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IMPACTS OF MERGERS AND ACQUISITIONS ACTIVITIES ON BANKING EFFICIENCY: THE CASE OF VIETNAM

ẢNH HƯỞNG CỦA HOẠT ĐỘNG MUA BÁN VÀ SÁP NHẬP ĐẾN HIỆU QUẢ HOẠT ĐỘNG CỦA CÁC NGÂN HÀNG THƯƠNG MẠI VIỆT NAM

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ABSTRACT

This study applies a combination of DEA (Data Envelopment Analysis) model and the SFA (Stochastic Frontier Analysis) model to measure the impacts of M&A activities on the banking efficiency in Vietnam from 2011 to 2018. The results show that merge and acquisition (M&A) activities had a positive effect that reflects in an increase of the index of banking efficiency from 2011 to 2013. However, from 2015 to 2017 they created a negative impact. In addition, this research shows that there are two groups of banks suffering opposite impacts of M&A activities during the research period. The finding also points out that in 2011, 2012 and 2015, commercial banks were affected and adjusted quite significantly by the efficiency index under the impacts of M&A activities.

Keywords: *M&A, banking efficiency, DEA, SFA, Vietnam.*

TÓM TẮT

Nghiên cứu đã sử dụng kết hợp 2 mô hình DEA (Data Envelopment Analysis) và mô hình SFA (Stochastic Frontier Analysis) để đo lường ảnh hưởng của hoạt động mua bán và sáp nhập đến hiệu quả hoạt động của các ngân hàng thương mại Việt Nam có thực hiện M&A trong giai đoạn 2011 - 2018. Kết quả chỉ ra rằng việc mua bán và sáp nhập có ảnh hưởng tích cực làm tăng chỉ số hiệu quả trung bình của các ngân hàng trong giai đoạn 2011 - 2013 và có ảnh hưởng tiêu cực làm giảm chỉ số hiệu quả trung bình của các ngân hàng trong giai đoạn 2015 - 2017. Ngoài ra nghiên cứu cho thấy có 2 nhóm ngân hàng chịu tác động tích cực và tiêu cực từ hoạt động mua bán và sáp nhập trong giai đoạn nghiên cứu. Nghiên cứu cũng chỉ ra được các năm 2011, 2012 và 2015 các ngân hàng chịu sự ảnh hưởng và điều chỉnh khá lớn đối với chỉ số hiệu quả dưới tác động của hoạt động M&A.

Từ khóa: *M&A, hiệu quả ngân hàng, DEA, SFA, Vietnam.*

1. Introduction

In recent years, in accordance with an implementation of restructuring credit institutions in Vietnam towards reducing the number of banks and strengthening the banking system, several M&A deals of Vietnamese commercial banks have been done. Promoting M&A is not only for the purpose of reducing the number of banks, but also enhancing the competitiveness of each bank by increasing the amount of total assets and operational efficiency for all aspects of banking activities. As a result, the number of mergers and acquisitions (M&A) deals in Vietnamese banking system has dramatically increased since 2011. However, up to 2014 the practices of M&A activity related to Vietnamese commercial banks has been still unprofessional reflecting in small quantities, unplanned agreement. The mechanism and regulation of the legal documents have not taken the economic benefits of banks and the economy into account yet, thus there have been a lack of experience and information. The banking efficiency reflects a relationship between the profit and cost as banks allocate and incorporate their resources. There are two types of the banking efficiency, including an absolute efficiency and a relative efficiency. In great detail, the former one is calculated by the difference between the profit and the cost, but it can be simply used to measure the efficiency of an individual bank. Meantime the latter one can be used to compare the effectiveness between commercial banks that have varied sizes.

In addition, how M&A activities affect the performance of commercial banks has not been neither evaluated nor compared to that in the pre-M&A period in a proper way. According to (Hawkins, 1999), M&A deals yield good results if large-size banks acquire small-size banks that are in trouble. The result also indicates that M&A deals are likely to be delayed or hindered in the common period more often than that in the crisis period, and they often incur low costs in the process of restructuring banking system.

(Krishnasamy, 2004) provides much evidence about how to improve the banking efficiency in Malaysia before and after M&A from 2000 to 2001. The result shows an increase of banking efficiency due to the advancement of banking technology. (Peng, 2004) indicates that M&A deals in the field of finance and banking lead to an increase in the banking efficiency of Taiwanese banks. For these reasons, it is necessary to measure the business performance of Vietnamese commercial banks after time of doing M&A in order to provide much-needed policies that might improve the operational efficiency of commercial banks.

This paper examines the impacts mergers and acquisitions activities on banking efficiency in Vietnam from 2011 to 2018. Particularly, we investigate: (i) whether mergers and acquisitions activities enhances efficiency of banks; (ii) bank efficiency is measured using a combination of DEA and SFA models to evaluate the performance of banking system including three steps and (iii) analyze the influence of M&A on efficiency of banking groups.

2. Literature

Karim (2001), who used the stochastic frontier analysis (SFA) to assess efficiency of banking industries in four South East Asian countries prior to the crisis in 1997, provides different results from the aforementioned studies. The author indicates that cost efficiencies in South East Asian banks tend to decline over the year preceding the crisis, and suggests that the problem of bank failures may have been related to inefficiency.

Berger et al. (1999) indicate that mergers may also improve efficiency if greater diversification improves the risk – return tradeoffs. They suggest that regulators may act to encourage consolidation in periods of financial crisis.

Krishnasamy et al. (2004) have documented improvement in production efficiency of Malaysian post-merger banks in 2000–2001. The authors note that the overall rise in total factor productivity was driven more by technological progress of the banking system than individual bank technical efficiency.

Peng and Wang (2004). Cost efficiency and the effect of mergers on the Taiwanese banking industry. The study suggests that bank mergers could have enhanced cost efficiency of Taiwanese banks.

Mukesh Kumar & Vincent Charles (2012) uses DEA model to evaluate the banking efficiency of Indian banks before and after the global financial crisis. Enticed by the reform of Indian banking sector in the early 1990s and further slowdown in the economy as a result of global financial crisis in late 2000s, the current study analyzes the performance of Indian banks using data envelopment analysis. The performance is measured in terms of technical efficiency, returns-to-scale, and Malmquist productivity index for a sample of 33 banks, consisting of 19 public sector and 14 private sector banks during the period spanning 1995-1996 to 2009-2010. The jackknifing analysis, followed by the dummy variable regression model is used to identify the outlier and its possible impact on overall efficiency trends. Findings reveal that efficiency scores are robust in the sense that the inclusion of outlier does not affect the overall efficiency trends. The public sector bank is faintly doing better than the private sector banks in terms of (i) technical efficiency since 2003-2004 and (ii) scale efficiency from 2000-2001 onwards. There is growing tendency of public banks operating under increasing returns to scale, implying that substantial gains could be obtained from altering scale via either internal growth or consolidation in the sector. The difference in the Total Factor Productivity (TFP) change between these two types of banks is found to be statistically significant in favour of public sector banks. The technological change has been the dominating source of productivity growth, whereas, the contribution of pure efficiency change and scale change are found to be negligible in Indian banking sector during the period of study. The reform in Indian banking sector has clearly re-energized the Indian banking sector as a whole, resulting in a positive change in TFP through technological change possibly as a result of adoption of latest technology and new business practices in post reform period. However, there is evidence of shrink in the market resulting in movement of the banks towards increasing returns-to-scale as well as negative growth in TFP in both the sectors during the period of global financial crisis.

Said Gattoufi (2017) also apply DEA model to answer a question of whether M&A activities will improve the banking efficiency from 2003-2017. The result indicates that the M&A activities have a positive although the impacts are considered to be limited due to the overall technical efficiency of banks.

Huong (2017) applies DEA model to evaluate the banking efficiency of 21 commercial banks in Thai Nguyen Province of Vietnam from 2011 to 2015. The study was based on the method of Data Envelopment Analysis (DEA) to estimate the performance of 21 commercial banks in Thai Nguyen province in the period of 2011-2015. The results revealed that commercial banks' uses of inputs are relatively efficiency with the average technical efficiency of 94%. Malmquist index (MI) was also used to analyze the change of commercial banks' performance over time. The study showed that technological change is the main reason of MI changes. Tobit model was then applied to estimate the impact of different factors on the performance of commercial banks in Thai Nguyen province. It was found that the four factors affecting technical efficiency of commercial banks include: return on assets, nonperforming loan, total assets and the number of enterprises operating in the province

Tran Hoang Ngan (2015) evaluates the banking efficiency in awareness of the influence of reconstruction process including the equitization of state-owned commercial banks, M&A activities and governmental interventions. The results show that, the banking efficiency increases or decreases in an irregular way in the restructuring process. Some commercial banks significantly improved their banking efficiency, but others recorded the dramatical decrease in the efficiency ratios compared to that before the period of restructuring because of the impact of ineffective M&A deals.

3. Methodology and data

3.1. Methodology

This research applies a methodology that some previous studies used. (Avkiran, 2008) and (Thoraneenitiyan, 2009) use a combination of DEA and SFA models to evaluate the performance of banking system including two steps as follows:

1st step: Use the DEA model to determine the banking efficiency without considering the impacts of M&A deals. In step 1, assuming that banks in the sample try to minimize inputs and maximize inputs simultaneously, the original inputs and outputs are used in the non-oriented variable returns to scale SBM. The fractional program to estimate the efficiency is shown in equation (1), where r is the scalar that reports efficiency after capturing non-radial inefficiencies.

$$\min \rho = \frac{1 - (1/N) \sum_{i=1}^N s_i^- / x_i^0}{1 + (1/M) \sum_{r=1}^M s_r^+ / y_r^0}$$

$$x^0 = X\lambda + s^-$$

$$y^0 = Y\lambda - s^+$$

$$\text{Subject to } \sum_{j=1}^I \lambda_j = 1 \quad \lambda \geq 0, s^- \geq 0, s^+ \geq 0 \quad (1)$$

where $x \geq 0$ is a DMU's $N \times 1$ vector of inputs, $y \geq 0$ is a DMU's $M \times 1$ vector of outputs, $X = [x_1, \dots, x_i]$ is an $N \times I$ matrix of input vectors in the sample, $Y = [y_1, \dots, y_i]$ is an $M \times I$ matrix of output vectors in the sample, s_i^- and s_i^+ are input and output slacks, respectively, and $X\lambda$ and $Y\lambda$ represent benchmark input consumption and output production. Inputs and outputs for the unit evaluated are indicated by the superscript '0' and the linear program is solved once for each unit in the sample. Imposing the constraint $\sum_{j=1}^I \lambda_j = 1$ introduces variable returns to scale. A bank is rated as efficient if the optimal value for the objective function equals one. That is, the efficient bank will have zero input and output slacks.

2nd step: The purpose of step 2 is to decompose input and output slacks (i.e., inefficiencies) obtained from step 1 into environmental effects. Input and output slacks are separately regressed on environmental variables using SFA.

When parameters from SFA regressions are obtained, observed inputs are adjusted for the impact of the environment and statistical noise. Thus, banks enjoying relatively favourable operating environments and statistical noise would find their inputs adjusted upwards and efficiency scores lowered. These adjustments vary both across banks and across inputs. Similarly, banks suffering from relatively unfavourable operating environments and statistical noise would have their outputs adjusted upwards (thus, raising efficiency scores). It should be noted that to avoid negative inputs and outputs, we do not adjust downwards.

3rd step is a repetition of the non-oriented SBM analysis first undertaken in stage 1, but using adjusted input and output data obtained from step 2. The results from step 3 represent DEA analysis of bank efficiency where the influences of the operating environment and statistical noise have been removed.

3.2. Data

This study applies the DEA model to evaluate the performance of banking system, with using three main factors: labor, assets and capital. However, identifying input and output variables of banks is considered to be difficult and inconsistent as shown in previous studies. The selection of these factors mainly depends on the ability to collect data, the views and requirements of bank administrators. The traditional banking activities, for example lending and capital mobilization, play a leading role in Vietnamese banking system. Therefore, the income and interest expenses account for high proportions of total income and total expenses. For this reason, along with the model and approach mentioned above, the variables are determined as follows (Thao, 2015):

Input variables: these variables represent the inputs used in the banking businesses. This model refers to three factors including fixed assets (K), Labor capital (L) and Deposit (D);

Output variables: these variables represent the income and profit generated in the banking businesses. Two output factors used in the model are interest income (Y1) and non-interest income (Y2).

M&A variable (z_j) may falsify the analysis of initial performance. This variable is a dummy variable which equals to 1 if a certain commercial bank makes M&A deal at time t and equals to 0 in the opposite case. According to previous studies, the author expects the sign of M&A variable to be negative.

The research data includes 19 banks that already conducted M&A activities from 2011 to 2018.

Table 1: Descriptive statistics of input and output variables

Variables (mlVND)	Mean	Standard deviation	Min	Max
Y1	7.954.746,789	7.764.243,441	-159.573	30.955.331
Y2	5.179.321,217	5.762.332,576	-1.278.079	28.366.140
K	2.896.577,533	2.806.873,034	68.366	11.436.527
D	196.481.813,9	209.643.230	6.242.227	989.671.155
L	2.447.192,691	2.690.535,309	106.531	14.530.020

4. RESULTS

4.1. The estimation of banking efficiency index

The estimation includes three steps.

1st Step: DEA analysis

The Figure 1 shows that the average value of banking efficiency of 19 banks that performed M&A from 2011 to 2018 are quite small, between 0.84 and 0.92. As the matter of fact, in 2011 Vietnamese banking system encountered many difficulties, in which the rate of non-performance loans increased up to 8.6% (according to SBV's report). Therefore, the credit quality sharply reduced and the liquidity was

insufficient. That's why the average value of banking efficiency index was quite low, 0.886. Since 2011, some commercial banks started to implement M&A deals, leading to the fact that the banking efficiency index somewhat became prosperous from 2012 to 2013. In great detail, the average value of banking efficiency index of 2012 increased by 2.85% compared to that of 2011, and the figure of 2013 raised by 1.33% compared to that of 2012. From 2013 to 2015, the average value of banking efficiency index showed a slight decrease. However, in the period of 2015-2017, the average value of banking efficiency index tended to be negative. Specifically, the average value of banking efficiency index in 2016 decreased by 3.54% compared to that of 2015, and the figure of 2017 decreased by 2.53% compared to that of 2016. As shown in Figure 1, since 2018 the average value of banking efficiency index improved significantly, with increasing by 7.54% compared to that of 2017 and reaching a peak of 0.913. However, the initial DEA analysis just calculate the average value of banking efficiency index based on the input and output variables of the model, but not to consider the M&A impacts factor. This estimation also has ineffective input and output variables, especially Input Slacks and Output Slack.

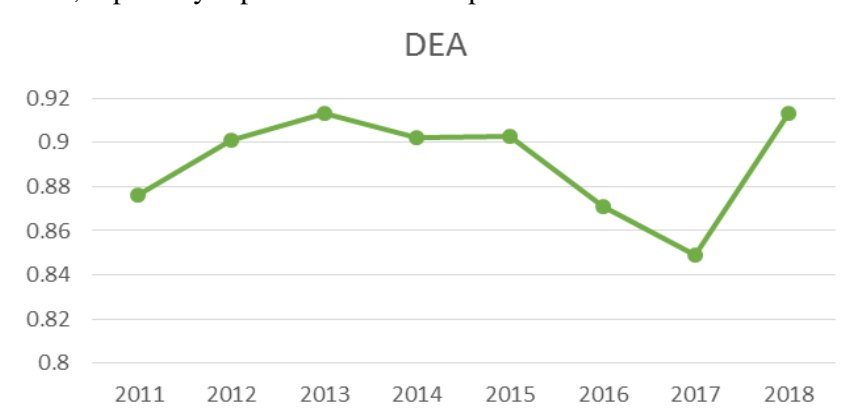


Figure 1: The average value of banking efficiency

2nd step: SFA results

The results in Table 2 suggest that merger and acquisition activities do indeed exert a statistically significant influence on bank inefficiency. Independent variable is significant in the two regressions on input slacks and the three regressions on output slacks. The five gamma estimates in Table 2, ranging from 0.034 to 0.042, are also statistically significant, indicating that part of the variations in predicted slack reflects primarily the effect of managerial inefficiency. The main point of interest from Table 2 is the coefficients of merger and acquisition variables (M&A). M&A appears to have a negative relationship with most bank input and output slacks. In other words, merged banks appear to be more efficient in managing resources to produce their output.

Table 2: SFA regression results

Independent Variables	Dependent Variables				
	Input Slacks		Output Slacks		
	Y1-Slack	Y2-Slack	K-Slack	D-Slack	L-Slack
Constant	130,638**	292,844**	285,167**	12,331,432	207,108**
M&A	-8,875**	-93,722*	-40,388**	-3,013,369**	-100,193*
Gamma	0.036**	0.034**	0.042**	0.043**	0.035**
Log likelihood function	-2.154	-2,265	-2,195	-2,760	-2,236

Y1-interest income; Y2-non-interest income; K-fixed assets; L-Labor capital; D-Deposits; M&A-a dummy variable for banks under merger and acquisition activities
“” and “**” indicate 10% and 5% one-tailed significance levels.*

3rd Step: SBM results on adjusted data

The result of 3rd step shows a more considerable impact of the M&A variable on the banking efficiency index of banks. In the period of 2011 to 2018, commercial banks conducted several M&A deals in 2011 and 2015. However, as similar as the analysis of the banking efficiency index in 1st step, the result of 3rd step also shows two opposite effects produced from current M&A deals in the banking system. In great detail, the implementation of M&A deals in 2011 created a positive impact, with enhancing the average value of banking efficiency index in a significant way. However, in the period of 2015 to 2017, it brought about a negative effect that reflects in a significant decrease in the banking efficiency index of banks that conducted M&A deals.

