are also used for research and monitoring of marine environmental changes, thereby proposing more effective management measures.

Furthermore, Norway has also focused on promoting renewable energy sources from the sea, such as wind power and wave energy. The country

has great potential in exploiting and utilizing renewable energy sources from the sea due to its long coastline and favorable weather conditions. Wind power and marine power grid projects have been vigorously implemented, not only helping Norway reduce greenhouse gas emissions but also creating new income sources and reducing dependence on traditional energy sources. Moreover, Norway has also invested significantly in seawater treatment research and technology. This helps them process and utilize seawater more efficiently while minimizing negative impacts on the marine environment. In summary, Norway is a prime example of success in combining the development of the blue economy with the protection of the marine environment. Through measures such as establishing sustainable marine management areas, promoting renewable energy sources from the sea, and investing in seawater treatment technology, Norway has created a sustainable model for other countries worldwide, especially those with long coastlines and potential for marine economic development.

3.2. Experience of New Zealand

New Zealand is one of the countries with a rich history in developing the green-blue economy and protecting the marine environment. Below are some highlights of New Zealand's experience in this field:

- Sustainable management of fisheries resources: New Zealand has implemented effective management measures to protect and maintain fisheries resources. They have established fisheries management areas to ensure that fish species are not overexploited while promoting their natural regeneration.

- Diversification in the marine industry: New Zealand has not only focused on a single fisheries resource but has diversified their marine industry. In addition to the traditional fisheries sector, they have also developed the marine tourism industry, maritime and logistics industry, as well as research and development of products derived from marine resources.

- Conservation and restoration of the marine environment: New Zealand has placed emphasis on conserving and restoring the marine environment by establishing marine reserves and sustainable marine management areas. They have also invested in programs to regenerate coastal forests and restore marine ecosystems to protect and regenerate marine species and habitats.

- Education and community awareness: New Zealand has organized education programs and raised community awareness about the importance of protecting and sustainably developing the marine environment. Activities such as environmental management education, coral reef protection, and beach cleaning have been organized to stimulate community participation and bring about positive changes in attitudes and actions towards the sea.

These experiences of New Zealand are not only a source of inspiration but also valuable lessons for other countries in developing a green-blue economy and protecting the marine environment. They represent an integrated and sustainable approach to efficiently utilize marine resources and ensure the existence of the marine environment for future generations.

3.3. Experience of Singapore

Singapore, a small country with an area of only 722 km² and a population of over 5.7 million people, has achieved impressive success in developing the blue economy. Known as one of the leading countries in the field of green-blue economy, Singapore has built a solid foundation for sustainable and efficient development of this industry.

The most prominent feature of Singapore's development strategy is its clarity and long-term vision of the importance of the blue economy. The Singaporean government has clearly identified that marine resources are one of the important driving forces for economic growth and therefore has set out a long-term development strategy, with a vision until 2030. This strategy not only focuses on resource exploitation but also particularly emphasizes sustainable development, protection of the marine environment, and exploration of the potential of the blue economy.

Another important factor is Singapore's comprehensive legal system in managing marine economic activities. The government has enacted many laws and regulations to closely manage these activities, ensuring environmental protection and sustainable development. The transparency and clarity of this legal system not only create favorable conditions for businesses but also contribute to attracting investment in the marine economy sector.

Not only that, Singapore also focuses on enhancing scientific and technological capabilities in this field. Strong investment in research and development of technology not only helps optimize activities such as exploitation, aquaculture, marine tourism, and logistics but also enhances the efficiency and sustainability of the marine economy.

For Singapore, ensuring an adequate supply of high-quality human resources is a top priority. This country has focused on training high-quality human resources in the field of the marine economy, ensuring that there will always be enough talented people to develop and maintain this industry. Additionally, raising community awareness about marine environmental protection and sustainable blue economy development is also an important part of Singapore's strategy.

Finally, international cooperation also plays a crucial role in Singapore's blue economy development. This country actively participates in international cooperation activities, sharing experiences, and learning from advanced countries. Joining free trade agreements not only helps create favorable conditions for exporting marine economic products but also opens up new opportunities for the development of this industry on a global scale.

Singapore's success in developing the blue economy comes not only from harmoniously combining important factors but also from the commitment and consistency in implementing long-term and sustainable strategies. This has helped Singapore become a shining example in the field of the blue economy and an inspiration for many other countries worldwide.