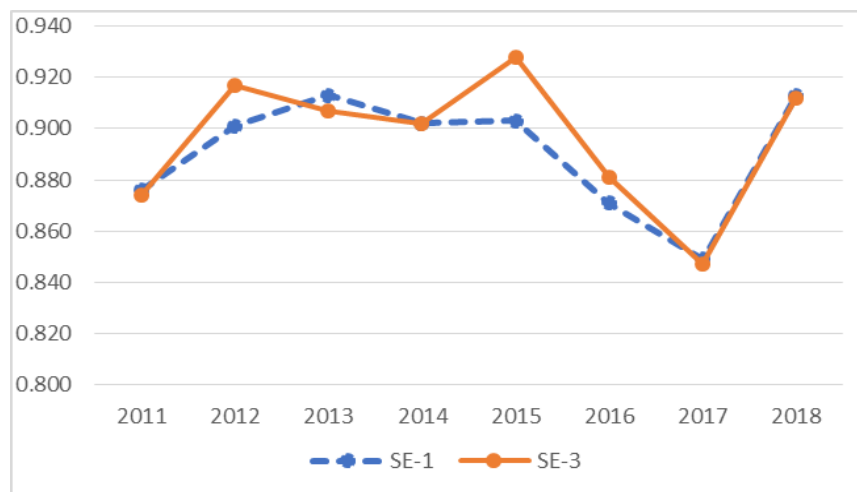
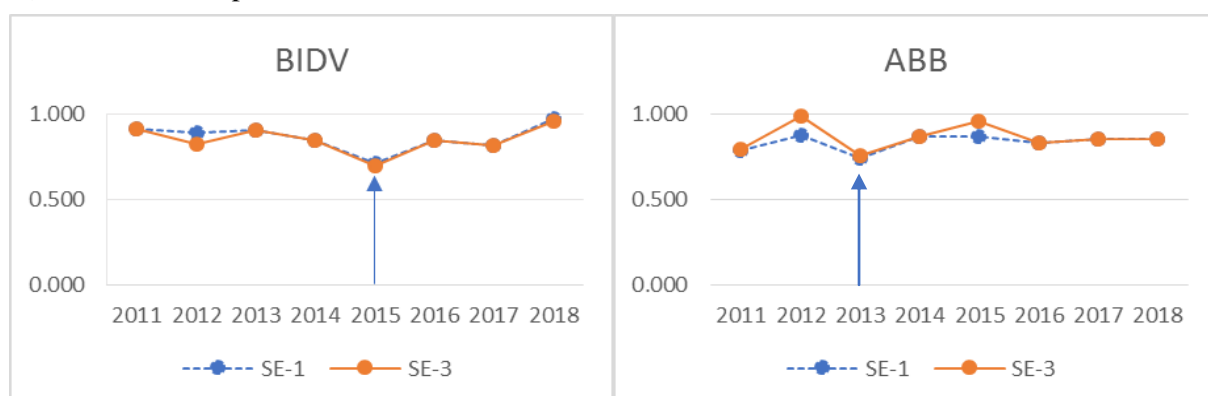


Figure 2: Average value of banking efficiency indicators before and after involving the M&A factor

4.2. The influence of M&A activities on the banking efficiency

The result shows that there were five banks having an increase in the banking efficiency after conducting M&A deals, including BIDV, VCB, ABB, VIB and TPB (figure3). Among these five banks, VCB and BIDV had a decrease in the banking efficiency index after adjusting under the impact of environmental factors (i.e. M&A factor) of the banking system during the research period. Both of them had a decrease in banking efficiency by scale (DSR). The other three banks, specifically ABB, VIB and TPB, observed an increase in their banking efficiency indices after making adjustments under the impact of M&A deals. They all experienced an increase in the banking efficiency by Increase returns to scale (IRS) in the research period.



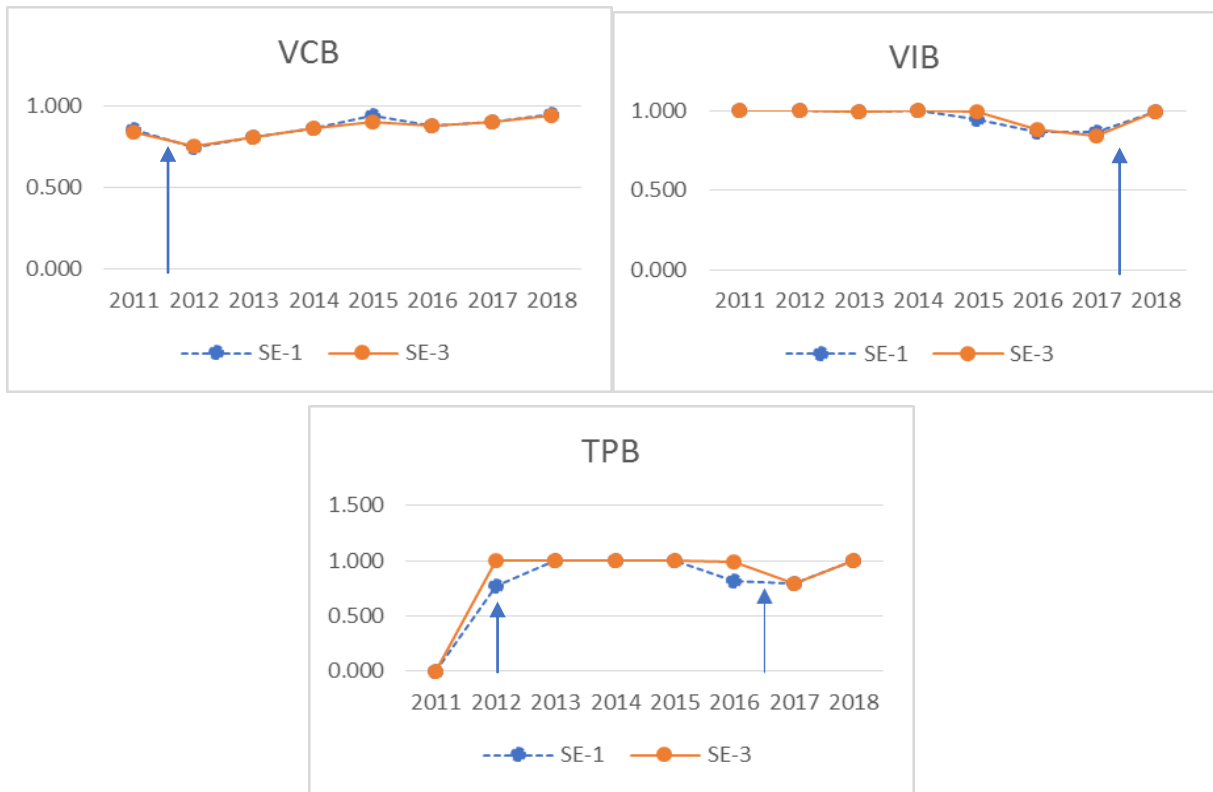
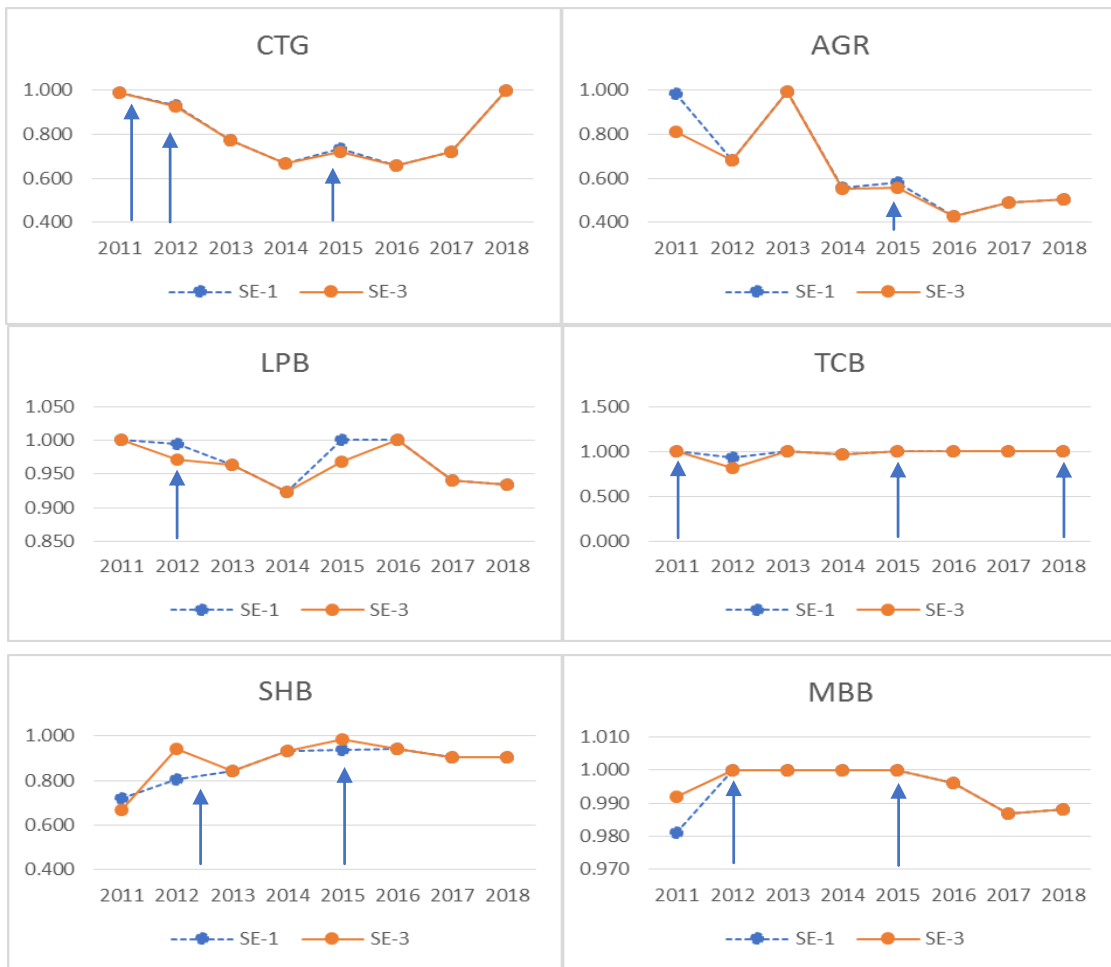


Figure 3: The group of banks has increased their effectiveness when conducting M&A



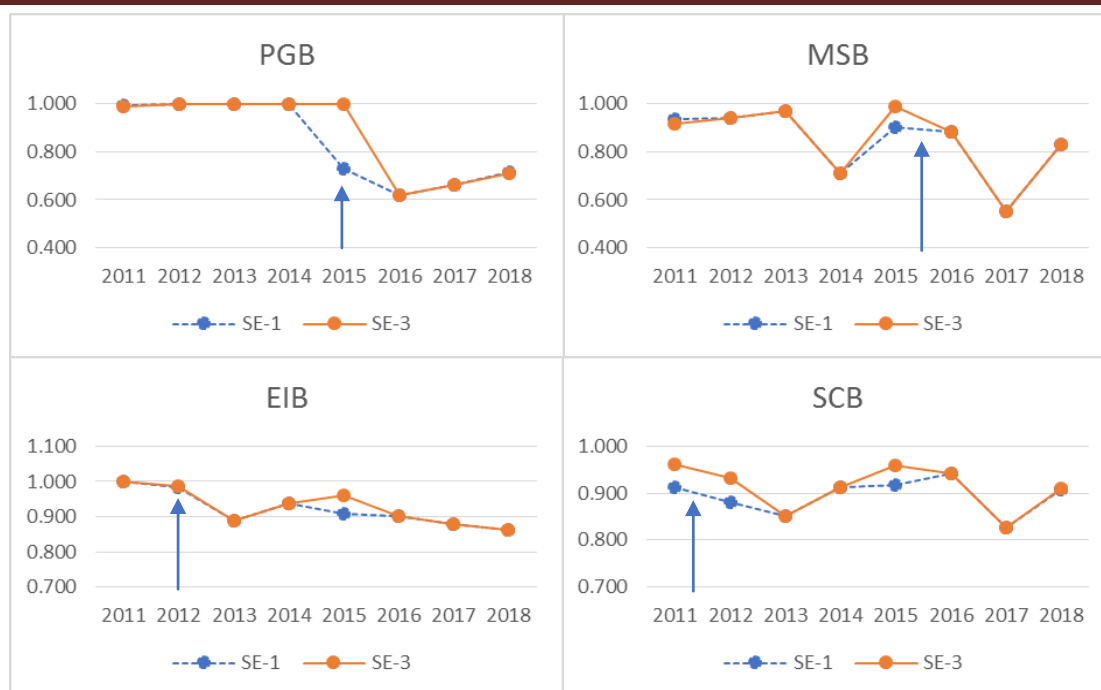


Figure 4: The group of banks has decreased their effectiveness when conducting M&A

On the other hand, there are ten commercial banks that reported a decrease in the banking efficiency index when conducting M&A deals, including CTG, SHB, AGR, MSB, LPB, MBB, PGB, TCB, EIB and SCB (Figure 4). In which, AGR, CTG, LPB and TCB had an increase in the banking efficiency index under the impact of environmental factors (i.e. M&A variable) of the banking system during the research period. They all were considered to be DRS banks (Decrease returns to scale). The other banks, including SHB, MSB, MBB, PGB, FIB and SCB, experienced a reduction in the banking efficiency index under the impact of M&A activities. These banks can be seen as IRS banks in the research period (especially MBB is an effective bank having an increase by the scale of stage after the M&A implementation). The result also reveals the group of banks that were not significant affected after the implementation of M&A deals, including ACB, STB, VPB and HDB.

The Table 3 shows that a large amount of M&A deals was conducted by commercial banks and the enterprises in Vietnam in 2011, 2012 and 2015. As a result, the performance of banking system greatly volatilized under the influence of M&A activities, especially in 2011 the influence was greatest in size, thus the adjusted efficiency index decreased by 0.174. In great detail, TPB achieved the largest increase in banking efficiency at 0.228 in 2012, and PGB was heavily influenced by M&A activities with the banking efficiency index increasing by 0.272 in 2015.

Table 3: The adjustment of the efficiency index after considering the M&A factor

	2011	2012	2013	2014	2015	2016	2017	2018
BIDV	-0.002	-0.072	0	0	-0.017	0	0	-0.014
HDB	-0.013	0.158	-0.129	0	-0.006	0	0	0
MSB	-0.018	0.001	0	0	0.083	0	0	0
STB	0	0	0	0	0	0	0	0
SHB	-0.055	0.134	0	0	0.049	0	0	0
TCB	0	-0.112	0	0	0	0	0	0
VPB	0	-0.095	0	0	0	0	0	0

SCB	0.051	0.053	0	0	0.042	0	0	0.003
LPB	0	-0.024	0	0	-0.032	0	0	0
CTG	0	-0.004	0	0	-0.017	0	0	-0.001
ACB	-0.01	-0.079	0	0	-0.036	0	0	0.004
VIB	0	0	0	0	0.046	0.011	-0.028	0
ABB	0.013	0.112	0.015	0	0.091	0	0	-0.002
MBB	0.011	0	0	0	0	0	0	0
AGR	-0.174	0.001	0	-0.005	-0.025	0	0	0
TPB	0	0.228	0	0	0	0.171	0	0
PGB	-0.006	0	0	0	0.272	0	0	-0.006
EIB	0	0.002	0	0	0.053	0	0	0
VCB	-0.013	0.004	0	0	-0.037	0	0	-0.013

5. Conclusion

This study shows how integrated DEA and SFA approach can account for conducting merger and acquisition to measure bank technical efficiency in Vietnam during the period of 2011 – 2018. The result shows that the M&A activities have a significant impact on the banking efficiency of Vietnamese banks that implemented M&A from 2011 to 2018, with reflecting in two opposite directions in different periods, specifically from 2011 to 2013 and from 2015 to 2017. After performing two steps including DEA and SFA examinations, the finding indicates that the M&A factor has greatly statistical influences on the input and output variables packed in the research model. The result also shows that there are only five over nineteen banks that have an increase in the banking efficiency after making M&A deals, meaning that only 26.3% of selected banks benefit from M&A deals. This figure indeed implies that the implementation of M&A deals in the banking system from 2011 - 2018 was really ineffective. However, concerning the significance of influence stemming from M&A activities from 2011 to 2018, most Vietnamese commercial banks were affected by them especially in 2011, 2012 and 2015

The key limitations of this paper consist of unavailable data for some commercial banks. The limited sample size hampers the study to conduct the bootstrap procedures.

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APPENDIX

Year	Acquiror	Target company
3/2018	Warburg Pincus LLC	Techcombank (TCB)
5/2018	Alp Asia Finance Vietnam Ltd	Asia commercial Bank (ACB)
1/2018	Estes Investments	Asia commercial Bank (ACB)
7/2017	Vietnam International Commercial Joint Stock Bank (VIB)	- Commonwealth Bank of Australia (CBA) - VIB
8/2016	PYN Elite Fund	Tien Phong Commercial Joint Stock Bank (TPB)
10/2015	Saigon Thuong Tin Commercial Joint Stock bank (STB)	- Southern Bank - STB
2015	Vietinbank	PG Bank
2015	NHNN (AGR)	- VNCB - OceanBank - GP Bank (Global Petroleum Commercial JS Bank)
04/2015	NHTMCP Đầu tư và Phát triển (BIDV)	- NHTMCP Phát triển Nhà Đồng bằng sông Cửu Long (MHB) - NHTMCP Đầu tư và Phát triển (BIDV)
2015	NHTMCP Đầu tư và Phát triển (BIDV)	- CTTC Bưu điện (PTF)
07/2015	NHTMCP Hàng hải Việt Nam (MSB)	- NHTMCP Phát triển Mê Kông (MDB) - NHTMCP Hàng hải Việt Nam (MSB)
2015	Maritime Bank	Vietnam Textile and Garment Finance JSC.
2015	Techcombank	Vietnam Chemical Financial JSC (VCFC)
2015	State Capital Investment Corporation	MBB
2015	NHTMCP Quân đội	CTTC Sông Đà (SDFC)
2015	SHB	- CTTC cổ phần Vinaconex Viettel - SHB
2015	Credit Saigon	NHTMCP Phát triển TP. HCM (HDB)
06/2014	NHTMCP Việt Nam Thịnh Vượng (VPB)	CTTC than khoán Việt Nam (CMF)

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11/2013	NHTMCP Phát triển TP.HCM (HDB)	- NHTMCP Đại Á (DaiAbank) - NHTMCP Phát triển TP.HCM (HDB)
09/2013	NHTMCP Đại chúng Việt Nam (PVcomBank)	- NH Phương Tây (Western Bank) - Tổng công ty cổ phần Tài chính Dầu Khí Việt Nam (PVFC) - NHTMCP Đại Tín (Trustbank) - NHTMCP Xăng dầu Petrolimex (PGbank)
2013	- IFC - Maybank	- ABB
08/2012	NHTMCP Sài Gòn – Hà Nội (SHB)	- NHTMCP Phát triển Nhà Hà Nội (HabuBank) - NHTMCP Sài Gòn – Hà Nội (SHB)
2012	MMB	Viettel
2012	Eximbank	Sacombank
2012	Bank of Tokyo Mitshubishi	Vietinbank
2012	Tập đoàn DOJI	TPBank
07/2011	NHTMCP Bưu điện Liên Việt (LPB)	- Công ty dịch vụ tiết kiệm bưu điện VNPT (VPSC) - NHTMCP Liên Việt (LienVietbank)
12/2011	NHTMCP Sài Gòn (SCB)	- NHTMCP Sài Gòn (SCB) - NHTMCP Đệ nhất (FicomBank) - NHTMCP Tín Nghĩa (TNB)
9/2011	Mizuho corporate bank LTD	Vietcombank
7/11	IFC	Vietinbank
2011	HSBC	Tecombank
6/11	MR CHANG HEN JUI (TAIWAN)	Sacombank

**THE IMPACT OF CSR PERCEPTION ON CUSTOMER LOYALTY:
EMPIRICAL RESEARCH OF VIETNAMESE BANKS**
ẢNH HƯỞNG CỦA NHẬN THỨC CSR ĐẾN LÒNG TRUNG THÀNH
KHÁCH HÀNG: NGHIÊN CỨU TRƯỜNG HỢP CÁC NGÂN HÀNG VIỆT NAM

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ABSTRACT

This paper aims to assess the impact of Corporate Social Responsibility (CSR) perception on Customer loyalty, specifically in the Vietnam banking sector. The paper uses the mediate factor of Corporate prestige between CSR and Customer loyalty, and verifies through 102 samples of customers using banking services. The findings show that five elements of CSR that have a strong impact on the reputation of businesses from high to low include Customer service, Green environment, Ethical responsibility, Humanities, and Legal responsibility. At the same time, Corporate prestige impacts positively on Customer loyalty. The paper provides some recommendations to improve the quality of CSR in Vietnamese banks.

Keywords: *Bank, CSR, customer loyalty, Vietnam.*

TÓM TẮT

Nghiên cứu nhằm đánh giá mức độ ảnh hưởng của nhận thức về trách nhiệm xã hội doanh nghiệp (CSR) tới lòng trung thành khách hàng, cụ thể trong ngành Ngân hàng Việt Nam. Nghiên cứu sử dụng yếu tố trung gian là uy tín doanh nghiệp giữa hai yếu tố CSR và lòng trung thành khách hàng và kiểm chứng thông qua 102 mẫu khách hàng sử dụng dịch vụ ngân hàng. Kết quả cho thấy, năm yếu tố của CSR tác động mạnh mẽ tới uy tín doanh nghiệp từ cao đến thấp là dịch vụ khách hàng, môi trường xanh, trách nhiệm đạo đức, nhân văn, trách nhiệm pháp luật. Đồng thời, uy tín doanh nghiệp tác động thuận chiều tới yếu tố lòng trung thành khách hàng. Nghiên cứu thảo luận và đề xuất một số giải pháp giúp nâng cao chất lượng của CSR tại các ngân hàng Việt Nam.

Từ khóa: *CSR, lòng trung thành, ngân hàng, Việt Nam.*

1. Introduction

In recent years, the concept of Corporate Social Responsibility (CSR) has become popular in the world (Chaudhury et al., 2011). Especially in the era of globalization and competition, it has attracted great interest and attention from businessmen, investors, researchers in particular and the whole society in general for its significance. CSR helps make difference, develop public perception of a corporation's brand, and maintain customer trust/ loyalty.

Customer loyalty is also important for a corporation to develop competitive advantages. Loyal customers are more likely to support certain corporations and purchase more products/ services from them. Loyal customers are then more likely to share their good personal experience, and recommend the products/ services to others.

Understanding the importance of CSR and customer loyalty, many corporations have chosen CSR as a key strategy to increase their customer loyalty. Vietnamese banks are also not out of this trend. The bank's prestige is always considered as a determining factor, given that most of the bank's partners and customers are prestige-oriented when choosing a bank. Vietnamese banks have been incorporating CSR into their business strategies in order to enhance their bank prestige and then customer loyalty.

2. Literature Review

Corporate Social Responsibility

Corporate Social Responsibility (CSR) is divided into four components as follows (Carroll, 1991):

- (1) Economic responsibilities: a firm should commit to be as profitable as possible, produce goods and services that consumers need and want, and to make an acceptable profit.
- (2) Legal responsibilities: a firm is expected to comply with the laws and regulations promulgated by federal, state, and local governments as the ground rules, under which it must operate.
- (3) Ethical responsibilities: a firm obligates to do what is right, just and fair.
- (4) Philanthropic responsibilities: a firm should be a good corporate citizen as society's expectation by contributing resources to the community or improving the quality of life.

As society has been changing, the notion of CSR has been limited not to manufacturing but broaden to other activities. CSR should be applied at the very first stage of a business, and be independent of the business' income and manufacturing status. "Corporate Social Responsibility" is defined as "a commitment to improving community well-being through discretionary business practices and contribution of corporate resources" (Kotler and Lee, 2005).

In addition, the environment factor has gained increasing interest in CSR discussion. Many corporations are now putting great efforts to minimize their negative effects on the environment. Environmental protection has been considered in manufacturing, R&D, marketing and distribution.

Customer loyalty

Customer loyalty has recently received a lot of attention (Curtis, 2009). Customer loyalty shows customer attitudes towards corporate prestige, customer service, employees and buying experience. According to Onlaor and Rotchanakitumnuai (2010), customer loyalty is the combination of many positive emotional experiences, which results in buying repetition and product recommendation to others. Two types of loyalty taken into consideration are attitudinal and behavioral, which are also two basic types of customer loyalty (Czepiel & Gimore, 1987).

CSR and Customer loyalty

Caroll (1991) created a pyramid model including four levels of CSR: Economic responsibilities, Legal responsibilities, Ethical responsibilities, and Philanthropic responsibilities.

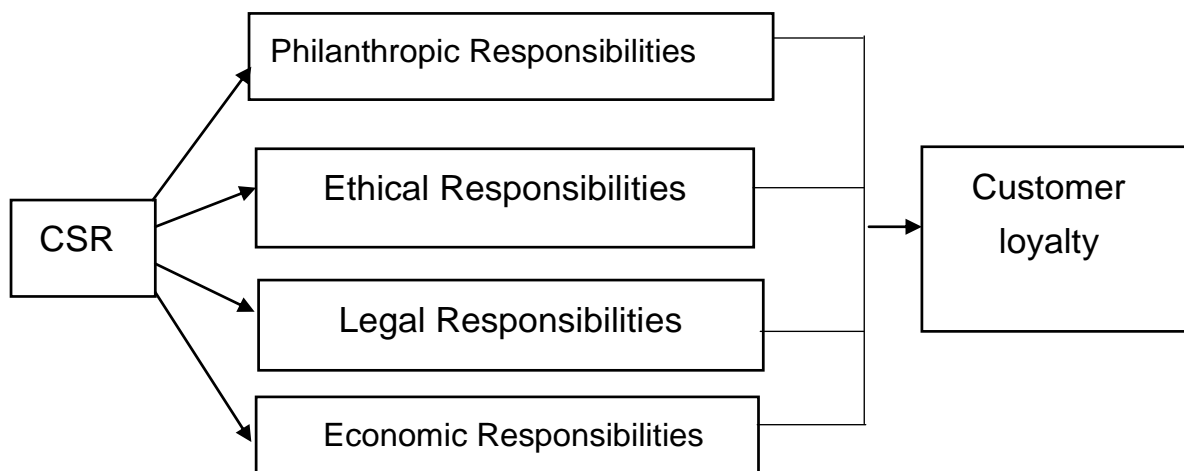


Figure 1: CSR and Customer loyalty

Source: Caroll, 1991

Jamaliah Mohd Yusof (2015) added the "Environmental responsibilities" factor in the research "Customer loyalty's effects of CSR Initiatives" for the Malaysia banking sector. And Mona Younis Abo Samra continued to indicate these five factors in the CSR model for his 2017 research into the Bangladesh's banking sector, in order to measure the CSR impact on customer loyalty.

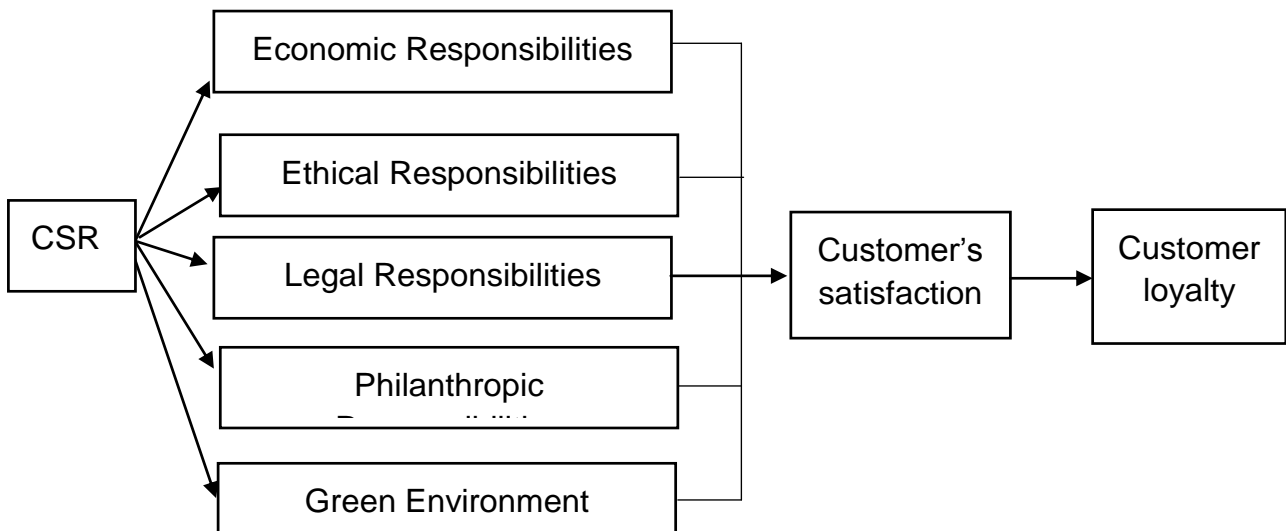


Figure 2: CSR and Customer loyalty in the banking sector

Source: Jamaliah Mohd Yusof, 2015; Mona Younis Abo Samra, 2017

3. Research methodology

In Vietnam, the banking sector, among the most competitive business sectors, plays an important role in facilitating and developing the economy. As many banks are improving their service quality with the customer-oriented strategies, it is helpful to improve their corporate prestige.

Based on the previous researches and models, the authors us propose the following model of CSR and Customer loyalty for the Vietnam's banking sector:

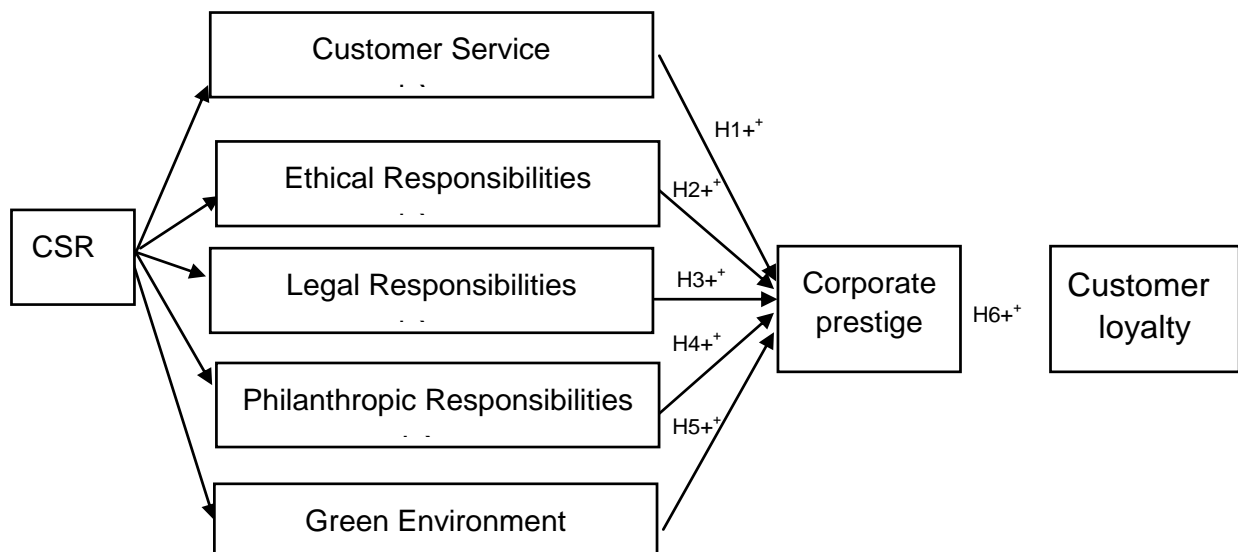


Figure 3: CSR and Customer loyalty in the Vietnam's banking sector

With research hypotheses:

- Hypothesis 1: Customer service has positive impact on corporate prestige.
- Hypothesis 2: Ethical responsibilities has positive impact on corporate prestige.
- Hypothesis 3: Legal responsibilities has positive impact on corporate prestige.
- Hypothesis 4: Philanthropic responsibilities has positive impact on corporate prestige.
- Hypothesis 5: Green environment has positive impact on corporate prestige.
- Hypothesis 6: Corporate prestige has positive impact on customer loyalty.

To test research hypotheses, the authors have surveyed and analyzed the research sample with the SPSS software.

4. Findings and Discussion

Descriptive sample: 140 people are randomly selected. However, only 102 questionnaires are suitable.

Table 1: Sample description

Indicators		Frequency (person)	Percent (%)
Sex	Male	48	47,1
	Female	54	52,9
Age (year)	18 – 22	36	35,3
	23 – 30	27	26,5
	31 – 40	14	13,7
	> 40	25	24,5
Time using products (year)	< 1	21	20,6
	1 – 3	37	36,3
	> 3	44	43,1
Education and qualifications	Technical school	5	4,9
	College	6	5,9
	Bachelor/Undergraduate	81	79,4
	Postgraduate	10	9,8

Table 2: Summary of scale verification

Variables	Observation	Cronbach's Alpha	Cronbach's Alpha if item deleted	Corrected item- Minimum Total Correlation
Customer service (CS)	5	0,892	0,884	0,669
Green environment (GE)	5	0,915	0,904	0,747
Ethical responsibilities (ER)	5	0,832	0,825	0,540
Philanthropic responsibilities (PR)	6	0,900	0,898	0,621
Legal responsibilities (LR)	3	0,872	0,879	0,686
Corporate prestige (CP)	3	0,605	0,607	0,418
Customer loyalty (CL)	4	0,863	0,854	0,642

Source: SPSS

– “Customer Service” (CS) has Cronbach’s Alpha = 0,892 > 0,6; which means the “Customer service” variable indicates a statistically significant correlation. In addition, minimum total correlation = 0,669 > 0,3, meaning internal consistency is good.

– “Green environment” (GE) has Cronbach’s Alpha = 0,915 > 0,6; which means the “Green environment” variable has the statistical value. Moreover, minimum total correlation = 0,747 > 0,3, which indicates a good internal consistency.

– “Ethical responsibilities” (ER) has Cronbach’s Alpha = 0,832 > 0,6; which means the “Ethical responsibilities” variable has the statistical value. Also, minimum total correlation = 0,54 > 0,3, which indicates a good internal consistency.

– “Philanthropic responsibilities” (PR) has Cronbach’s Alpha = 0,900 > 0,6; which means the “Philanthropic responsibilities variable has the statistical value. Moreover, minimum total correlation = 0,621 > 0,3, which indicates a good internal consistency.

– “Legal responsibilities” (LR) has Cronbach’s Alpha = 0,832 > 0,6; which means the “Legal responsibilities” variable has the statistical value. Also, minimum total correlation = 0,54 > 0,3, which indicates a good internal consistency.

– “Corporate prestige” (CP) has Cronbach’s Alpha = 0,605 > 0,6; which means the “Corporate prestige” variable has statistical value. Moreover, minimum total correlation = 0,418 > 0,3, which indicates a good consistency.

– “Customer loyalty” (CL) has Cronbach’s Alpha = 0,832 > 0,6; which means the “Customer loyalty” variable has the statistical value. Also, minimum total correlation = 0,54 > 0,3. Therefore, the correlation is strong.

Table 3: KMO and Bartlett’s test

	Value	Comparison
KMO	0,883	0,5 < 0,883 < 1
Sig	0,000	0,000 < 0,05
Variance extracted	72,330%	72,330% > 50%
Eigenvalue	1,403	1,403 > 1

Source: SPSS

KMO = 0,88, between 0,5 and 1, indicates the sampling is adequate. Sig = 0,000 < 0,05. So, observed variables have strong correlation.

Table 4: Rotated Component Matrix

	Component				
	1	2	3	4	5
PL3	,818				
PL4	,776				
PL2	,744				
PL6	,718				
PL5	,677				
PL1	,676				

GE4		,841			
GE5		,814			
GE3		,796			
GE2		,706			
GE1		,671			
CS2			,810		
CS1			,779		
CS5			,757		
CS4			,738		
CS3			,704		
ER2				,810	
ER4				,699	
ER3				,690	
ER5				,688	
ER1				,667	
LR2					,896
LR3					,883
LR1					,784

Analyzed with EFA, factor loading of dependent variables > 0,5 and the number of extracted factors is five, which is reasonable. All the factors have both convergent validity and discriminant validity. So, the research uses proposed model for multiple linear regression analysis.

Table 5: ANOVA test for “Corporate prestige”

Model		Sum of Squares	df	Mean square	Sig.
1	regression	41,266	5	8,253	,000 ^b
	Residual	3,910	96	,041	
	Total	45,176	101		
a. Dependent variable: CP					
b. Independent variables: PR, GE, CS, ER, LR					
R	R square	Adjusted R square	Std. error of the estimation	Durbin –Watson	
,956 ^a	,913	,909	,202	1,823	

The above table verify the hypothetical model with sig=0,000 < 5%. So, R square of population must not be zero. Adjusted R square = 0,909, which means 5 proposed independent variables can account for 90,9% dependent variable. So, the proposed model is suitable to population.

Table 6: Regression Results

Model	Unstandardized coefficients		Standardize d coefficient	t	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
Constant	-,040	,119		-,339	,735		
CS	,310	,035	,366	8,952	,000	,540	1,851
GE	,236	,031	,320	7,600	,000	,508	1,969
ER	,204	,032	,232	6,317	,000	,670	1,493
PR	,117	,038	,126	3,123	,002	,552	1,811
LR	,145	,022	,217	6,530	,000	,819	1,221

Source: SPSS

Sig values of independent variables are smaller than 5%, which means these variables are statistically significant. Basing on Beta, the research can assess impact level of each independent variable on dependent one. For example, CS's beta = 0,336, indicating that if CS increases 1 unit, CP increases 0,336 unit without any changes in other factors. Comparing 5 independent variables' Beta, it could be concluded that customer service has greatest impact on corporate prestige.

After testing collinearity with VIF, the research found out that all VIFs are smaller than 2. This means there is no collinearity in the proposed model.

Table 7: Summary of standardized coefficients

No	Variables	standardized coefficients	Impact order
1	CS	,366	1
2	GE	,320	2
3	ER	,232	3
4	PR	,126	5
5	LR	,217	4

Table 8: ANOVA test for customer loyalty

Model	Sum of Squares	Df	Mean square	Sig	
1	regression	48,399	1	48,399	,000 ^b
	residual	10,038	100	,100	
	Total	58,437	101		
a. Dependent variable: CL					
b. Constant: CP					
R	R square	Adjusted R square	Std. error of the estimation	Durbin-Watson	
,910a	,828	,827	,317	1,941	

Sig values of independent variables are smaller than 5%, which means these variables are statistically significant. Based on Beta, the research assesses the impact level of each independent variable on dependent one. CP's beta = 0,910, indicating that if CP increases 1 unit, LTT increases 0,910 unit without any changes in other factors.

Among five components of CSR, customer service and ethical responsibilities, which are easy to be observed and assessed, has greater impact on customer's benefits than remain factors. Customer service, legal responsibilities, environmental responsibilities, ethical responsibilities and philanthropic responsibilities has positive impact on corporate prestige. Also, corporate prestige has positive impact on customer loyalty.