4. Lessons learned for Vietnam in developing the blue economy

From the experiences of developing the blue economy of countries such as Norway, New Zealand, and Singapore, Vietnam can draw many valuable lessons to apply to the development of its own marine economy:

Firstly, Vietnam's journey towards a green-blue economy necessitates a steadfast commitment to long-term planning and a strategic vision that extends beyond the immediate future. It is imperative for Vietnam to chart a course that outlines clear objectives and targets, reaching until at least 2030 and ideally extending further into the future. This strategic roadmap should be crafted through the active involvement and collaboration of various stakeholders, including government ministries, sectors, research institutions, and the broader community. At the heart of this strategic vision lies the recognition of the pivotal role played by the blue economy in driving sustainable development within the nation. It is not merely about exploiting marine resources for short-term gains but rather about embracing a holistic approach that prioritizes the preservation and responsible utilization of these invaluable assets. By articulating a clear and comprehensive strategy, Vietnam can harness the full potential of its marine resources while safeguarding the health and integrity of its marine ecosystems for generations to come. Furthermore, the development of this long-term vision should be informed by a deep understanding of the interconnectedness between economic prosperity, environmental sustainability, and social well-being. Vietnam must recognize that the success of its green-blue economy hinges upon achieving a harmonious balance between these three pillars of development. This entails not only maximizing economic returns but also ensuring equitable distribution of benefits and mitigating adverse impacts on vulnerable communities and ecosystems. To effectively translate this vision into action, Vietnam must foster a culture of collaboration, innovation, and adaptive management. This involves breaking down silos between government agencies, fostering interdisciplinary cooperation, and fostering partnerships with academia, industry, and civil society. By leveraging collective expertise and resources, Vietnam can develop and implement policies and initiatives that are not only ambitious but also pragmatic and responsive to evolving challenges and opportunities.

Secondly, Vietnam must prioritize the establishment of a comprehensive legal framework to effectively manage and protect its marine environment. This framework should be characterized by transparency, clarity, and enforceability to ensure the sustainable development of the maritime economy. Strict regulations governing the exploitation and utilization of marine resources need to be implemented and rigorously enforced. Enhanced collaboration between ministries, sectors,

and organizations is paramount to ensure the effectiveness of this legal framework. By fostering interdisciplinary cooperation and coordination, Vietnam can achieve comprehensive management and protection of its marine environment. This entails not only aligning policies and regulations but also sharing data, expertise, and best practices among relevant stakeholders. Moreover, promoting public participation and raising awareness about the importance of marine environmental conservation are essential components of this legal framework. By engaging local communities, NGOs, and civil society organizations in decision-making processes, Vietnam can harness collective efforts towards the sustainable management of its marine resources. Public education campaigns, community forums, and participatory workshops can serve as valuable platforms for fostering environmental stewardship and fostering a sense of ownership among citizens.

Thirdly, Vietnam's journey towards a sustainable blue economy hinges significantly on robust investment in research and technology. This entails a concerted effort to harness the power of innovation and technological advancement to unlock the full potential of the country's marine resources while ensuring their responsible management and utilization. To begin with, Vietnam must allocate substantial resources towards scientific research aimed at better understanding marine ecosystems, biodiversity, and the dynamics of oceanic processes. By investing in cutting-edge research, Vietnam can enhance its capacity to make informed decisions regarding the sustainable use and conservation of marine resources. Moreover, research initiatives should focus on developing innovative solutions to address pressing challenges such as pollution, overexploitation, and climate change impacts on marine environments. Furthermore, Vietnam must prioritize the development and adoption of advanced technologies tailored to the specific needs of its blue economy sectors. This includes leveraging technologies such as remote sensing, artificial intelligence, and big data analytics to optimize activities such as resource exploration, fisheries management, aquaculture practices, marine transportation, and tourism operations. By embracing state-of-the-art technologies, Vietnam can enhance the efficiency, productivity, and sustainability of its marine-based industries, thereby driving economic growth and environmental conservation hand in hand. Crucially, fostering collaboration between research institutions, private enterprises, and government agencies is essential to ensure that technological innovations are effectively translated into practical applications. Public-private partnerships can facilitate the co-creation and deployment of innovative solutions, while also enabling knowledge sharing, capacity building, and technology transfer. By fostering an ecosystem of collaboration and innovation, Vietnam can accelerate the pace of technological advancement within its blue economy sectors, driving forward progress towards sustainability and resilience. Moreover, investing in research and technology not only enhances Vietnam's competitiveness in the global market but also fosters job creation, skills development, and economic diversification. By nurturing a thriving ecosystem of research and innovation, Vietnam can position itself as a leader in blue economy technologies, attracting investment, talent, and opportunities for growth.