5. Conclusion and Recommendations

CSR has positive impact on customer loyalty which is crucial for any business. In the banking sector, the authors recommend following methods to enhance CSR:

- First and foremost, to improve customer service, employees should be trained about technical skills and skills to serve customer professionally. These skills include: understanding products, communicating messages clearly, collecting customer's feedback and learning professional ethics. Moreover, customers should always be respected. Besides, win-win campaign between business and its customers can be applied. If any strategies do not bring benefits to customers, they should be adjusted or replaced with better ones.

- Second, to have a green environment, banks should adopt a new technology which is more sustainable and efficient than the old one. Also, there should be a system to process waste materials inside the company. Besides, an environment manager should be appointed to create a sustainable and green environment for the company.

- About philanthropic, it is recommended for banks to voluntarily organize programs or campaigns to support the unprivileged. Specifically, banks could give scholarships to poor children with excellent academic results, support people in remote areas financially and provide vocational courses for graduated students.

- For better ethical responsibilities, banks should have a good salary and reward system which could ensure a better life standard for employees. For their sake, shareholders should have the right to get clear, public and transparent information. About customer's benefits, customers should be well-treated with high quality products and a professional customer service.

- To perform legal responsibilities, business must ensure legal working hours as well rest time for employees. They are supposed to have insurance for medical and health care costs, unemployment insurance and other insurances. Recently, Vietnam has been integrated in various ways such as reducing preferential signing trade agreements, free trade agreements and joining tax union alliances.

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IMPLEMENTING THE LAW ON STATE BUDGET SPENDING FOR PUBLIC INVESTMENT IN VIETNAM RECENTLY

HOÀN THIỆN PHÁP LUẬT VỀ CHI NGÂN SÁCH NHÀ NƯỚC CHO ĐẦU TƯ CÔNG Ở VIỆT NAM HIỆN NAY

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ABSTRACT

The public investment plays an important role in creating the material and technical foundation for the country. It is regarded as leverage for some key industries and regions and implementing social welfare policies, ensuring security. Undoubtedly, restructuring public investment is one of the main solutions to improve the quality of growth and competitiveness of the economy in the process of Vietnam's integration, to curb inflation, and to stabilize the macroeconomy.

Currently, along with the renovation process in all areas of social life for nearly 20 years, budget management in general and state budget expenditure management in the field of public investment, in particular, have many positive changes. Those alterations contribute to the socio-economic promotion, improve the effectiveness and efficiency of the use of public financial resources. However, due to the fluctuations of reality and international integration that has become more and more extensive, the requirements of management and use of public financial resources are increasing. Disappointedly, Vietnam's legal system is not been completed and law enforcement has not yet been strictly and thoroughly implemented. Since then, lawmakers are required to consider revising as well as offering solutions to overcome and improve the efficiency of the usage of state budget capital for public investment in Vietnam today.

Key words: *Effectiveness, state budget spending, public investment.*

TÓM TẮT

Đầu tư công có ý nghĩa quan trọng, đóng vai trò tạo nền tảng vật chất kỹ thuật quan trọng cho đất nước, là đòn bẩy đối với một số ngành và vùng trọng điểm, đồng thời thực hiện các chính sách phúc lợi xã hội, đảm bảo an ninh, quốc phòng. Tái cấu trúc đầu tư công là một trong những giải pháp nâng cao chất lượng tăng trưởng và khả năng cạnh tranh của nền kinh tế trong quá trình hội nhập của Việt Nam, kiềm chế lạm phát, ổn định kinh tế vĩ mô.

Hiện nay, cùng với quá trình đổi mới trên tất cả các lĩnh vực của đời sống xã hội trong gần 20 năm, quản lý ngân sách nói chung và quản lý chi ngân sách nhà nước trong lĩnh vực đầu tư công nói riêng có nhiều chuyển biến tích cực, góp phần thúc đẩy kinh tế xã hội, nâng cao hiệu lực, hiệu quả của việc sử dụng nguồn lực tài chính công. Tuy nhiên, trước tình hình biến động của thực tiễn và hội nhập quốc tế diễn ra ngày càng sâu rộng, yêu cầu quản lý sử dụng nguồn lực tài chính công ngày càng cao, hệ thống pháp luật của chúng ta chưa hoàn thiện, công tác thực thi pháp luật chưa đảm bảo tính nghiêm minh, triệt để. Từ đó, đòi hỏi các nhà lập pháp cần xem xét sửa đổi cũng như đưa ra các giải pháp để khắc phục, nâng cao hiệu quả sử dụng nguồn vốn ngân sách nhà nước cho đầu tư công ở Việt Nam hiện nay.

Từ khóa: *Hiệu quả, chi ngân sách nhà nước, đầu tư công.*

1. Introduction

It is clear that the public investment is the State's investment in various programs and projects on socio-economic infrastructure construction as well as in the service of socio-economic development. In fact, capital for public investment can come from a variety of sources. It must be precisely determined that state capital is not the only source of public investment. Nevertheless, it is undeniable about its importance to the implementation of public investment programs and projects. Therefore, the State should issue specific laws to help people use effectively the state budget capital in this field. At present, we have

many regulations on public investment. Nonetheless, the fact indicates that the efficiency of using the state budget for these activities is not high. There are many problems and requiring solutions which measures to overcome and improve to minimize loss and waste of state budget sources.

The paper focuses on current issues of state budget spending on public investment in Vietnam as well as assessing the effectiveness of this work in practice. It also researches and proposes solutions to improve the law and enhance the implementation of the law on state budget spending for public investment, which is based on the current situation of the law on state budget spending for public investment in Vietnam today.

2. Research methodology

During the research, the author has applied a number of general research methods of social sciences and specific methods of law to study. The main methods include analytical methods, general methods, comparative methods, classification methods, etc.

The paper uses qualitative research methods in collecting and processing information and data to analyze, compare and synthesize. The way to access data sources is through observation, gathering information from many different sources). Sources of data collected from outside include articles, research papers, annual reports,... which are posted on newspapers, magazines, information from websites, annual reports of Vietnam's economy and reputable organizations, etc.

3. Research's results

3.1. Some theoretical issues on public investment and state budget spending activities for public investment

Public investment is seen as the State's investment in different programs and projects on socio-economic infrastructure construction and investment in various programs and projects related to socio-economic development. This is an important part of aggregate demand, which drives aggregate demand through the financial multiplier. As a result, it can not be denied about the important role of public investment in promoting economic growth.

Undoubtedly, public investment is an investment activity of the State. Hence, these activities are carried out by the State through competent state agencies. Because the state is a special public political organization, it has all the necessary conditions and advantages to recognize and offer the most appropriate investment orientations and plans to help the economy develop. Therefore, the government is an important subject that must be included in public investment relations.

The goal of public investment is to improve the investment environment and facilitate private and foreign investment. In fact, public investment plays an important role in creating material and technical foundation for the country. It is a leverage for some key industries and regions, and supports to implement social welfare policies, ensure security and defense.

In reality, the state mainly invests in public works that the private economy does not or has not invested in like commercial areas. It sets making profits as the highest target (i.e. securities, hotels, restaurants).

In addition, through public investment activities, the State also attracts more capital from the private sector to co-invest with the state on the principle of public-private combination.

Investment capital for public investment activities using State capital. Undoubtedly, capital for public investment can come from a variety of sources. The state budget is used for investing in socio-economic infrastructure projects with low capital recovery, human resource development and environmental protection. It is also used for maintaining public facilities. For projects that can generate revenue but cannot recover enough capital, the state budget will only partially fund the projects. The second source is the state credit granted under preferential conditions from Government funds or from ODA. State credits for priority projects or implemented in the number of different industries. The

government agency who borrows this credit are the investors and they are responsible for paying the interest and principal. In addition to the two main sources above, public investment programs and projects may use capital invested by individuals and private economic organizations. Therefore, it must be precisely stated that state capital is not the only source of public investment.

As being analyzed above, public investment is a critical economic activity, promoting economic development. Public investment is very important for many economies, especially developing countries, especially from the perspective of ensuring the basis for sustainable development. In a market economy with a variety of economic sectors and forms of ownership, economic activities, including public investment, are extremely complex and vibrant. The state, with its advantages, conducts public investment management to help ensure that projects achieve the set goals, and limit the risks brought by the market economy. Indeed, the state budget capital used for public investment accounts for the significant part of the total state budget.

3.2. Current situation of state budget spending on public investment in Vietnam today

3.2.1. Assess the current laws on state budget spending in the field of public investment in Vietnam

3.2.1.1. Merits

The current laws on state budget spending in the field of public investment in Vietnam are basically appropriate, meet most social requirements, ensure that public investment achieves its purpose. Some outstanding advantages are as follows:

Firstly, the provisions of the Law on Public Investment, the State Budget Law and other related legal documents are the legal basis to enhance the efficiency of public investment in all stages, from decentralization of management authority towards the state budget capital. Actually, the sequence of planning procedures, preparation for investment plans, implementation monitoring to project audit,... are tight.

Secondly, the elaboration, supplementation and delivery of plans are more strictly managed, close to reality, ensure greater transparency, and limit corruption, wastefulness and loss of assets of Government.

Thirdly, the provisions on capital arrangement must give priority to the number of important programs and projects, which helps to develop the economy equally in all aspects and urgent projects, etc.

Fourthly, the provisions on capital allocation ensure transparency in public investment and the efficiency of using the state budget capital, limit the situation of misuse to waste and loss of state budget capital and still ensure timely allocation of capital for eligible public investment projects.

Fifthly, it is reasonable to stipulate the authority to use the budget reserve to support capital-increase projects. For important projects, the capital increase is so high that the reserve capital for medium-term public investment plan cannot meet. Undoubtedly, it is necessary to have support with the budget reserve. Delegating decision-making powers to administrative agencies that are the state management agencies in charge of public investment increases the initiative and ensures the use of budget reserve capital for the right purpose, reasonably and necessarily. Actually, decentralizing the authority to use the budget reserve fund also reduces administrative procedures, ensures project implementation schedule and increases accountability at all levels.

Sixthly, allowing administrative agencies at all levels (Government, People's Committee) to advance the next year's budget estimates with public investment projects under their management. Actually, this provision ensures timely response. For projects that need urgent implementation but are included in the plan, they are not allocated capital or do not have enough capital to implement.

Seventhly, there have been separate adjustment regulations for very small-scale public investment projects. Thereby creating a shortened process for these projects, in order to speed up the implementation of the project and open, broaden initiative for local governments, etc.

3.2.1.2. Demerits

The law on state budget spending in the field of public investment has created a legal corridor for the development and implementation of public investment programs and projects using state budget capital in Vietnam. However, in the process of research and law enforcement, there are still inadequacies, limitations, as follows:

Firstly, regarding the competence to allocate State budget capital in public investment activities in Vietnam, the Law on Public Investment has many binding and unclear provisions on priority arrangement, resulting to the fact that the allocation of capital associated with the ability to balance capital do not meet the project implementation schedule. Hence, the implementation time has to be extended.

In addition, there are contradictions in the regulations on conditions for capital allocation to be prepared for medium-term public investment projects: If projects using state budget capital are in the process of elaborating, appraising and deciding on owners. If the project is needed, it is necessary to allocate state budget capital to prepare for investment. However, at the moment the project has not been decided by the competent authorities. Therefore, it cannot allocate that capital to the project. Without the state budget capital to prepare the investment, it is impossible to implement the process of elaborating, appraising and deciding the project guidelines. As a result, the planned capital from the state budget cannot be allocated to public investment programs and projects by using state budget capital.

Secondly, there is a conflict between the Law on Public Investment and the State budget law. Specifically, there was no agreement on the duration of the medium-term public investment plan and the 3-year budget and financial plan. In addition, there are contradictions in regulations on the competence to manage public investment projects between state agencies.

Thirdly, the Regulation allows extending the disbursement period with the annual public investment plan, creating a psychology of investors who do not focus on implementing the plan right in the year, affecting the investment disbursement. However, it is appraised that the Regulation does not guarantee investment efficiency.

At present, there is no specific regulation on specific projects to extend the disbursement period, minimize the case for a massive transfer of capital, have influence on the implementation and quality of investment project, and the use of state budget capital.

Fourthly, regarding the competence to adjust public investment projects using state budget capital, ministries and localities are not allowed to proactively decide on the investment priorities under their management in accordance with real conditions. The Ministry of Planning and Investment must request permission from the Ministry of Planning and Investment. This provision reduces the activeness of ministries and localities in managing the assigned capital plan, increasing administrative procedures and reducing the implementation schedule, certain effects on the quality of the work as well as the ability of Disbursement towards the capital plan.

Fifthly, in respect to the competence to inspect, and handle violations of public investment activities using the State budget capital in Vietnam. Currently, there is no specific law document on inspection activities in general. The legal system and mechanisms and policies that support the implementation of the inspection process are safe, effective, incomplete and lack of uniformity. In fact, current laws are lack of strong sanctions to deal with violations of law in implementation and management of State budget spending in public investment.

3.2.2. *Assess the implementation of the law on state budget spending in the field of public investment in Vietnam today*

3.2.2.1. Merits

From 2016-2020, implementing the Law on Public Investment, the National Assembly issued Resolution 26 on Medium-term Public Investment Plan for the 2016-2020 period, creating a synchronous

and important legal basis for public investment management. For the first time, there is a breakthrough innovation in fundamentally changing the way of managing, balancing and allocating national financial resources for development investment, shifting from the management mechanism according to the first plan from annual to medium-term plans in association with annual plans. Simultaneously, the government should tighten financial disciplines and financial disciplines in the evaluation and approval of investment policies, project approvals associated with the appraisal of capital sources and the ability to balance the state budget capital, attract capital from various economic sectors. On the other hand, macroeconomic balance and public debt safety must be ensured to be implemented.

After nearly 5 years of implementing the Law on Public Investment and Resolution 26 of the National Assembly, with the active initiative of the Government, ministries and local branches, the National Assembly's close supervision, disciplines in Public investment management have been strengthened. Moreover, macro-financial balance has been maintained. Indeed, all levels and sectors from the central to local levels have been more aware of their responsibilities in improving the efficiency of management and use of public investment capital from investment policy approval, approving projects, balancing resources, and allocating capital to implement. The management of public investment has made positive changes. In reality, the making process, allocation and delivery of development investment plans are strictly monitored in a more open and transparent way. Furthermore, the efficiency of public investment has been improved step by step, which helps to reduce outstanding debts in capital construction with strict management of advance capital and contributes to limiting scattered investment, policy decisions and inappropriate investment decisions which are not based on the ability to balance capital.

As regards of public investment capital, it has focused on arranging national target programs, important national projects, key projects, connecting and spreading regions, and projects in several sectors and fields that other economic sectors do not want to invest. By 2018, many regional-connected infrastructure projects have been speeded up the construction progress [1], completed, put into operation, and used a number of large constructions [2], creating favorable conditions for the development of economic activities, strengthening regional links, and actively contributing to the country's socio-economic development. According to the Government's Report No. 513 / BC-CP, the estimated GDP target for the period 2016-2018 was 6.57% while the target for the whole period 2016-2020 is 6.5-7%; The average target of total social investment on GDP during 2016-2018 reached 33.5% while the target for the whole 2016-2020 period is 32-34%; The target for health insurance coverage (at the end of the period) is 80%. In reality, 88.5% has been achieved so far, etc.

The goal of restructuring and improving the efficiency of public investment has achieved positive initial results, which boosts up the proportion of capital mobilized from economic sectors for development investment. Moreover, the proportion of public investment reduced to 34.5% of total social investment. According to Report No. 506/BC-CP dated October 17, 2018 of the Government, the proportion of state investment capital in the total estimated investment in 2018 was 34.5%. The overall balance of public investment resources in the 2016-2020 period is clearly defined, which creates initiative for the Government, ministries, branches and localities in balancing investment resources from different budgets and mobilizing other sources of capital for the development of investment. Based on the Government's Report No. 513/BC-CP, the proportion of state investment to total social investment in 2017 was 34.8% compared to 36.8% in the period 2015-2017 and 39.9% in 2014.

Apparently, the allocation of capital has prioritized disadvantaged areas. The percentage of central budget capital (central budget) with targeted support for disadvantaged localities accounted for nearly 50%. According to Report No. 513/BC-CP of the Government, the Northern Midlands and Mountains region is allocated 23.41%, the North Central and Central Coast regions are allocated 25.54% of the total

central budget capital with targeted assistance for localities. In addition, the Government has focused on housing support for households with meritorious services to revolution. It also has paid attention to tasks of coping with climate change, preventing and fighting against drought in the Central Highlands and Southern Central provinces, saltwater intrusion in the Mekong River Delta provinces, and marine environmental pollution incidents in 4 central provinces.

The allocation of medium-term public investment capital in general has basically complied with the principles, criteria, norms and implemented in each order of priority in the allocation of state budget capital in the 2016-2020 period, which contributes gradually to overcome the passive situation, investment in cutting segments like before. Based on the determination of the total maximum medium-term public investment capital in the 2016-2020 period is VND 2,000,000 billion with clear orientations and criteria. It helps to create favorable conditions for ministries, branches and localities; to take initiative in effective allocation, to use priority projects with limit passive situation and unbalanced budget allocations. Interestingly, the allocation of investment capital is more concentrated than before. It has contributed to speed up, put the project into use effectively. Nevertheless, the number of newly started projects has decreased sharply. According to the Report No. 513/BC-CP of the Government, the total number of projects of the medium-term public investment plan is 9,620 projects, only about 50% of the previous period. In particular, the number of projects completed in the period reached 65.4%.

In addition, localities have basically handled most of the outstanding debts in the 2016-2020 period and set aside considerable capital to pay advance capital.

3.2.2.2. Demerits

In addition to the above achievements, in the process of implementing the law on state budget spending in the field of public investment, there are still some certain shortcomings:

Firstly, the allocation of investment capital from the state budget is still scattered. There are large-scale projects, but the capital arrangement is low. Some ministries, central and local state agencies still propose to commence new projects while they have not balanced enough capital to pay debts of capital, construction debts or the allocated capital level is too low and not guaranteed. As a result, the government should make sure to complete the project by following the schedule and on time.

The 2018 audit report stated that the capital plan of some ministries, central agencies and many localities has not strictly implemented the Prime Minister's Directive. In fact, it is not close to reality, and not suitable to the ability of the State budget. Moreover, priority has not yet been given to allocate enough capital for completely handling the outstanding debts of capital construction as prescribed. Along with that, there is a situation in which the capital plan has not been detailed yet and fully allocated from the beginning of the year, capital allocation to a number of lower areas or exceeding the prescribed level (Ministry of Agriculture and Rural Development has arranged capital for 10 projects that exceeded the amount of capital in the public investment plan [1]). They allocated when it has not had enough conditions and was not included in the public investment plan. Especially, 24/49 localities audited had agencies that had not arranged the priority in order, etc.

In addition, public investment projects have been delayed due to some reasons such as ministries, agencies and localities allocating capital for projects that have not enough procedures. Therefore, the implementation procedures and newspapers in combination with multiple reports has led to the delayed with often and repeated frequency, etc.