Fourthly, Vietnam's quest for a sustainable blue economy necessitates a concerted effort to nurture a cadre of high-caliber human capital specialized in marine-related fields. From seasoned experts to skilled laborers, the development of a well-trained workforce is critical to drive innovation, ensure sustainable practices, and capitalize on emerging opportunities within the blue economy. To achieve this, Vietnam must prioritize investments in education, vocational training, and skills development programs tailored to the diverse needs of the blue economy sectors. Collaborative partnerships between academic institutions, research centers, and industry stakeholders can facilitate the design and implementation of specialized training courses, degree programs, and certification schemes aimed at equipping individuals with the necessary knowledge, skills, and competencies to thrive in marine-related professions. Furthermore, fostering a culture of lifelong learning and continuous professional development is essential to keep pace with evolving technologies, market trends, and environmental challenges. Capacity-building initiatives, mentorship programs, and on-the-job training opportunities can empower individuals to adapt to changing circumstances,

innovate solutions, and contribute effectively to the sustainable development of the blue economy. In addition to investing in education and training, raising awareness and instilling a sense of environmental stewardship among the wider community are imperative for fostering a sustainable blue economy ethos. Educational outreach programs, community workshops, and volunteer activities can serve as platforms for engaging citizens of all ages in discussions about the importance of marine conservation, sustainable resource management, and responsible maritime practices. By cultivating a knowledgeable, skilled, and environmentally conscious workforce, Vietnam can unlock the full potential of its blue economy while safeguarding the integrity of its marine ecosystems for future generations.

Fifthly, Vietnam's journey towards a sustainable blue economy is intrinsically linked to its engagement in international cooperation and collaboration. Recognizing the interconnected nature of marine ecosystems and the globalized nature of economic activities, Vietnam must actively seek opportunities for partnership and knowledge exchange on the international stage. Participation in bilateral and multilateral cooperation frameworks, such as regional agreements and international conventions, can provide valuable platforms for sharing experiences, best practices, and lessons learned with other countries facing similar challenges and opportunities in the blue economy domain. By learning from the successes and failures of others, Vietnam can avoid pitfalls, capitalize on synergies, and accelerate progress towards its sustainable development goals. Moreover, Vietnam should actively engage with international organizations, development agencies, and non-governmental organizations working in the field of marine conservation and sustainable development. Collaborative projects, joint research initiatives, and capacity-building programs can facilitate technology transfer, resource sharing, and institutional strengthening, thereby enhancing Vietnam's resilience and adaptive capacity in the face of global environmental changes. Creating an enabling environment for international cooperation also involves fostering partnerships with foreign governments, businesses, and academic institutions to leverage their expertise, resources, and technologies for mutual benefit. By forging strategic alliances and networks, Vietnam can access new markets, attract investment, and tap into global innovation ecosystems, propelling its blue economy to new heights of sustainability and prosperity.

Conclusion

The blue economy is a sector with enormous potential for Vietnam, but it also requires intelligent and sustainable management and development. Vietnam needs to continue investing in research, developing human resources, and applying innovative solutions to efficiently exploit marine resources while protecting the marine environment for future generations. Vietnam should study and learn from the experiences of advanced countries worldwide to contribute to building a green and sustainable future for both current and future generations. The experiences from advanced countries provide valuable lessons on how to integrate economic development with marine environmental protection, while also providing effective means and technologies to achieve this goal. This is an urgent issue that requires attention and investment from various sectors, not only from the government but also from the business community and the people.

References:

Andreas Raspotnik et al. (2021), The Blue Economy in the Arctic Ocean: Governing Aquaculture in Alaska and North Norway, Arctic and North 42(42):122-144.

Central Executive Committee (2018), Resolution No. 36-NQ/TW dated October 22, 2018, the Eighth Conference of the Central Executive Committee of the Party (12th term) on the Sustainable Development Strategy of Vietnam's Maritime Economy by 2030, with a vision to 2045.