Apparently, many projects are not eligible but have been allocated capital. It is allocated to hundreds of projects and works without investment decisions or having investment decisions after October 31 of the previous year (including Da Nang City). Danang 141 projects, Binh Dinh province 102 projects, Hai Phong 52 projects, etc.). The allocations for some projects that have not yet based on the medium-term investment plan or the 5-year Socio-Economic Development Plan 2011-2015 (including

Ethnic Committee, Tien Giang Province 108 projects, Ben Tre 24 projects, Hoa Binh 24 projects). Furthermore, there was capital allocation for projects that were not included in the 5-year Agriculture sector development plan from 2011 to 2015 (Ministry of Agriculture and Rural Development has 62 projects, 912 billion dong). In fact, the allocation of capital for new projects was actually not really urgent (Ministry of Construction has 14 projects, VND 120 billion), etc.

In 2016, that situation has not been improved. The 2016 State Audit Office of State Audit report showed that: assigning investment capital plan to 967 new projects was equal to 17.44% of the total number of projects assigned; assigning capital plan for 04 high-speed projects of VEC VND 3,866 billion to convert ODA loans from the form of re-lending by the State to the form of direct investment by the State without resolutions approved by the National Assembly, People's Committee of Vietnam, etc. The 2018 Audit Results Summary Report indicated that there was still an existing problem of ministries and localities when they allocated capital plans that was not close to reality, leading to low disbursement rates. Furthermore, they allocate capital when it was not qualified with wrong content of investment capital, did not comply with priority order, did not allocate completely at the beginning of the year ... [2]

Secondly, the advance of capital for public investment programs and projects funded by the state budget to perform contracts have helped contractors, especially contractors with financial difficulties, to accelerate the examination progress. However, some advance capital projects are too high, do not commensurate with the actual construction volume, which affects the management of local budgets and makes it difficult for the recovery of advance capital on local area. This fact results in the situation of outstanding debt. Some projects, despite being urged by the State Treasury, still have a large advance over the years, such as the 700-bed General Hospital project in Nam Dinh province, the emergency migration project for landslides in Phuong Dinh commune (Truc Ninh), the project to upgrade crucial embankments in Nam Dinh province, etc.

Thirdly, the progress of disbursement of state budget capital for public investment programs and projects is still behind schedule. According to a report of the Ministry of Finance, in the first 5 months of 2018, capital construction investment disbursement was estimated at VND 94,108 billion, which was equal to 23.5% of the plan assigned by the National Assembly. This ratio, though improved over the same period in 2017, is still behind schedule. By the end of 2017, the disbursement of investment capital from the state budget reached only 83.9% of the yearly plan. In particular, the disbursement of Government bonds was only VND 13,800 billion, which was equal to 38.4% of the year plan. In 2016, the rate of disbursement of investment capital from the state budget only reached 82.5% of the plan assigned by the National Assembly.

Actually, the investors are afraid of being inspected, supervised, having responsibility, which leads to ineffective and timely implementation of projects, and delayed disbursement of capital.

Fourthly, the actual implementation of public investment projects has not been guaranteed. Many investors offered small projects with little capital to be approved for investment, then adjusted to increase capital. Typically, the project to dredge and build embankments to protect the landscape of Sao Khe river (Ninh Binh) "capital" 36 times, from 72 billion to 2,595 billion; The Day River dredging project (also of Ninh Binh) increased its capital from VND 2,078 billion to VND 9,720 billion (an increase of more than VND 7,000 billion) [4]. The units are still confused in using the contingency capital to handle projects with capital increase or urgent projects ... The efficiency of distribution and use of national financial resources is still limited with wastefulness and inefficiency and are slowly overcome. Indeed, there is still a new policy when no resources are available. Estimated work is not close to reality. In addition, the observance of the Law on Public Investment still reveals not seriously. Many public investment projects are still in progress, with asynchronous investment, low efficiency and great amount of waste, such as the Ho Chi Minh Road project in Nam Can - Dat Mui area in Ca Mau province. They have been delayed for 6 years, the mechanical development project transport infrastructure in the Mekong Delta has been delayed for 3 years and the Central General Hospital project has been delayed for 5 years, etc.

Some projects using the state budget are wasteful and ineffective, such as the Yen Vien - Pha Lai - Ha Long - Cai Lan railway project started in 2005 with a total investment of 1,510 billion Dong so far. The Nhon - Hanoi Railway Station project was started in 2006 with a total initial investment of VND 18,408 billion. However, after many adjustments, the total investment increased to VND 36,000 billion and the finishing time has not been fixed [3].

In reality, the acceleration of important national projects, key projects have not met the requirements that were set out. A number of important national projects like investment in the construction of a number of high-speed road sections on the North-South eastern route in the 2017-2020 period, Long Thanh International Airport; have been allocated capital by the National Assembly. Nonetheless, the implementation progress is slow. Some projects have to adjust the total investment largely, which affects the balance of resources and investment efficiency.

Fifthly, examination, inspection and handling of violations of public investment activities funded by the state budget capital in Vietnam.

In fact, the inspection and examination of public investment expenditure management process from the state budget has not been executed thoroughly. The conduct of inspections on low number of works/projects has not been detected in time.

Although there has been a strong decentralization in the mechanism of investment capital management, the reporting and examination regimes in some stages has not been adequately adjusted. Therefore, the statistical, summarizing and evaluating activities meet a lot of difficulties. The inspection mechanism for decentralizing state budget management in the field of public investment has not been properly focused. The examination, inspection and audit by state agencies are also infrequent and discontinuous. Additionally, the effectiveness of supervision is low, etc.

In fact, there have been many violations in public investment activities funded by the state budget. However, there has been no timely resolution and remediation. The situation of wastefulness, loss and dispersal of state budget capital in public investment is still complicated and has not been completely solved.

3.2.3. *Reasons*

Disadvantages still exist in the state budget spending activities in the field of public investment stemming from the number of reasons:

Firstly, the law on state budget spending in public investment has not been yet completed.

Policymaking and promulgation of legal documents are sometimes flawed. In the process of policy formulation, the participation of subjects is not active, and the results are not effective. Therefore, policies and laws have been issued in some cases that are not suitable to reality and still have many existing problems.

On the other hand, the nature of public investment and state budget spending on public investment are difficult legal issues, including many internal contents. Therefore, lawmakers need a lot of time to study, consider and grasp the real situation of Vietnam, so that they can make appropriate regulations. Nevertheless, time is not enough because of the requirements of the economy based on the world trend, which requires lawmakers to quickly establish a legal corridor for the implementation of public investment activities. Disappointedly, it is impossible to avoid certain existing problems in legal documents.

Secondly, the implementation of the law on state budget spending in public investment.

The implementation of the law on state budget spending in the field of public investment does not ensure the principles, especially the principles of publicity, transparency and fairness in the law implementation process.

Public investment has not focused on investment efficiency and cost savings. There is currently no mechanism to create pressure on investors and contractors to reduce public investment costs. Therefore, public investment projects often have high costs and low efficiency. The high cost of public investment is creating a burden on the economy when the benefits from public investment projects are not enough to offset the costs of using public investment works, especially for public investment projects using state budget capital. In reality, this situation leads to serious loss and waste to the state budget.

In fact, management capacity of relevant competent individuals and organizations is not effective. Meanwhile, the decentralization of state budget management in public investment is too thorough. The positive aspect is the strengthening of autonomy and self-responsibility mechanism for governments at all levels. Nevertheless, its drawback is that investors are afraid of responsibility and afraid of inspection. Hence, they have not tried their best to implement the assigned public investment programs and projects. Moreover, the reliance on state budget investment is still very heavy. Ministries and localities are less proactive and creative in mobilizing other capital sources such as foreign investment and private investment in developing infrastructure works.

The orientation and regulation of the construction market are weak with the use of unreasonable resources, many inaccurate investment decisions. Furthermore, the assessment of financial and economic efficiency is procedural, etc.

The mechanism of inspection and supervision of the state budget decentralization in the field of public investment has not been given appropriate attention.

3.3. Some solutions to enhance the efficiency of state budget spending on public investment

Originating from the existing problems in the legal system as well as inadequacies in the process of implementing the law on state budget spending in the field of public investment, the author offers two main solutions:

* To implement the law on state budget spending in the field of public investment, there are some specific solutions such as:

Firstly, ensure publicity and transparency in management and use of state budget capital in the field of public investment. In order to assure the limit of wastefulness and loss of state budget capital in the implementation of public investment programs and projects, it is necessary to specify in detail the powers and responsibilities of agencies, organizations and individuals in all stages related to the management and use of public investment. It specifies the rights and responsibilities of the heads of organizations and agencies related to the management and use of public investment. This is also one of the measures to ensure the openness and transparency in management and use of public investment.

Besides, it is recommended to publicize the priority of budget among localities in budget allocation. In addition, the government should focus on public and transparent regulations of public investment in a specific document to ensure that the process is applied uniformly for avoiding conflicts in regulation among laws. Moreover, the allocation of state budget capital for public investment activities must also be specified and public in order to limit the situation that localities seek to "mobilize" to receive more budget allocations.

Secondly, it is necessary to strictly regulate the activities of transferring budget sources to the next year of public investment projects. Accordingly, the source can only be transferred to the next year if it is absolutely necessary and must be approved by the Government. As for all remaining cases, if it is not disbursed in the financial year as planned, it will be cut off. Accordingly, specific provisions on conditions and criteria to be transferred should be specified, as well as the time limit for prolonging the implementation and disbursement of capital. This will avoid the psychological dependence of investors, which forces relevant individuals and organizations to be responsible for fulfilling their tasks according to the assigned schedule on time, ensuring the efficient use of capital from the State budget and the principle of equity in capital allocation with other public investment projects.

Thirdly, it is necessary to change the regulation to advance the capital only when the principal has received the advance guarantee from the credit institution with the similar value of that advance. Particularly for construction contracts, if there is ground clearance, the advance payment is only made when there is a ground clearance plan. This provision is to limit the debt of advance capital in public investment, avoid loss of state budget capital and ensure the efficiency and quality of investment.

Fourthly, complete the legal provisions on examination, inspection and handling of violations of public investment activities funded by the state budget.

* Strengthening the implementation of the law on decentralization of state budget management on public investment, some specific solutions such as:

Firstly, strengthen inspection and examination with State budget spending activities in the field of public investment. Moreover, it is suggested the overnment should strengthen the inspection and inspection of discipline's observance and discipline in public investment management, focus on weaknesses, negative occurrence, carry out detection and clarification with strict and definitive handling cases of violations of the law on public investment plans that have been decided by the National Assembly, the Government and competent authorities.

The government should strengthen the review to ensure that the programs and projects arranged in the annual and medium-term public investment plan must have all investment procedures prescribed by the Law on Public Investment; For medium-term investment plans, programs and projects must be decided by investment authorities with clearly stating objectives, sizes, capital sources and balancing capital sources for implementation. For annual public investment plans, programs and projects must have investment decisions decided by competent authorities. All levels and branches need to strengthen resolute measures to immediately overcome the situation of sketchy preparation and the decision on investment policy in a sensible, formal, wasteful, wasteful and inefficient manner. Moreover, the government should resolutely not allocate capital for projects that do not fully comply with investment procedures and do not approve projects if they cannot identify funding sources for new investment.

Secondly, building a database of public investment and application of information technology in public investment management and using state budget capital are suggested. In fact, the 4th industrial revolution is taking place strongly and has profound impacts on all aspects of socio-economic life in order to link public investment management activities with the process of building the electronic Government. It is necessary to establish a database of public investment and management systems. Indeed, managing public investment through the application of information technology, building a national database will help serve connection, share, explore and use, especially for supervision, monitoring, evaluation, examining public investment activities. As a result, the current administrative procedures for project reporting and evaluation will be significantly reduced. The implementation of this system will facilitate technicians to reduce the time and effort of human resources to carry out reporting forms, to update, provide data and reports at the request of the National Assembly, Government.

In addition, the updated and publicized database system will increase the transparency and accountability in state budget management in public investment, which contributes to improve the efficiency of using the state budget capital for various programs and public investment project.

Thirdly, the government should also strengthen training, retraining and promote legal scientific research related to the use of state budget capital for public investment projects, create comfortable conditions for researchers and law makers to access the public investment database system in order to have a comprehensive view, and make the most accurate judgment, propose legal regulations appropriate to Vietnam, and overcome shortcomings that still exist these days.

In addition, it is also necessary to strengthen information dissemination and legal education, raise the level of community knowledge about public investment law. Since then, the implementation's quality of citizen inspection and supervision for public investment activities in general and investment programs, projects funded by the state budget in particular should be improved.

CONCLUSION

Undoubtedly, public investment has a significant influence on economic growth. Therefore, not only Vietnam, almost all countries in the world are focusing on investing in this activity. However, in Vietnam, public investment activities using state budget capital have not really achieved expected results. The paper has approached and presented a number of theoretical issues on state budget spending in public investment, from which it scrutinized the real situation and assessed the advantages/ disadvantages of state budget spending in the field of public investment in Vietnam today.

After that, the author proposes two main solutions and some specific solutions in each group to overcome, limit inadequacies, and improve the efficiency of state budget spending in the field of public investment in Vietnam currently.

Group of solutions to improve the law on decentralization of state budget management in the field of public investment are illustrated below. There are some specific solutions such as:

1. Ensuring the openness and transparency in management and use of state budget capital in the field of public investment.
2. Amending regulations on capital advance, transferring budget to next year with public investment projects, limiting the dependence of investors and related entities.
3. Completing the law provisions on examination, inspection and handling violations of public investment activities funded by the state budget capital.

Group of solutions to strengthen the implementation of the law on decentralization of state budget management on public investment, some specific solutions such as:

1. Strengthening inspection and examination with decentralized activities of state budget management in the field of public investment.
2. Building a database on public investment and application of information technology in public investment management using state budget capital.
3. Improving the qualifications of state officials, intensifying the propagation and education to citizens about public investment.

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BANKING VOLATILITY, ARE THERE DIFFERENCES IN LOCATIONS AND INCOME ACROSS COUNTRY GROUPS?

BIẾN ĐỘNG GIÁ CỔ PHIẾU NGÀNH NGÂN HÀNG, CÓ KHÁC BIỆT GIỮA CÁC NHÓM NƯỚC Ở CÁC KHU VỰC KHÁC NHAU VÀ MỨC THU NHẬP KHÁC NHAU KHÔNG?

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ABSTRACT

There are evidences indicating the banking volatility-economic growth nexus in developed markets and emerging markets. However, it is not clear to assume this relationship across countries at various levels of income and geography in low-income and middle-income countries. By using GMM techniques for dynamic panel data to analyze the bank-growth nexus in the full sample and the five subsamples in 21 low-income and middle-income countries from 2003 to 2014, we find unclear impact of bank volatility on economic growth that may result from combining all countries together. When we combine countries across different geography, but in the same income group, the above relationship is still mix. Surprisingly, the impacts of bank volatility on economic growth and the influences of country characteristics and financial development characteristics on this nexus are more clear in groups of countries are combined at the same geography, with the overall effects varying with the legal frameworks, institutional structure for market orientation in groups of countries.

Keywords: *Banking volatility, upper middle income countries, low income and lower middle income countries, Sub-Saharan Africa, South Asia and East Asia, Latin America.*

TÓM TẮT

Nhiều bằng chứng cho thấy mối quan hệ giữa biến động giá cổ phiếu ngành ngân hàng và tăng trưởng kinh tế ở thị trường phát triển cũng như thị trường mới nổi. Tuy nhiên, chưa có nghiên cứu nào cho mối quan hệ này ở các nhóm quốc gia được phân theo thu nhập và địa lý ở các nước thu nhập thấp và thu nhập trung bình. Áp dụng phương pháp GMM cho dữ liệu bảng để phân tích mối quan hệ giữa biến động giá cổ phiếu ngành ngân hàng và tăng trưởng kinh tế trong mẫu 21 nước và năm mẫu phụ ở các nước thu nhập thấp và thu nhập trung bình từ 2003 đến 2014, chúng tôi thấy tác động không rõ ràng trong mẫu 21 nước. Trong các mẫu phụ, khi kết hợp các quốc gia ở các khu vực địa lý khác nhau nhưng có cùng mức thu nhập, tác động này vẫn không rõ ràng. Tuy nhiên, tác động của biến động giá cổ phiếu ngành ngân hàng lên tăng trưởng kinh tế và ảnh hưởng của đặc thù quốc gia, phát triển tài chính lên mối quan hệ trên rõ ràng hơn ở các nhóm nước có cùng khu vực địa lý, với các tác động chịu ảnh hưởng bởi khung pháp lý, cấu trúc thể chế cho định hướng thị trường trong các nhóm quốc gia.

Từ khóa: *Giá cổ phiếu ngành ngân hàng, nước thu nhập trung bình cao, nước thu nhập thấp và trung bình thấp, châu Phi Sahara, Nam Á và Đông Á, Mỹ Latinh.*

1. Introduction

Banking sector is of great importance in promoting economic activities through various channels. A well-functioning banking system facilitates infrastructure for other sectors to run smoothly in the form of loan, so banking crises will cause output growth to slow down. This role is more profound in low-income countries (Kim and Lin, 2013). Mihail and Jordan (2014)'s paper has proved the connection between the banking sector and economic growth when they use bank credit to the private sector, interest rate, and ratio of quasi money as banking sector development indicators.

Moreover, share prices are always being traded at their fair value incorporating and reflecting all relevant information in the market, and stock returns of banking industry reflect bank performance. Banks' expected future cash flows are reflected in the present stock price which depends on the efficiency of loan projects. When the financial prospects of loan borrowers get depressed, these affect loan portfolio quality and present stock price. Consequently, there are correlations between bank stock returns and

economic growth. However, not many papers directly consider the effects of banks' stock prices on economic growth, only few empirical evidences suggest these effects in developed markets and emerging markets when countries are combined at different geography. Moshirian and Wu (2012)'s paper proves that banking industry volatility reflects a great deal of information on economic growth through various channels, which are country and institutional characteristics and financial development. This relationship remains a controversial question in frontier markets and in groups of countries are combined at the same geography.