Do Huong (2024), Sustainable Development of Vietnam's Maritime Economy, Government Electronic Newspaper.

Le Minh Thanh (2024), Current Situation and Solutions for the Development of Vietnam's Island Maritime Economy by 2030, Trade and Industry Magazine.

Mary Ann Quirapas-Franco, Melissa Low and Alex Ng (2021), The Role of the Blue Economy in Singapore's Sustainable Energy Transition, ESI Policy Brief.

Ministry of Industry and Trade (2023), Vietnam Logistics Report 2023, Industry and Trade Publishing House.

Nguyen Thi Thu Hoa (2023), Sustainable Development of Vietnam's Maritime Economy by 2030, with a vision to 2045, Communist Review.

Rodney Yeoman, Doug Fairgray and Brian Lin (2019), Measuring New Zealand's Blue Economy, UOA 004.19 Blue Economy.

Vo Tri Thanh (2023), Development of the Blue Economy in Vietnam, ERIA Policy Brief, June 2023.

MANAGING MONETARY POLICY FOR ECONOMIC RECOVERY AFTER THE COVID-19 PANDEMIC AND RUSSIAN-UKRAINIAN MILITARY CONFLICT

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Abstract: *The economy is deeply integrating with the world, so it is greatly affected by the Covid-19 pandemic and unusual developments in the international financial market due to the Russian-Ukrainian military conflict. In that context, the Government has had appropriate policies and the State Bank of Vietnam operates a proactive and flexible monetary policy. This economic policy has been contributing to the recovery of Vietnam's economy after the Covid 19 pandemic. However, in the context of the current international economic impact, monetary policy management is required. Need to be more flexible and appropriate. The article focuses on clarifying those contents.*

1. Introduction

For more than 4 years, from the beginning of 2020 until now, Vietnam's economy has been affected by many uncertainties in the world. Most prominent is the prolonged Covid-19 pandemic, and the military conflict in Ukraine still shows no signs of stopping. In particular, inflation in most major global economies increased, and interest rates of more than 100 Central Banks in the world were adjusted to increase many times. In addition, the USD appreciated, the Chinese Government implemented the Zero Covid policy at the end of 2022 and early 2023, the global supply chain was broken. Despite such a major impact, Vietnam's economy continues to grow among the highest in the region, inflation is controlled, social welfare is guaranteed, trade balance surplus, Vietnam Dong stable. That success has an important contribution from operating appropriate and effective monetary policy. However, the reality of domestic and foreign macroeconomic developments in 2023 and the coming time is posing great challenges in the context of new difficult-to-predict developments in monetary policy management. In particular, operating this policy must promote the role of the banking system, financial system and financial market in promoting Vietnam's economic growth, corporate bond market, and real estate market in the next time. The article focuses on clarifying those contents and making relevant recommendations.

2. Practices on monetary policies in Vietnam

2.1. Monetary policies under uncertanties

In the past 4 years in general, especially the years 2020 - 2022, the Party, National Assembly, Government, functional ministries and localities have drastically implemented policies and measures to prevent economic decline. Vietnam after 2 years of pandemic and unusual developments in the world economy in 2022. The National Assembly and the Government have had many policies to support recovery, stability and promote economic growth. The most typical include the following Resolutions, Policies and solutions:

Resolution 43/2022/QH15 dated January 11, 2022 of the National Assembly, Resolution 11/NQ-CP dated January 30, 2022 of the Government on the Socio-economic recovery and development program 2022-2023; Decree No. 31/2022/ND-CP dated May 20, 2022 of the Government on interest rate support from the state budget for loans from enterprises, cooperatives, and business households; Resolution No. 86/NQ-CP dated July 11, 2022 on developing safe, transparent, effective and sustainable capital markets; Directive No. 13/CT-TTg dated August 29, 2022 on a number of solutions to promote the real estate market to develop safely, healthily, and sustainably; Directive No. 15/CT-TTg dated September 16, 2022 on key tasks and solutions to maintain macroeconomic stability, control

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inflation, promote growth and ensure major balances of the economy. economy in the new situation; Decree 65/2022/ND-CP dated September 16, 2022 amending and supplementing a number of articles of Decree 153/2020/ND-CP regulating private offering and trading of corporate bonds; Draft amendments to a number of important laws such as Land Law, Housing Law, Real Estate Business Law, Price Law. Official Dispatch 1156/CD-TTg dated December 12, 2022 of the Prime Minister on providing credit capital for the economy [Government (2023)].