Moshirian and Wu (2012)'s paper indicates the impact of country and institutional characteristics on bank-growth nexus. Not surprisingly, our choice of other factors are different than Moshirian and Wu (2012)'s. Firstly, Insider trading laws have some flaws when being applied in the model of banking volatility and economic growth. Since judicial system is one of the most important elements for private sector development, but basic facilities contributing to an efficient judicial system are almost missing in low-income and middle-income countries. History has shown that legal regulations occur behind adverse business behaviors in these countries. Besides, in the banking sector, laws against inside trading are usually general and they can be predicted in silhouette. Because of these drawbacks, insider trading law is not proposed in our models. Likewise, the disclosure of the non-financial and financial information benefits both firms and investors by way of improve market liquidity and reduced the level of information asymmetry. Surprisingly, in recent studies, most positive information is announced to public, but negative one is coved, and the transparency is used as mean of advertising (Kundeliene & Leitoniene, 2016). So that we do not employ bank accounting disclosure in this study. Additionally, banking crisis easily causes fiscal problems in most economies in the world nowadays, and government expenditures for economic recovery have grown enormously during crisis time. This cause a rocket in government debts and asset price buddle simultaneously. Sustainable development requires commitment to sound economic policies and the effectiveness of regulations. Besides, Cornett, et al (2010) and Naceur and Ghazouani (2007) states that institutional frameworks (i.e. country attributes and financial development indicators) have strong influence on banking operations. Regulation and supervision incentive bank operate effectively for achieving the good financial goals. Therefore, quality of governance shapes economic and banking activities, and affects activity of the stock market, liquidity. This will further increase output growth. However, this quality is not employed in the model of banking volatility and economic growth in previous papers, government effectiveness is studied in our research rather than banking crisis in the paper of Moshirian and Wu (2012). In low-income countries, the effects of political institutions on growth are significant or large as oppose to rich countries (Pereira, et al 2010). State-owned banks based in developing economies almost have lower profitability and higher costs than private ones. Another paper of La Porta, et al (2002) also find that higher government ownership of banks, interventionist, inefficient governments and backward financial systems are almost typical features of low income countries. Therefore, to test characteristics of institutional economics in affecting performance of banks in middle income economies and in low income economies, (2013)'s Six Worldwide Governance Indicators (WGI) are used in our models rather than the variable (government ownership of banks) in the paper of Moshirian and Wu (2012).

Firms and households receive loans from banks and repay the loans with interest. These relationships are private and independent of the information about all public companies listed in stock market. So that, the volatility of the bank relates to the variation of stock returns of the banking industry, which refers to each individual bank. Whereas stock market volatility refers to the information being reflected in market excess returns, which is representative for all public limited companies (PLCs) in the stock market. Hence, the relationship between banking industry volatility and economic growth is independent of overall market returns. In the research paper of Naceur and Ghazouani (2007) also indicates that the impact of equity market on economic growth is independent of the impact of bank development on economic growth.

The new economic geography and economic growth theories have explained differences among income levels as well as GDP growth across spaces. They affect the decisions of economic policy makers and shape economic interactions. Hence, the bank volatility – economic growth nexus remains controversial question in groups of countries having the same geography in low-income and middle-income countries. In this paper, we extend previous researches by testing the above relationship in 3 subsamples based on geographic criteria and in 2 subsamples based on income criteria after analyzing the full sample of 21 low income and middle income countries, by using panel GMM (Generalized-Method-of-Moments) techniques. We also examine the influences of country characteristics and financial development characteristics on bank-growth nexus.

Furthermore, there exist a strong relationship between economic growth and inflation rates in one country (the Philips Curve and Keynesian theory). Thus, in this paper, we advance previous studies by examining a large number of new measure of country characteristics, which are inflation rates and (2013)'s Six Worldwide Governance Indicators (WGI). Then, we construct variables for country-specific and institutional characteristics, which are inflation rates, WGI, and variables for financial development, including Domestic Credit to private sector, Liquid Liabilities, and Stock-Market-Capitalization to GDP. Next, these variables are interacted with banking industry volatility to evaluate the effect of country-specific, institutional characteristics and financial development on bank-growth nexus from 2003 to 2014.

Our research contributes to the literature on banks' stock prices and economic growth in many ways. First of all, we find unclear impact of bank volatility on economic growth that may result from combining all countries together. When we combine countries at different geography, this relationship is still mix. Surprisingly, the impacts of bank volatility on economic growth is more clear in groups of countries are combined at the same geography. Secondly, our developing illustrates, the influences of country-specific, institutional characteristics and financial development on bank-growth nexus are more clear in groups of countries are combined at the same geography, with the overall effects varying with the legal frameworks, institutional structure for market orientation in groups of countries.

2. Literature Review

A lot of studies prove bank-economic growth relationship. Campello et al. (2010) indicates that firms do not have ability to borrow externally during the credit crisis of 2008. The weakened function of the banking system causes negative effects on the flow of economic activities. More importantly, Moshirian and Wu (2012) prove that there exists a negative relationship between bank volatility and future economic growth in developed markets and in emerging markets. Besides, Kim and Lin (2013) find that banking development contributes more to economic growth in low-income countries, and stock market development has more contribution to output growth in high-income or low-inflation countries. Moreover, Rabiul (2010) prove that banks and stock markets have positive and separate impacts on economic growth, so they are important to boost long-run growth in developing countries. However, we find the above relationship is unclear in all countries combined together and in countries are grouped based on income criteria. In the case of three subsamples based on geographic criteria, we find the negative effect of bank volatility on economic growth is very weak and marginally significant in South Asian and East Asian countries and Latin American countries. However, the result is robust in Sub-Saharan African countries.

In other studies show stock market-economic growth nexus. Wang and Ajit (2013) prove that stock market does not affect economic growth positively in China. This result agrees with the report of Harris (1997) for developing countries. Osamwonyi et al. (2013) find that there is no causal relationship between stock market development and economic growth in Ghana and Nigeria, but they have a bidirectional causal relationship when Granger Causality test procedure is used. This report is similar to Rahimzadeh (2012), who researches the Middle East and North Africa. In our study, we find this relationship is still mix.

Financial development indicators for each country including domestic credit to private sector, liquid liabilities, stock market capitalization are employed in our study. Based on the literature on financial development-economic growth nexus, we hope these indicators affect banking volatility-economic growth relationship. However, we find the impact of these indicators is sensitive in different samples.

Some studies prove country and institutional characteristics-economic growth connection.

The negative effects of inflation have been studied through a wide range of applied models of economic growth; it undermines the confidence of domestic and foreign investors as well as consumer in the future economic growth (Andrés & Hernando, 1999). Bruno and Easterly (1998) maintain that a high levels of inflation (the level at which the inflation rate exceeds the calculated threshold, estimated 40 percent yearly) would harm the economic growth, and conversely, low levels of inflation boost the economic growth. These variables are negatively correlated, especially in the long run (Andrés & Hernando, 1999). Futhermore, financial shock may cause very high inflation rates in the economies surveyed after that and high interest rates simultaneously. Moshirian and Wu (2012) also indicate that the effect of country-specific and banking institutional characteristics on bank-growth relationship is ambiguous. In our study, we find the effect of high levels of inflation on bank-growth nexus is almost positive, but the effect of low levels of inflation on this relationship is almost negative in most of samples.

Omoteso and Ishola Mobolaji (2014) prove that political stability and regulatory variables impact positively and significantly on economic growth in the separate region (Sub-saharan Africa). We find similar effect in the sample of South Asian and East Asian countries and in the sample of Latin American countries, but not in Sub-Saharan African countries.

The positive effects are also more powerful for the variables of voice and accountability and rule of law in the research of Omoteso and Ishola Mobolaji (2014). Conversely, we find these relationships are negative in three subsamples based on geographic criteria.

Government effectiveness has a negative impact on economic growth. Although there are anti-corruption strategies, the effect of corruption control on economic growth is unclear (Omoteso & Ishola Mobolaji, 2014). In our study, we find the impact of control of corruption is negative, but regulatory quality is positive in Sub-Saharan African countries. We also find that the interaction terms of bank volatility with government effectiveness, control of corruption, are negative in the sample of Latin American countries.

This paper is organized as follows. In the next section, we outline our data and research methodology. Results and discussion are discussed in the section four. Finally, section five concludes the paper.

3. Data and Research Methodology

3.1. Data

Our data sets comprise information based on income criteria and geographic criteria, including the full sample and the 5 subsamples. The full sample covers 21 countries while 5 subsamples comprise of 10 upper middle income countries, 11 low income and lower middle income countries, 8 Sub-Saharan African countries, 6 South Asian and East Asian countries, and 5 Latin American countries. The data used cover the period 2003 - 2014 on a quarterly basis. The sample period for each country is shown in Column 3 of Table 3. The selected economies' data are based on the available data on bank equity price, quarterly macroeconomic time series, and short term interest rates. Table 1 provides a summary of the variables calculated and their sources.

The primary variable is banking industry volatility. In this study, we use a detailed analysis which is a disaggregate approach based on the method of Campell et al. (2001) to calculate the banking volatility. This approach is carried out using the following steps. First of all, we calculate the portfolio of listed banks for each country collected from International Datastream sources. Concerning the available market price data, we have the maximum number of thirty listed banks for Indonesia, and the minimum of two listed banks for Mauritius and Uganda. Nevertheless, when collecting the available data for market capitalization, we have the maximum number of thirty listed banks for Indonesia and the minimum of one listed banks for the Philippines. In this case, the Philippines constitutes a complete data set of market price of nineteen banks, quarterly GDP series, and short-term interest rates. However, it has market

capitalization for one listed banks in the Datastream, so data are based on these indicators of individual banks. Since all 21 countries have mixed economies, we only collect data for available banks on domestic stock market. The banks operating in both domestic and international markets, but listed in international stock markets are excluded from our samples. Therefore, only a few banks can be representative of the whole market. Variables (interest rates, GDP series, and the market price index for each country) are also extracted from the Datastream. The sources of the data collected are diverse.

Secondly, this paper calculates the continuous stock return over R_f (risk-free-rate) when we measure the excess-return in weighted value on the portfolio of the bank in each country. This research collects Treasury-Bill rate in three months or Deposit-rate in three months depending on the available data in Datastream. We also use MC (Market-Capitalization) to estimate the weights. The Market-Capitalization of bank-j over the total Market-Capitalization of the banking field at the end of period (t-1) remains constant within period (t). It is used to build the weight of bank-j. Third of all, Excess-Return is calculate on the market index for each country. In the next stage, we get the beta for each country when regressing the quarterly bank excess return against the quarterly market excess return, beta is assumed to vary in the long run, but to be constant over the sample period. Nonetheless, this study analyzes a large number of economies. It makes more sense to simplify them for our assumption and run the same model for different economies in the most consistent way.

After taking all the above steps, we have a complete data set of 21 economies. We divide the full sample into the five subsamples. We follow the threshold levels of GNI per capita calculated by the World Bank in 2012 to collect data for low-income countries, lower middle income countries, and upper middle income countries.

In the third step, we calculate quarterly bank volatility (VOL_{it}) by using monthly frequency data¹, which is documented as follows:

$$VOL_{it} = Var(R_{it}) = \beta_{im}^2 Var(R_{mit}) + \hat{\sigma}_{it}^2$$

where:

$$Var(R_{mit}) = \sum_{\mu \in t} (R_{mi\mu} - M_{mit})^2$$

$$\hat{\sigma}_{it}^2 = \sum_{\mu \in t} (R_{i\mu} - \beta_{im} R_{mi\mu})^2$$

$R_{mi\mu}$ is the monthly excess market return in market i. M_{mit} is the moving average monthly excess market return for country i over period t (in this case t is quarter). β_{im} is the beta of the banking industry which proxies for the market in economy i.

$R_{i\mu}$ is the monthly excess-return of the banking industry in weighted value in the market-i. The value of $R_{i\mu}$ is taken by deducting the monthly risk-free rate, which is obtained by dividing the annualized short term interest rate by 12 months. As a result, we have the excess-return for each month. Following the method of Cole et al. (2008), most variables are estimated, including continuous economic growth rate (dependent variable); lagged market Excess-Return (controlled variable); characteristics of each country (six governance indicators); low levels of inflation; high levels of inflation; indicators of financial development, which are Domestic Credit to private sector, Liquid Liabilities, and Stock-Market-Capitalization to GDP. The indicators representing characteristics of each country relate to economic growth or the efficiency of the economy in a long stage. These indicators respect the difference of the cross section in banking institutional framework of each sample. Next, we estimate the effect of this differences in the institutional framework on the relationship between banking industry volatility and economic growth.

¹ Our estimation is different from Moshirian and Wu (2012) who use weekly frequency data.

- The dependent variable is GDP growth rate. It is calculated by taking logarithm of the ratio of GDP at period t and GDP at period $t-1$ at constant prices ($\text{Growth} = \text{LOG}(\text{GDP}_t / \text{GDP}_{t-1})$).

- The control variable is lagged market excess return. It is defined as the excess return on the market index in country- i , and is estimated by taking logarithm of the ratio of market price index at the end of period t and market price index at period $t-1$ of country i (t is in quarter), then minus the risk-free rate (R_f), which is Treasury-Bill rate in three months or deposit-rate in three months ($R_m = R_{mit} = \log(P_{mit}/P_{mi(t-1)}) - R_{f_{it}}$).

Eight country characteristic indicators:

Six Worldwide Governance Indicators (WGI): they are a dataset covering some quality indicators representing the health of Government in one country all over the world. They range in units from around -2.5 to 2.5, with higher values corresponding to better governance outcomes (Kaufmann, 2013).

Voice and Accountability: "The variable measures the degree to which their citizens may present in election for authorities in one country, freedom of voice, and free media".

Political Stability and Absence of Violence: "The variable measures perceptions of the likelihood that the government will be destabilized by unconstitutional or violent means, including politically motivated violence and terrorism".

Government Effectiveness: "The variable measures the public quality in serving its citizens, and the extent of its independence, the policy quality, and the commitment of authorities to make their policy occur in the real life. The more effectiveness, the less vulnerability of financial sector".

Regulatory Quality: "The variable measures the ability of authorities to make the regulations feasible and improve the private sector".

Rule of Law: "The variable measures the degree to which government make the quality of policy, courts, crime laws, violence, enforcement of contract, and property rights feasible".

Control of Corruption: "The variable measures the degree to which authorities exercise their power over the public".

- Inflation (1) is the dummy variable, taking on the value of one when the value of inflation is smaller than the sample group (all countries) median, and the value of zero otherwise.

- Inflation (2) is the dummy variable, taking on the value of one if inflation is greater than the sample group (all countries) median, and the value of zero otherwise.

Three financial development indicators

- Domestic-Credit to private sector is defined as financial resources mostly of corporations, which are provided to the private sector in the forms of loans, non-equity securities.

- The ratio of Liquid-Liabilities of the financial system to GDP. The total value of currency and deposit in the central bank plus deposits and electronic currency, then plus time and savings deposit and other deposit for transferable foreign currency, certificates as well as securities repurchase agreements. Next is the addition of checks for travelers, paper for trades, time deposits for foreign currency, and share of funds for the market.

- The ratio of Stock-Market-Capitalization to GDP equals the total value of all listed shares in a stock market as a percentage of GDP.

With the purpose of prolonging the time-series information in this research, this study handles yearly data using the overlapping method with observations in quarter. Lagged bank excess return (R_b) is computed for comparison with lagged bank volatility (Vol) and lagged market excess return (R_m). The descriptive statistics and correlation matrices are presented in Table 2.

Table 1: Summary information about variables measured

Variable	Definition	Expected sign	Data sources
Growth	GDP Growth rate		Datastream International
Rm	Lagged market excess return	Ambiguous	Datastream International
Vol	Lagged bank volatility	Negative	Datastream International
Indicators of country characteristics			
Voice	Voice and accountability	Ambiguous	WGI Annually
Political	Political stability and Absence of violence	Positive	WGI Annually
Gov	Government effectiveness	Ambiguous	WGI Annually
Regu_qua	Regulatory quality	Positive	WGI Annually
Rule	Rule of law	Positive	WGI Annually
Controlcur	Control of corruption	Positive	WGI Annually
Infla1	Inflation 1	Positive	World Bank Annually
Infla2	Inflation 2	Negative	World Bank Annually
Indicators of financial development			
Credit	Private credit	Positive	World Bank Annually
Liquid	Liquid liabilities	Positive	World Bank Annually
Stock_cap	Stock market capitalization to GDP	Positive	World Bank Annually

Table 2: Summary of descriptive statistics of primary variables

	All economies				Upper middle income				Low and Lower middle income			
	growth	Rm	Rb	Vol	Growth	rm	Rb	vol	growth	rm	rb	vol
Descriptive statistics												
Mean	0.007	7.349	7.450	0.032	0.007	7.228	7.489	0.046	0.006	7.499	7.402	0.014
Std. Dev	0.025	5.482	5.669	0.143	0.026	5.944	6.164	0.188	0.023	4.855	4.970	0.045
Min	-0.201	37.06	48.85	0.00	-0.2	37.06	48.85	0.00	-0.07	25.83	25.77	0.00
Max	0.126	0.138	1.150	1.978	0.120	0.138	1.150	1.978	0.126	0.107	0.149	0.634
Obs	696	779	766	779	398	431	431	431	298	348	335	348
Correlations												
Growth	1				1				1			
Rm	-0.018	1			-0.024	1			-0.008	1		
Rb	-0.006	0.931	1		-0.003	0.901	1		-0.011	0.994	1	
Vol	-0.015	0.064	0.129	1	-0.016	0.098	0.143	1	-0.036	0.151	0.135	1

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	Africa				South Asia & East Asia				Latin America			
	growth	rm	rb	Vol	growth	rm	Rb	vol	growth	Rm	rb	vol
Descriptive statistics												
Mean	0.007	8.119	8.056	0.017	0.006	6.455	6.296	0.010	0.007	8.691	9.305	0.074
Std. Dev	0.027	4.710	4.919	0.061	0.023	3.765	3.759	0.023	0.020	6.054	6.287	0.248
Min	-0.087	25.83	25.77	0.00	-0.07	18.77	18.74	0.00	-0.04	25.46	48.85	0.00
Max	0.104	0.725	0.000	0.634	0.126	0.020	0.053	0.226	0.074	0.138	1.150	1.978
Obs	189	218	206	218	188	225	224	225	230	235	235	235
Correlations												
growth	1				1				1			
Rm	0.003	1			-0.032	1			-0.006	1		
Rb	0.031	0.984	1		-0.038	0.985	1		0.012	0.843	1	
Vol	-0.040	0.115	0.109	1	-0.019	0.219	0.153	1	-0.024	0.198	0.115	1

Table 3: Country specifics

Economy	Region	Sample period	Interest rate(Year)		Year	No.of banks
			Median	Max		
Upper middle income economies						
Argentina	Latin America	Q2/2003 - Q4/2014	10.20	22.26	2014	6
Botswana	Sub-Saharan Africa	Q2/2009 - Q4/2014	4.76	12.41	2003	3
Brazil	Latin America	Q2/2003 - Q4/2014	11.60	22.11	2003	21
Chile	Latin America	Q2/2003 - Q4/2014	6.04	6.95	2008	7
Malaysia	East Asia	Q2/2003 - Q4/2014	2.95	3.60	2006	10
Mauritius	Sub-Saharan Africa	Q4/2008 - Q4/2014	5.43	10.95	2007	2
Peru	Latin America	Q2/2003 - Q4/2014	0.43	2.91	2008	8
South Africa	Sub-Saharan Africa	Q2/2003 - Q4/2014	7.15	10.85	2008	8
Turkey	Europe&Central Asia	Q2/2003 - Q4/2014	19.02	37.68	2003	17
Venezuela	Latin America	Q2/2003 - Q4/2014	12.51	15.00	2008	10
Low income economies						
Kenya	Sub-Saharan Africa	Q1/2004 - Q4/2014	7.54	12.58	2012	8
Uganda	Sub-Saharan Africa	Q1/2007 - Q4/2013	11.51	16.04	2003	2

Lower middle income economies

Ghana	Sub-Saharan Africa	Q2/2011 - Q4/2014	16.96	27.25	2003	7
Indonesia	East Asia	Q2/2003 - Q3/2014	8.61	11.80	2006	30
Morocco	Middle East	Q2/2003 - Q4/2014	5.38	9.50	2009	6
Nigeria	Sub-Saharan Africa	Q1/2010 - Q4/2014	9.85	14.79	2003	15
Pakistan	South Asia	Q2/2003 - Q2/2008	9.61	13.12	2011	19
Philippines	East Asia	Q2/2005 - Q2/2014	5.08	9.77	2004	1
Sri lanka	South Asia	Q2/2003 - Q4/2014	10.02	18.60	2008	13
Viet nam	East Asia	Q2/2007 - Q4/2013	6.64	12.35	2011	7
Zambia	Sub-Saharan Africa	Q1/2011 - Q4/2014	12.28	29.97	2003	3

Table 2 shows that the mean of GDP growth rates for the six samples ranges around 0.7% with the smallest range, whereas the mean of banking industry volatilities is positive and higher than the previous one with a larger range. In contrast, the mean of market excess returns and the mean of bank excess returns are negative and fluctuate widely among the samples of all economies. They have the largest range in general. Notably, the simple correlations between GDP growth rates and banking volatilities are negative in all samples.

3.2. Research Methodology

We apply the generalized method of moments (GMM) econometric techniques developed for dynamic panel data. Based on the method suggested by Cole et al. (2008), Campello et al. (2010), Cornett et al. (2010), Moshirian and Wu (2012), and Arellano and Bover (1995), we examine a fixed-effect dynamic model for the full sample and five subsamples at the beginning:

$$Y_{it} = \alpha_i + \lambda Y_{i(t-1)} + \beta' X_{i(t-1)} + n_i + \varepsilon_{it} \quad (1)$$

In which i and t are used to indicate country and time period. Y_{it} is the GDP growth rate for the selected samples at the time t . $Y_{i(t-1)}$ is the lagged value of the dependent variable. X is the vector of explanatory variables containing lots of variables, such as banking industry volatility (VOL_{it}), lagged market excess_return (R_m), and the interaction terms between banking industry volatility and the variables of financial development and country-specific characteristics. n_i is the unobserved specific effect for country i , and ε_{it} is an error term.

We use these interaction terms to examine the effects of country characteristic, and financial development on economic growth. In the process of applying GMM, we eliminate the group effects from the fixed-effect model by employing one simple technique, which is taking the first difference. Consequently, we have:

$$Y_{it} - Y_{i(t-1)} = \lambda(Y_{i(t-1)} - Y_{i(t-2)}) + \beta'(X_{i(t-1)} - X_{i(t-2)}) + (\varepsilon_{it} - \varepsilon_{i(t-1)}) \quad (2)$$

We rewrite this equation as:

$$\Delta y_{it} = \lambda \Delta y_{i(t-1)} + \beta' \Delta x_{i(t-1)} + v_{it} \quad (3)$$

The endogeneity in the above model causes serious problems (e.g., the results calculated are inconsistent and biased, or the link exists between the lagged dependent variable and the error terms). To handle these problems, we use proper instrument variables as suggested by Arellano and Bond (1991), who documented that “instruments are lagged values of explanatory-variables in the regression at the original level.” We also give out the assumption that the link between disturbances in the time-varying setting does not exist.

ε_{it} , $E(\varepsilon_{it} \varepsilon_{is}) = 0$, for $i = 1, \dots, N$ and $\forall t \neq s$; and the initial conditions Y_{i1} is not correlated with future realizations of the error term, $E(Y_{i1} v_{it}) = 0$, for $i = 1, \dots, N$ and $t = 2, \dots, T$, we can use the following $m = 0.5(T-1)(T-2)$ moment conditions for the autoregressive parameter:

$$E[Y_{i(t-s)} v_{it}] = 0 \text{ for } s \geq 2; t \in [3, T] \quad (4)$$

$$E[X_{i(t-s)} v_{it}] = 0 \text{ for } s \geq 2; t \in [3, T] \quad (5)$$

The generalized method of moments (GMM) estimators could be given by:

$$\hat{\theta} = \left[\left(\sum_i w_i' z_i' \right) A_N \left(\sum_i z_i' w_i \right) \right]^{-1} \left(\sum_i w_i' z_i' \right) A_N \left(\sum_i z_i' y_i \right) \quad (6)$$

In the above equation, W_i is the $(T-2) \times q$ (q is the number of regressors) matrix, Z_i is the $(T-2) \times m$ matrix, A_N is the weighting matrix, and y_i is the $(T-2)$ vector. Here, the choices of A_N give rise to a set of GMM estimators based on the moment conditions. The difference GMM is called original estimator. However, this first-differenced estimator is less suitable when reducing the sample length, surveying a huge amount of information on the levels of the variables, and on the indirect-link among the levels and the first differences. Thus, we will do an inefficient calculation (Ahn & Schmidt, 1995). The system GMM will have lower bias and highly precise results in a finite sample, so it is introduced by Arellano and Bover (1995) to handle the above problems. In the system GMM, the original level is linked to the first-differenced regressions. In the specific way, the instruments in the level regressions are the lagged first-differences variables, and the lagged level variables are manipulated as instruments in the first differenced regressions. Hence, we will get the original level regressions, and then we have the additional moment conditions as follows:

$$E[\Delta y_{i(t-1)} (\alpha_i + \varepsilon_{it})] = 0 \quad (7)$$

$$E[\Delta x_{i(t-1)} (\alpha_i + \varepsilon_{it})] = 0 \quad (8)$$

In our study, there are two main techniques employed for the panel data: the first-differenced GMM (GMM(DIF)), and system GMM (GMM(SYS)). The GMM techniques provide consistent estimators, so they have lots of advantages over others in estimating the dynamic panel data. The data of this research comprise 21 economies. The shortest time-series observation has 11 quarters, and the longest one has 47 quarters. Hence, we use the commands of David Roodman (2013) to run the difference GMM and system GMM. The estimated results of both GMM(SYS) and GMM(DIF) are reported below.

The main objective of this study is to examine whether there exists a relationship between banking industry volatility and economic growth. More importantly, this paper examines which factors influencing this link. We address these issues by looking at the significance of the coefficients of relevant variables rather than the scales of relevant coefficients.

In the first stage, we employ GMM-Dif and GMM-Sys estimations for the full sample of 21 countries. In the second stage, we repeat estimations of each of the two methods using 10 upper middle income countries and 11 low income and lower middle income countries. In the next step, we repeat estimations of each of the two methods using 8 Sub-Saharan African countries, 6 South Asian and East Asian countries, and 5 Latin American countries.

4. Results and Discussion

We examine the effect of banking industry volatility on economic growth, and then test influence of country characteristics and financial development on this link. To observe this effect, we interact banking industry volatility with these country characteristics and financial development. We look at the signs of the coefficients of these interaction terms to identify whether these variables strengthen or weaken the impact of banking industry volatility on economic growth.

Table 4a: Dynamic panel GMM (DIF) estimation results for the full sample of 21 economies

	1	2	3	4	5	6
Lag	-0.203*** (-5.12)	-0.189*** (-4.42)	-0.191*** (-4.54)	-0.196*** (-3.62)	-0.193*** (-6.47)	-0.206*** (-4.89)
Vol	-0.095 (-1.44)	-0.257 (-1.53)	-0.101 (-0.59)	-0.26 (-0.69)	-0.177 (-0.86)	-0.177 (-1.10)
Rm	0.0002 (-0.21)	0.0003 (-0.08)	-0.0008 (-0.23)	-0.0001 (-0.03)	0.005 (-0.44)	-0.00002 (-0.01)
Vol*voice		-0.425 (-0.92)				
Vol*political			-0.032 (-0.19)			
Vol*gov				-0.236 (-0.40)		
Vol*regu_qua					-0.276 (-0.44)	
Vol*rule						-0.082 (-0.56)
N	626	560	558	560	560	560
	7	8	9	10	11	12
Lag	-0.195*** (-4.24)	-0.230*** (-5.22)	-0.225*** (-6.60)	-0.197*** (-4.07)	-0.192*** (-4.96)	-0.237*** (-4.24)
Vol	-0.355 (-1.40)	-0.034 (-0.12)	-0.06 (-0.57)	-0.013 (-0.03)	0.004 (-0.01)	-0.144 (-1.13)
Rm	-0.001 (-0.86)	-0.001 (-0.51)	0.003* (-1.92)	-0.001 (-1.40)	0.0004 (-0.1)	0.001 (-0.37)
Vol*controlcur	-0.227 (-0.94)					
Vol*infla1		-0.104 (-0.41)				
Vol*infla2			0.122 (-0.55)			
Vol*credit				-0.004 (-0.25)		
Vol*liquid					-0.003 (-0.33)	
Vol*stock_cap						-0.0005 (-0.15)
N	560	584	626	518	539	410

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 4b: Dynamic panel GMM (SYS) estimation results for full sample of 21 economies

	1	2	3	4	5	6
lag	0.284*** (-4.91)	0.268*** (-6.64)	0.330*** (-5.61)	0.265*** (-3.84)	0.292*** (-3.85)	0.291*** (-4.07)
Vol	0.158 (-1.58)	0.154 (-0.87)	0.182 (-0.23)	-0.346 (-0.91)	0.191 (-0.54)	0.129 (-0.33)
Rm	-0.003 (-0.45)	-0.003 (-0.88)	-0.002 (-0.28)	-0.009 (-0.89)	-0.003 (-0.27)	-0.003 (-0.34)
Vol*voice		-0.033 (-0.07)				
Vol*political			-0.055 (-0.06)			
Vol*gov				-0.241 (-0.72)		
Vol*regu_qua					0.221 (-0.3)	
Vol*rule						-0.025 (-0.07)
cons	-0.0483 (-0.55)	-0.047* (-1.71)	-0.032 (-0.36)	-0.076 (-0.79)	-0.042 (-0.33)	-0.04 (-0.43)
N	605	581	577	560	539	539
	7	8	9	10	11	12
lag	0.265*** (-8.09)	0.314*** (-3.85)	0.294*** (-3.87)	0.105 (-0.77)	0.337*** (-5.67)	0.289*** (-8.7)
Vol	-0.013 (-0.05)	-0.004 (-0.07)	0.147 (-1.3)	-0.319 (-0.73)	-0.709 (-0.80)	-0.134 (-0.29)
Rm	-0.003 (-0.35)	-0.003 (-0.45)	-0.003 (-0.37)	-0.003 (-0.41)	-0.0003 (-0.05)	0.001 (-0.18)
Vol*controlcur	-0.174 (-0.66)					
Vol*infla1		0.162** (-2.47)				
Vol*infla2			0.0461 (-0.08)			
Vol*credit				0.02 (-1.09)		
Vol*liquid					0.019 (-0.91)	
Vol*stock_cap						0.006 (-0.41)
cons	-0.044 (-0.43)	-0.049 (-0.52)	-0.044 (-0.47)	-0.058 (-0.61)	-0.018 (-0.26)	0.002 (-0.03)
N	581	626	605	539	559	439

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 5a: Dynamic panel GMM (DIF) estimation results for both subsamples

	1	2	3	4	5	6
Low income and lower middle income economies						
lag	-0.208*** (-6.25)	-0.255* (-1.90)	-0.210*** (-5.49)	-0.13 (-0.69)	-0.292*** (-3.12)	-0.300*** (-3.77)
Vol	-0.028 (-0.21)	-0.08 (-0.07)	0.213 (-0.08)	-0.031 (-0.07)	-0.092 (-0.21)	-2.034 (-0.73)
Rm	-0.003 (-0.82)	0.002 (-0.59)	0.002 (-0.09)	-0.002 (-0.36)	-0.001 (-0.51)	0.003 (-1.18)
Vol*voice		-0.097 (-0.07)				
Vol*political			-0.151 (-0.08)			
Vol*gov				-0.043 (-0.07)		
Vol*regu_qua					-0.116 (-0.19)	
Vol*rule						-2.178 (-0.73)
N	265	238	238	238	216	216
	7	8	9	10	11	12
lag	-0.279* (-1.85)	-0.250*** (-6.45)	-0.250*** (-7.56)	-0.19 (-0.66)	-0.237*** (-2.91)	-0.276*** (-20.33)
Vol	-0.469 (-0.28)	-1.099 (-1.23)	-0.435 (-0.13)	-0.542 (-0.64)	-0.441 (-0.39)	-0.009 (-0.03)
Rm	0.01 (-0.61)	-0.002 (-0.28)	-0.0001 (-0.02)	-0.0005 (-0.10)	-0.002 (-1.14)	-0.001 (-0.20)
Vol*controlcur	-0.487 (-0.30)					
Vol*infla1		0.867 (-1.17)				
Vol*infla2			0.428 (-0.13)			
Vol*credit				0.031 (-0.63)		
Vol*liquid					0.01 (-0.36)	
Vol*stock_cap						-0.0002 (-0.01)
N	238	243	243	238	217	154

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 5b: Dynamic panel GMM (DIF) estimation results for both subsamples

	1	2	3	4	5	6
Upper middle income economies						
lag	-0.049 (-1.15)	-0.052 (-1.31)	-0.112 (-1.30)	-0.061* (-1.70)	-0.021 (-0.49)	-0.52 (-1.23)
Vol	-0.084 (-0.53)	-0.233 (-1.52)	-0.164 (-1.56)	-0.125 (-0.52)	-0.093 (-0.54)	-0.448* (-1.65)
Rm	-0.001 (-1.35)	-0.004 (-0.55)	-0.001 (-0.52)	-0.001 (-0.40)	-0.002 (-0.67)	0.003 (.)
Vol*voice		-0.381 (-0.78)				
Vol*political			0.027 (-0.23)			
Vol*gov				0.015 (-0.03)		
Vol*regu_qua					0.144 (-0.19)	
Vol*rule						-0.315 (-1.21)
N	341	302	320	322	312	312
	7	8	9	10	11	12
lag	-0.045 (-1.18)	-0.041 (-0.86)	-0.033 (-0.49)	-0.045 (-1.18)	-0.045 (-1.19)	-0.056* (-1.73)
Vol	-0.352 (-1.33)	-0.224 (-0.53)	-0.248 (-0.58)	-0.126 (-0.56)	-0.242 (-1.34)	-0.189 (-1.37)
Rm	-0.004 (-0.79)	-0.003 (-0.43)	-0.001 (-0.42)	-0.003 (-0.84)	-0.003 (-0.93)	0.0002 -0.13
Vol*controlcur	-0.209 (-0.81)					
Vol*infla1		0.096 (-0.23)				
Vol*infla2			0.033 (-0.08)			
Vol*credit				-0.001 (-0.08)		
Vol*liquid					0.002 (-0.56)	
Vol*stock_cap						0.001 (-0.25)
N	302	361	361	302	302	282

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 6a: Dynamic panel GMM (SYS) estimation results for both subsample

	1	2	3	4	5	6
Low income and lower middle income economies						
lag	0.286* (-1.7)	0.165 (-1.21)	0.286 (-0.96)	0.175 (-1.15)	0.165 (-1)	0.181 (-1.19)
Vol	-0.043 (-0.14)	-0.653 (-0.19)	-7.554 (-0.44)	-5.395 (-0.60)	-0.843 (-0.65)	-0.049 (-0.00)
Rm	-0.011 (-0.78)	-0.007 (-0.68)	-0.0004 (.)	-0.008 (-0.69)	-0.009 (-0.75)	-0.008 (-0.67)
Vol*voice		-0.663 (-0.17)				
Vol*political			5.837 (-0.45)			
Vol*gov				-6.62 (-0.60)		
Vol*regu_qua					-1.008 (-0.59)	
Vol*rule						0.016 (0)
cons	-0.119 (-0.71)	-0.105 (-0.80)	0.02 (-0.16)	-0.081 (-0.68)	-0.119 (-0.80)	-0.094 (-0.67)
N	254	249	249	249	227	249
	7	8	9	10	11	12
lag	0.186 (-1.22)	-0.041 (-0.17)	0.056 (-0.31)	0.152** (-1.97)	0.167** (-2.07)	0.185*** (-2.62)
Vol	-7.247 (-0.73)	10.48 (-1.4)	2.246 (-0.96)	-15.62 (-0.91)	-20.07 (-0.82)	-0.226 (-0.27)
Rm	-0.008 (-0.74)	-0.003 (-0.22)	0.004 (-0.13)	-0.03 (-1.20)	-0.004 (-0.31)	-0.01 (-0.99)
Vol*controlcur	-6.943 (-0.74)					
Vol*infla1		-8.344 (-1.44)				
Vol*infla2			10.17 (-1.37)			
Vol*credit				0.776 (-0.92)		
Vol*liquid					0.533 (-0.82)	
Vol*stock_cap						0.006 (-0.17)
cons	-0.083 (-0.70)	-0.207 (-1.17)	-0.152 (-0.95)	-0.477 (-1.13)	-0.148 (-0.79)	-0.1 (-0.93)
N	249	276	276	249	207	189

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 6b: Dynamic panel GMM (SYS) estimation results for both subsamples

	1	2	3	4	5	6
Upper middle income economies						
lag	0.204 (-0.82)	-0.092 (.)	0.257 (-0.84)	0.07 (-0.41)	0.298*** (-3.07)	0.272** (-2.46)
Vol	-0.05 (-0.62)	2.232 (-1.37)	-2.638 (-0.82)	0.599 (-0.38)	0.396 (-0.52)	-0.048 (-0.11)
Rm	0.006 (-1.5)	0.008* (-1.68)	0.006 (-1.46)	0.005 (-1.31)	0.004 (-0.69)	0.006 (-1.02)
Vol*voice		6.869 (-1.11)				
Vol*political			2.806 (-0.94)			
Vol*gov				0.706 (-0.31)		
Vol*regu_qua					1.218 (-0.52)	
Vol*rule						-0.108 (-0.37)
cons	0.076 (-1.39)	0.05 (-0.74)	0.14 (-1.03)	0.05 (-0.71)	0.045 (-0.56)	0.074 (-0.94)
N	371	312	312	332	312	312
	7	8	9	10	11	12
lag	0.162 (-0.54)	-0.2 (-0.36)	0.234 (-1.07)	0.396 (.)	0.252* (-1.69)	-0.041 (-0.05)
Vol	-0.007 (-0.01)	-0.098 (-1.49)	-0.003 (-0.02)	-4.83 (-0.77)	-5.77 (-0.87)	-0.4 (-0.17)
Rm	0.007 (-0.91)	0.00 (-1.14)	-0.004 (-0.26)	0.015 (-1.31)	0.017 (-1.44)	0.011 (-0.97)
Vol*controlcur	-0.095 (-0.09)					
Vol*infla1		0.331 (-1.44)				
Vol*infla2			-13.76 (-0.62)			
Vol*credit				0.174 (-0.8)		
Vol*liquid					0.126 (-0.88)	
Vol*stock_cap						0.012 (-0.19)
cons	0.078 (-0.98)	0.075 (-1.01)	0.084 (-1.15)	0.103 (-1.5)	0.15 (-1.54)	0.125 (-1.03)
N	322	361	371	322	322	272