2.2. Managing monetary policy

2.2.1. Managing interest rates

During the 2 years of the Covid-19 pandemic until the end of 2021, implementing monetary policy, the State Bank of Vietnam adjusted operating interest rates 3 times, a total reduction of 1.5-2.0%/year. Based on the adjustment of those operating interest rates, there has been an impact of reducing by 0.6-1.0%/year the ceiling interest rate on local currency deposits of customers at commercial banks for terms of less than 6 months, reducing 0.3% - 0.6%/year deposit interest rate ceiling for up to 12 months; Reduce the ceiling on short-term local currency loan interest rates for priority areas, such as: rural agriculture, export, high-tech application in agriculture, supporting industries,... with a total reduction of 1.5%/year, by the end of October 2021, it is fluctuating at 4.5%/year [SBV (2023)].

In the two years 2020-2021, the Government has a number of Resolutions directing the State Bank of Vietnam to take measures to reduce lending interest rates in the economy. However, the State Bank has not used any specific monetary policy tools to reduce interest rates. In fact, lending interest rates have not decreased, even though the economy has many difficulties. But in 2022, the State Bank has made two upward adjustments continue to reduce lending interest rates, supporting economic recovery [State Bank (2023)]

Specifically, the State Bank of Vietnam adjusted to increase interest rates consecutively for 2 months: September and October 2022. The State Bank decided to increase operating interest rates. The first time, effective from September 23, 2022, refinancing interest rate: 5.0%/year; Rediscount interest rate: 3.5%/year; Overnight lending interest rate in interbank electronic payments and loans to compensate for capital shortages in clearing payments of the State Bank of Vietnam for credit institutions and foreign bank branches: 6.0%/year [State Bank (2023)].

The second time, implemented from October 24, 2022. Accordingly, increase the refinancing interest rate from 5.0%/year to 6.0%/year; Rediscount interest rate from 3.5%/year to 4.5%/year; Overnight lending interest rate from 6.0%/year to 7.0%/year. Maximum interest rate for demand deposits and terms less than 1 month from 0.5%/year to 1.0%/year; Interest rate on deposits with terms from 1 month to less than 6 months from 5.0%/year to 6.0%/year, interest rate on deposits at people's credit funds and microfinance institutions from 5.5 %/year to 6.5%/year [State Bank (2023)].

The maximum short-term loan interest rate in VND of credit institutions for borrowers to meet capital needs to serve a number of economic sectors and industries increased from 4.5%/year to 5.5%/year; Lending interest rates of people's credit funds and microfinance institutions increased from 5.5%/year to 6.5%/year [State Bank (2023).

Refer to the developments in interest rate adjustments in the data table below:

Table 1. Operating local currency interest rates in 2022 of the State Bank of Vietnam (%/year)

Local currency interest rate - Vietnamese Dong	Before 22/9/2022	From 22/9/2022	From 24/10/2022
Deposit interest rate ceiling ranges from 1 month to less than 6 months	4%	5%	6%
Ceiling interest rates for demand deposits and terms of less than 1 month	0,2%	0,5%	1%
Refinance Rates	4%	5%	6%
Rediscount interest rate	2,5%	3,5%	4,5%
Interest rates for overnight loans in interbank electronic payments and loans to compensate for capital shortages in clearing payments of the State Bank with credit institutions	5%	6%	7%

Source: State Bank (2023)

2.2.2. Adjusting to increase exchange rate and intervening in the foreign currency market

In 2022, to proactively adapt to unpredictable developments in the international market and continue to tighten monetary policy and increase interest rates by the FED and central banks around the world, on October 17, 2022, the SBV Decision to increase the spot exchange rate range between Vietnam Dong and foreign currencies of authorized credit institutions. [Bank Association (2023).

Accordingly, the spot exchange rate margin between Vietnamese Dong and US Dollar (USD) is adjusted from ±3% to ±5%. The level of ±3% has been stable since 2008. Also on October 17, 2008, the USD selling price at many banks was raised to 24,500 VND/USD, the USD selling price on the free market exceeded 24,500 VND/USD. Compared to the beginning of the year, the USD exchange rate on the market has increased by 7%. Besides, in October 2022,

the State Bank of Vietnam increased the selling price of USD/VND twice, with a total increase of 945 VND from 23,925 VND to 24,870 VND on October 17 and October 24, 2022 [Bank Association (2023).

The above adjustment is because the USD has increased in price very strongly recently due to the FED continuously increasing interest rates with high intensity. Most currencies in the world have depreciated sharply against the USD: Japanese Yen has depreciated about 40%, Euro and British Pound have depreciated about 30%, and Yuan has also devalued about 8%. Besides, due to pressure from the current balance. Although Vietnam's trade balance is still in relative surplus, the service balance is in large deficit while the financial balance is also in a weak state (indirect investment capital has decreased) [Bank Association (2023).

In fact, in recent years, there were times when the foreign exchange market was volatile, the State Bank had to intervene with a large amount of foreign currency but then returned to buying foreign currency. It is estimated that from the beginning of 2022 to the end of November 2022, the State Bank has sold about 22 billion USD from the foreign exchange reserve fund, equivalent to 21% of total reserves in 2021. By the end of November 2022, foreign exchange reserves Vietnam's exchange rate is estimated at 85.7 billion USD/ equivalent to less than 1/3 of Thailand's, reducing the import rate to about 12 weeks, but still maintaining within the safe threshold. In addition, on November 10, 2022, the US Treasury Department removed Vietnam from the Currency Manipulation Monitoring List. Although the market is under pressure and has strong fluctuations that is the common context of all countries in the world, not just Vietnam. The important thing is that Vietnam's economic foundation is still very good. Recently, Fitch Ratings has also continued to rate Vietnam's credit rating at BB with a positive outlook [Bank Association (2021 - 2022)].

2.2.3. Credit management ensures sustainable economic growth

During the pandemic period of 2020 - 2021, the State Bank of Vietnam continued to implement credit solutions to control credit scale in accordance with oriented targets while improving credit quality and control. Control inflation, create favorable conditions for businesses and households to access credit capital. The State Bank of Vietnam issued regulations allowing commercial banks to reschedule debts, adjust debt terms, and freeze debts for customers facing difficulties due to the Covid-19 pandemic. Therefore, outstanding credit debt increased by over 10% each year.

In 2022, the State Bank sets a credit growth orientation of 14%, equivalent to recent years. Until December 5, 2022, the State Bank of Vietnam decided to increase the 2022-oriented credit target by 1.5-2% for the entire credit institution system, equivalent to an additional 240,000 billion VND for the economy during the back of the year.

By the end of December 2023, outstanding loans and investments of the credit institution system to the economy increased by about 11% compared to the end of 2022, lower than the adjusted target of 14% [State Bank (2016-2022)].

2.3. Some assessments on monetary policy management

2.3.1. Achievements

The important success of operating monetary policy in coordination with financial policy is that it contributes to the implementation of many key macroeconomic indicators. Most notably, Vietnam's inflation is well controlled. The CPI index is below 4%, ensuring the target set by the National Assembly and the Government at the beginning of the year and much lower than the inflation index of major economies. Besides, GDP growth in 2022, immediately after 2 years of the Covid 19 pandemic, will reach 7.5%, the highest in the region. The exchange rate is stable, the Vietnamese Dong has strengthened its purchasing power and position in the market.

International organizations highly appreciate Vietnam's efforts in recovery, macroeconomic stability and strong economic growth. Accordingly, (i) The Covid-19 Recovery Index announced by Nikkei (October 2022) rated Vietnam ranked 8/121 countries, up 82 places compared to January 2022; (ii) S&P credit rating agency (May 2022), upgraded Vietnam's long-term national credit rating to BB+ (from BB), with a "Stable" outlook; Moody's (September 2022) also raised Vietnam's long-term national credit rating from Ba3 to Ba2, with a stable outlook due to its appreciation of the economy's internal strength and better resilience; (iii) IMF (October 2022) and World Bank (September 2022) both have optimistic assessments, raising Vietnam's economic growth prospects in 2022 (+7-7.2%), higher than 1 percentage points compared to the forecast of the previous 3 months. Along with appropriate epidemic prevention and economic opening policies, many opportunities are opening up to attract FDI investment in Vietnam [Bank Association (2023)].

2.3.2. Issues arise

First, financial policy continues to loosen to support the economy's recovery after the pandemic and

unusual macroeconomic fluctuations, but monetary policy is tightened and management is jerky.

In the two years 2020 - 2021, the disbursement rate of public investment capital only reached less than 70% of the plan. According to the Ministry of Finance's newspaper, the disbursement rate in 2022 will reach 436,000 billion VND, equivalent to 67.27% of the plan, reaching 75.11% of the plan assigned by the Prime Minister, lower than the same period in 2021 (77.30%). Of which, domestic capital reached 77.74%, lower than 83.66% of the same period in 2022; and foreign capital reached 33.65%, slightly higher than the disbursement rate of 26.77% of the same period in 2021. Although the public investment capital disbursement rate in 2022 is lower than the same period, due to the year's public investment plan 2022 is about 100,000 billion VND higher, so in terms of absolute numbers, 2022 still disburses nearly 80,000 billion VND higher than 2021 and is the year with the highest disbursement compared to previous years. [General Statistics Office (2023)

Implementing the Resolutions of the National Assembly and the Government, the banking industry registered and implemented a credit package supporting 2% interest rate from the budget for borrowers to overcome difficulties caused by the consequences of the pandemic. However, the State Bank of Vietnam increased interest rates twice with each increase of 1% in operating interest rates, carried out consecutively in the last 2 months of the third quarter and the beginning of the fourth quarter of 2022. Loan interest rates in the economy have increased, businesses are facing more difficulties due to increased loan costs, going against efforts to reduce interest rates and support interest rates from the state budget to support customers in need [Bank Association (2023)].

Second, the adjustment to increase the exchange rate band, stimulating the exchange rate at a time to increase, goes against the State Bank's commitment to stabilize the exchange rate, greatly affecting financial issues.

The biggest impact is increasing the cost of using foreign currency capital, foreign currency loans and foreign debt of businesses, especially petroleum imports and foreign currency loans of Vietnam Electricity Group, causing putting pressure on retail prices of gasoline and electricity. In addition, imported raw materials and raw materials prices increased, affecting the CPI consumer price index. Another impact is an increase in government debt in foreign currency. But due to objective factors, by the end of the year the exchange rate had returned to normal. As of the end of December 2022, the VND/USD exchange rate only increased by less than 2% compared to the end of 2021 [Bank Association (2023)].

Third, operating monetary policy and financial policy lacks proactive coordination and control of the corporate bond market.

In the years 2020 - 2021, there have been many warnings about the situation of businesses in general, especially real estate businesses, issuing corporate bonds, causing risks to the economy and finance market. Many businesses issue bonds to roll over credit loans, and the buyers are commercial banks. Moreover, the parent company is the person who buys the bonds of the subsidiary company, or the companies that issue bonds, and transfers the money for long-term bonds to each other. However, in operating monetary policy and managing banking operations, operating financial policy and managing the financial market, there is a lack of initiative and effective coordination to ensure transparency and safety of the market. The value of corporate bonds due for payment in 2023 is putting pressure on the currency market [SSI (2023)].

In 2023, there will be about 260,000 billion VND of corporate bonds due. By early December 2023, most of those corporate bonds had been renewed. The size of corporate bonds due in 2024 is estimated to reach over 200,000 billion VND. If businesses do not have the money to pay bond holders, a large proportion of which are commercial banks buying bonds, in addition to people, it will cause great concerns for the currency market and investors, commercial banks and for the corporate bond market [SSI (2023)].

3. Recommendations

Firstly, the State Bank needs to proactively coordinate with the Ministry of Finance and the Ministry of Planning and Investment to analyze inflation risks in Vietnam and major economies affected by the military crisis. It is necessary to analyze the views of the international financial community and introduce another concept of inflation, which is stagflation. This is a reality that central banks of many countries are very concerned about when the military conflict in Ukraine occurred. The State Bank needs to analyze in Vietnam's conditions, with an economic openness of more than 200% of GDP, there needs to be specific measures to avoid this risk. This is an issue that needs to be analyzed and calculated from many angles on the monetary policy management of the State Bank of Vietnam in coordination with short-term, medium-term and long-term financial policies.

In operating monetary policy, the State Bank of Vietnam needs to clearly analyze whether the CPI increase is due to cost pressure pushed by the international market, due to imported inflation, or due to demand pull, or excess supply of money in circulation.

Secondly, based on the goals of the National Assembly and the Government on the 2024 socio-economic development plan, the State Bank needs to continue to proactively and flexibly manage monetary policy, closely coordinating with financial policies and other policies. Other macroeconomic policies to control inflation, maintain macroeconomic and market stability, and ensure credit growth targets set at the beginning of the year, if not at least equal or higher than the 2022 - 2024 orientation, needing to increase by 16%.

In 2023, the State Bank needs to remove credit limits for commercial banks that meet Basel II criteria and have a bad debt ratio below 3%, then in 2023 remove credit limits for all commercial banks, replacing Use other safety monitoring tools and measures instead.

In terms of financial policy, it is necessary to consistently disburse public investment capital, with special priority given to transportation projects. Public investment capital that ministries, branches and localities request to be returned or disbursed cannot be exhausted, so they should proactively allocate it to transportation projects, with priority given to highway projects. The Government and Ministry of Transport strongly monitor and urge the progress of projects in this field, of greatest concern are the Long Thanh airport project and North-South expressway.

Thirdly, to contribute to the effective implementation of monetary policy in coordination with financial policy, the Government directs relevant ministries and branches to objectively evaluate organizations with financial support functions for SMEs today, especially organizations managed by the Ministry of Planning and Investment. It is necessary to evaluate the scale of supported capital, the level of impact, and the operating costs of the apparatus, and on that basis, take specific measures to improve the efficiency of these organizations, avoid dispersion and waste of resources financial strength, even boldly dissolving and transferring some functions to the Vietnam Bank for Social Policies (VBSP).

The Government needs to direct the State Bank to coordinate with the Ministry of Finance to objectively evaluate the existence of VAMC, compare it with the project when deciding to establish it, the current status and effectiveness of bad debt handling activities, and annual costs for the apparatus and the amount of charter capital allocated by the state budget, the interest rate on Government bonds must be paid corresponding to that amount of charter capital, to boldly make timely decisions for the overall efficiency of the economy.

Fourthly, the State Bank of Vietnam should not be carried away by the trend of the majority of central banks increasing interest rates but needs to deeply analyze the science of the Vietnamese economy. Although over 100 central banks of the world's economies increased key interest rates to curb inflation. But in the two largest economies in Asia: China and Japan, the central bank took the opposite action, not raising interest rates to recover the economy. The State Bank needs to have specific measures to reduce lending interest rates in the economy. The State Bank needs to seriously implement the Government's regular meeting resolution dated March 3, 2023 on reducing interest rates. Accordingly, first, the State Bank needs to reduce operating interest rates, returning to the level before September 2022. At the same time, the State Bank needs to reduce the required reserve ratio by 0.5% in the first quarter of 2024 and further reduce it by 0.5% in the second quarter of 2024.

Accordingly, it will have a significant impact on reducing lending interest rates on the economy. Because, just reducing this rate by 0.5% will free up capital of up to 60,000 billion VND to lend to the economy. The State Bank needs to boldly continue to announce a reduction in operating interest rates in the first half of 2024. The State Bank directs to reduce lending interest rates for households just escaping poverty and near-poor households of the Social Policy Bank, because the current interest rates are gradually decreasing. are 8.25% and 7.92%, higher than Vietcombank's interest rate for business loans, down to 5.0 - 5.5%/year; At the same time, open a loan program to create jobs for workers affected by the macroeconomic context in the new situation, through the Vietnam Bank for Social Policies. The State Bank expands refinancing channels so that commercial banks can reduce lending interest rates.

References:

Government (2023): Government information portal: Access at: http://chinhphu.vn/portal/page/portal/chinhphu/cacchuongtrinhduan; Access period, from March 6 to 8, 2024.

Bank Association (2023): "Information on activities of member banks"; Access at www.vnba.org.vn; Access period, from March 6 to 8, 2024..

State Bank (2023): Electronic information portal of the State Bank, accessed at: https://www.sbv.gov.vn/webcenter/portal/vi/menu; section of legal documents and press releases, years 2016-2023; Access period, from from March 6 to 8, 2024.

SSI (2023): "Monthly financial market analysis report"; months in the years 2019 - 2023"; Saigon Securities Joint Stock Company - soft files sent via email to investors opening accounts at SSI, Hanoi, years 2019-2023.

General Statistics Office (2023): Annual and quarterly socio-economic situation data, up to the fourth quarter of 2022 and January 2023; Access at: https://www.gso.gov.vn; Access period, from from March 6 to 8, 2024.