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 7a: Dynamic panel GMM (DIF) estimation results for three subsamples

	1	2	3	4	5	6
Africa						
lagG	-0.014 (-0.19)	-0.017 (-0.22)	-0.5* (-1.76)	-0.3 (-1.26)	-0.281 (-0.81)	-0.52 (-1.39)
vol	-0.023 (-0.43)	-0.299 (-0.99)	0.32 (-0.27)	-1.241 (-0.33)	-1.695** (-2.03)	-11.8* (-1.90)
rm	-0.002 (-0.81)	0.003 (-0.54)	0.014 (-1.6)	0.005 (-0.95)	0.037* (-1.93)	0.06* (-1.75)
Vol*voice		-0.379 (-0.96)				
Vol*political			-0.273 (-0.30)			
Vol*gov				-0.96 (-0.33)		
Vol*regu_qua					2.310** (-2.04)	
Volrule						-7.544 (-1.36)
N	165	139	139	139	123	131
	7	8	9	10	11	12
lagG	1.148 (-0.7)	-1.601 (-0.42)	-1.646 (-0.39)	-0.325 (-0.98)	-0.106 (-0.22)	-0.078 (-0.24)
vol	-14.83 (-0.94)	5.15 (-0.47)	-0.055 (-0.16)	-0.001 (-0.01)	-4.274 (-1.51)	-1.914 (-1.19)
rm	-0.457 (-0.81)	-0.003 (-0.13)	-0.003 (-0.13)	0.001 (-0.05)	-0.027 (-1.22)	0.011 (-1.33)
Vol*controlcur	-13.56 (-0.94)					
Vol*infla1		-5.209 (-0.47)				
Vol*infla2			5.207 (-0.44)			
Vol*credit				0.0002 (-0.08)		
Vol*liquid					0.08 (-1.52)	
Vol*stock_cap						0.111 (-1.19)
N	123	157	157	131	111	91

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 7b: Dynamic panel GMM (DIF) estimation results for three subsamples

	1	2	3	4	5	6
South Asia and East Asia						
lag	-0.229*** (-3.38)	-0.24 (-1.32)	-0.252*** (-5.15)	-0.218*** (-6.95)	-0.242*** (-14.47)	-0.0579** (-2.79)
Vol	-0.923 (-0.53)	-0.016 (-0.00)	-1.284 (-0.56)	-9.356 (-0.57)	-0.434 (-0.16)	-2.03 (-0.34)
Rm	-0.037 (-0.92)	-0.009 (-0.42)	-0.002 (-0.06)	-0.01 (-0.68)	0.014 (-0.71)	-0.025 (-0.40)
Vol*voice		-4.136 (-0.28)				
Vol*political			2.029 (-0.85)			
Vol*gov				-15.54 (-0.66)		
Vol*regu_qua					-0.894 (-0.51)	
Vol*rule						-2.703 (-0.42)
N	158	145	151	157	157	145
	7	8	9	10	11	12
lag	-0.226*** (-4.39)	-0.276*** (-12.37)	-0.183 (-1.40)	-0.264*** (-2.84)	-0.339** (-2.14)	-0.236*** (-16.85)
Vol	-15.71*** (-4.59)	-2.343 (-0.48)	-0.178 (-0.23)	4.108 (-0.15)	-7.229 (-0.46)	-4.726 (-0.84)
Rm	-0.012 (-0.48)	0.005 (-0.96)	-0.044 (-0.64)	-0.002 (-0.06)	-0.07 (-0.62)	-0.004 (-0.28)
Vol*controlcur	-15.80*** (-3.77)					
Vol*infla1		-60.2 (-1.32)				
Vol*infla2			0.317 (-0.11)			
Vol*credit				-0.06 (-0.13)		
Vol*liquid					0.102 (-0.46)	
Vol*stock_cap						0.171 (-0.88)
N	151	164	170	145	157	115

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%

Table 7c: Dynamic panel GMM (DIF) estimation results for three subsamples

	1	2	3	4	5	6
Latin America						
lag	-0.806 (-1.31)	-1.335 (-1.55)	-1.309* (-1.67)	-2.061 (-1.52)	-1.337 (-1.62)	-0.661 (-1.10)
Vol	-0.067 (-1.33)	-3.613 (-1.09)	-1.207 (-0.77)	-135.2 (-1.35)	-1.425 (-0.84)	-0.231 (-0.28)
Rm	0.059 (.)	-0.033 (.)	-0.05 (.)	-0.005 (-0.07)	0.011 -0.12	0.012 (.)
Vol*voice		-11.49 (-1.09)				
Vol*political			1.044 (-0.69)			
Vol*gov				-232.7 (-1.33)		
Vol*regu_qua					-5.636 (-0.76)	
Vol*rule						0.24 (-0.19)
N	210	196	194	196	186	186
	7	8	9	10	11	12
lag	-1.296 (-1.47)	-1.463* (-1.90)	-1.319* (-1.94)	-1.217 (-1.49)	-1.341* (-1.90)	-0.636 (-1.07)
Vol	-2.949 (-1.11)	-0.558 (.)	-0.078 (-0.72)	-9.705 (-0.45)	-11.99 (-0.42)	-3.568 (-1.18)
Rm	-0.385 (-1.64)	-0.094 (-0.49)	-0.11 (-0.26)	-0.13 (-0.76)	-0.034 (-0.82)	-0.018 (-0.75)
Vol*controlcur	-2.017 (-0.82)					
Vol*infla1		-4.62 (-0.63)				
Vol*infla2			-7.07 (-0.07)			
Vol*credit				0.363 (-0.44)		
Vol*liquid					0.278 (-0.42)	
Vol*stock_cap						0.083 (-1.16)
N	186	205	215	196	196	166

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 8a: Dynamic panel GMM (SYS) estimation results for three subsamples

	1	2	3	4	5	6
Africa						
Lag	-2.128 (-1.28)	0.056 (-0.72)	0.043 (-0.09)	-0.988* (-1.78)	-0.002 (-0.00)	-0.124 (-0.28)
Vol	-0.029 (-0.40)	-0.349 (-1.17)	2.95 (-0.67)	-0.198 (-1.49)	2.925 (-0.77)	-9.559 (-1.00)
Rm	0.001 (-0.39)	0.0005 (-0.15)	0.0005 (-0.25)	0.002 (-0.61)	0.003* (-1.81)	-0.002 (-0.40)
Vol*voice		-0.354 (-0.94)				
Vol*political			-2.22 (-0.64)			
Vol*gov				0.075 (-0.35)		
Vol*regu_qua					3.021 (-0.63)	
Vol*rule						-7.084 (-1.00)
cons	0.06 (-0.93)	0.016 (-0.53)	-0.017 (-0.67)	0.04 (-1.01)	-0.005 (-0.25)	0.119 (-1.06)
N	173	147	147	147	147	139
	7	8	9	10	11	12
lagG	-0.059 (-0.25)	-2.113*** (-3.39)	-1.355 (.)	0.221 (-0.79)	0.827 (-0.44)	0.037 (-0.08)
vol	-14.44** (-2.11)	-5.663*** (-2.63)	-14.65*** (-2.69)	-2.549 (-0.65)	-34.48* (-1.88)	-0.356 (-0.38)
Rm	0.003 (-1.05)	-0.008* (-1.70)	0.003 (-1.04)	-0.003 (-0.28)	-0.022 (-0.73)	0.001 (-0.28)
Vol*controlcur	-13.39** (-2.12)					
Vol*infla1		4.541** (-2.39)				
Vol*infla2			14.55*** (-2.69)			
Vol*credit				0.075 (-0.59)		
Vol*liquid					0.797* (-1.75)	
Vol*stock_cap						-0.086 (-0.78)
Cons	0.117* (-1.69)	0.037 (-1.39)	0.207** (-2.53)	-0.026 (-0.29)	-0.293 (-0.75)	0.08 (-0.6)
N	131	173	173	131	125	99

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 8b: Dynamic panel GMM (SYS) estimation results for three subsamples

	1	2	3	4	5	6
South Asia and East Asia						
lag	-0.688 (-0.42)	-1.119 (-0.71)	0.036 (-0.25)	0.333** (-2.16)	0.345** (-2.09)	-1.695* (-1.76)
Vol	-4.864 (-0.33)	-28.54 (-0.74)	200.2 (-1.06)	-53.97 (-1.31)	-60.47 (-1.17)	-40.84 (.)
Rm	-0.104 (-0.87)	-0.08 (-1.22)	-0.074 (-1.09)	-0.055*** (-3.20)	-0.033* (-1.74)	-0.131 (.)
Vol*voice		-41.3 (-0.96)				
Vol*political			-223.2 (-1.15)			
Vol*gov				-52.58 (-1.35)		
Vol*regu_qua					-43.65 (-1.21)	
Vol*rule						-43.81 (.)
cons	-0.978 (-0.99)	-0.919 (-1.43)	-1.332 (-1.01)	-0.099 (-0.35)	0.072 (-0.17)	-1.306 (.)
N	170	151	157	163	163	151
	7	8	9	10	11	12
lag	0.2 (-1.37)	-0.102 (-0.29)	-0.11 (-0.32)	-0.221 (-0.63)	0.651 (-0.67)	-0.367 (-0.49)
Vol	180.9 (-1.41)	36.98 (-1.56)	-1.549 (-0.11)	-2.852 (-0.42)	18.14 (-0.68)	-6.685 (-0.92)
Rm	0.048 (-0.93)	-0.002 (-0.06)	-0.001 (-0.04)	-0.05** (-2.23)	0.006 (-0.07)	-0.101 (-1.28)
Vol*controlcur	159.1 (-1.33)					
Vol*infla1		-38.57 (-1.26)				
Vol*infla2			39.97 (-1.32)			
Vol*credit				0.051 (-0.55)		
Vol*liquid					-0.07 (-0.18)	
Vol*stock_cap						0.179 (-0.9)
cons	-0.561* (-1.91)	-0.397 (-1.23)	-0.392 (-1.23)	-0.514** (-2.26)	-0.078 (-0.09)	-0.856 (-1.32)
N	157	164	164	157	157	111

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1%.

Table 8c: Dynamic panel GMM (SYS) estimation results for three subsamples

	1	2	3	4	5	6
Latin America						
lagG	-0.581 (-0.38)	0.258*** (-3.87)	-0.797 (-1.16)	-2.109 (-1.35)	-0.586 (-0.98)	-3.048 (-1.44)
vol	-5.944 (-0.34)	-0.178 (-0.99)	-4.118 (-0.82)	-72.47 (-0.65)	-3.163 (-1.52)	-75.79 (-1.54)
rm	0.07 (-0.67)	0.0137*** (-5.78)	0.032* (-1.9)	0.096 (-1.05)	0.037* (-1.88)	0.074 (-1.56)
Vol*voice		-0.592 (-0.98)				
Vol*political			4.563 (-0.8)			
Vol*gov				-119.3 (-0.62)		
Vol*regu_qua					-14.18 (-1.53)	
Vol*rule						-76.61 (-1.54)
cons	1.2 (-0.54)	0.170*** (-6.48)	0.521 (-1.6)	2.043 (-0.97)	0.419* (-1.85)	1.444 (-1.63)
N	215	196	194	201	191	196
	7	8	9	10	11	12
lagG	0.161 (-0.24)	0.364 (-0.21)	-1.164 (-0.85)	2.272 (-1.19)	-7.202 (-1.17)	-4.618 (-0.96)
vol	-3.451 (-0.62)	-0.244 (-0.69)	-9.85 (-0.75)	-16.47 (-1.09)	-46.03 (-1.15)	-18.18 (-0.90)
rm	0.017** (-2.08)	0.182 (-0.96)	0.118 (-1.08)	-0.222 (-0.97)	0.192 (-1.46)	0.124 (-1.07)
Vol*controlcur	-3.293 (-0.62)					
Vol*infla1		-12.89 (-0.80)				
Vol*infla2			22.23 (-0.68)			
Vol*credit				-0.195 (-1.13)		
Vol*liquid					1.098 (-1.16)	
Vol*stock_cap						0.516 (-0.9)
cons	0.240*** (-2.7)	2.414 (-0.96)	1.749 (-0.95)	-0.38 (-0.59)	2.156 (-1.43)	1.457 (-1.08)
N	196	215	215	196	196	176

t statistics in parentheses: * significant 10%, ** significant 5%, *** significant 1% .

Table 4a and Table 4b report the results for all 21 countries using GMM(DIF) and GMM(SYS), respectively. Tables 5a and Table 5b present the results for the subsample of low income and lower middle income countries and the subsample of upper middle income countries using GMM(DIF). While Table 6a and 6b present GMM(SYS) results for these samples, respectively. Tables 7a, 8a present the results for Sub-Saharan African countries, Tables 7b, 8b present the results for South Asian and East Asian countries, Tables 7c, 8c present the results for Latin American countries employing GMM(DIF) and GMM(SYS), respectively.

In each Table, Columns 1 shows the unclear relationships between bank volatility, market excess return and economic growth (not statistically significant) in the full sample and in two subsamples based on income criteria. In the case of three subsamples based on geographic criteria, we find the negative effect of bank volatility on economic growth is very weak and marginally significant in South Asian and East Asian countries and Latin American countries. However, the result is robust concerning both estimation methods in Sub-Saharan African countries (most of coefficients are statistical significant). It means that a greater value of bank volatility, a smaller degree of economic growth. This result is support by findings of Moshirian and Wu (2012). It should be note that the results in groups of countries combined at different geography and in all countries combined together are not driven by a small number of Sub-Saharan African countries having evolving market-based system.

Columns 2-12 in each table illustrate the results from adding interaction terms of bank volatility and indicators of country characteristics and financial development.

In the full sample and in two subsamples based on income criteria, we find that the coefficient of the interaction of bank volatility with control of corruption is negative, and high levels of inflation is positive, but they are not statistically significant. Whereas others are ambiguous. It means that all variables are not good in explaining economic growth. That may result from combining all countries together. Therefore, the above results are inconsistent with the findings of Moshirian and Wu (2012) in developed markets and emerging markets.

In contrast, In Saharan African countries we find that the coefficients of the interaction of bank volatility with voice and accountability, political stability and absence of violence, rule of law, control of corruption are negative in both estimation methods, indicating that these variables increase the negative impact of bank volatility on future economic growth. These results are not supported by Kaufmann, 2013 findings that WGI with higher values correspond to better governance outcomes. Furthermore, the coefficient of the interaction term between bank volatility and high levels of inflation is positive and statistically significant. This results imply that high levels of inflation weaken the association between bank volatility and economic growth. It is inconsistent with the finding of Bruno and Easterly (1998) maintain that a high levels of inflation would harm the economic growth. Besides, the coefficient of the interaction term between bank volatility and regulatory quality, private credit, liquid liabilities are positive. These indicators would weaken the negative connection between bank volatility and economic growth. They are consistent with related literatures. These results are good evidences of the effect of interaction terms on economic growth due to most of coefficients are statistically significant. Whereas, the effect of other variables is ambiguous in this subsample.

In South Asian and East Asian countries, the interaction terms between bank volatility and voice and accountability, rule of law, low levels of inflation have negative signs in both estimation methods. These results are inconsistent with previous literatures findings that these variables have positive association with economic growth. Moreover, the interactions between bank volatility and political stability and absence of violence, liquid liabilities, stock market capitalization are positive. These results are supported by related literatures. However, the coefficient of bank volatility with high levels of inflation is positive, inconsistent with previous studies. Most of variables do not have strong relationship

due to most of coefficients are not statistical significant. We also find that the signs of other coefficients are mix in this subsample.

In Latin American countries, we find that the coefficient of the interaction term between bank volatility and voice and accountability, government effectiveness, regulatory quality, control of corruption, low levels of inflation are negative in both methods, indicating that these variables exaggerate the negative effect of bank volatility on economic growth. However, these results are not much strong evidences of the effects of bank volatility and interaction terms on economic growth (not statistically significant). Furthermore, the coefficients of the interaction term between bank volatility and political stability and absence of violence, liquid liabilities, stock market capitalization are positive. These variables would weaken the negative connection between bank volatility and economic growth. However, they are not good in explaining the effects of bank volatility and other interaction terms on economic growth when coefficients are still not statistically significant. Some coefficients of other variables become mix in this subsample.

In short, we find that the associations are stronger for African countries and not their Asian and Latin-American counterparts. Simply, we can interpret the above results that the growth effects of bank volatility and other indices are stronger in groups of countries where have almost built necessary infrastructures and governance structures to support an evolving market-based system. These results are consistent with the significant findings of Moshirian and Wu (2012) in developed markets and in emerging markets. These associations are clear, but not robust in groups of countries where have been successful in boosting their economic performances in their own ways but not in the standard models for the market economic success. They do not have the systems dominated by developed countries. Their strategies focus on three essential policy preconditions: sound macroeconomic management, peasant and small entrepreneurs. The achievements in these fields have overcome the lack of legal frameworks and well-developed market-based institutions. Whereas, the above relationships are unclear in groups of countries combined at different geography and in all countries combined together. These nexuses are not driven by a small number of Sub-Saharan African countries having evolving market-based system.

5. Conclusion

There are evidences indicating the banking volatility-economic growth nexus in developed markets and emerging markets. However, it is not clear to assume this relationship across countries at various income criteria and geographic criteria in 21 low-income and middle-income countries from 2003 to 2014. This paper advances others when our sample has frontier markets, when we combine countries at different income levels, but in the same geography. We also advance previous ones when examining WGI, inflation rates as indicators to proxy for country characteristics in the model of bank volatility-economic growth.

We find the unclear relationships between bank volatility, market excess return and economic growth in all countries combined together and in countries are grouped based on income criteria. In the case of three subsamples based on geographic criteria, we find the negative effect of bank volatility on economic growth is very weak and marginally significant in South Asian and East Asian countries and Latin American countries. However, the results are robust in Sub-Saharan African countries. It should be note that the results in the full sample and in two subsamples based on income criteria are not driven by a small number of outliers.

When we add interaction terms of bank volatility and indicators of country characteristics and financial development. In the full sample of 21 economies and 2 subsamples based on income criteria. The evidence obtained in this study indicates that the effect other indicators on economic growth is unclear, except for negative effect of control of corruption and positive effect of high levels of inflation on economic growth, but they are not robust that may result from combining all countries together.

In Sub-Saharan African countries, we find that the interaction terms of bank volatility with voice and accountability, political stability and absence of violence, rule of law, control of corruption are negative. These variables magnify the negative link between bank volatility and economic growth. Whereas, the interaction between bank volatility and regulatory quality, high levels of inflation, private credit, liquid liabilities are positive. They relieve the negative impact of bank volatility on economic growth. It should be noted that most of variables are good in explaining economic growth in this subsample that may results from building almost necessary infrastructures and governance structures to support an evolving market-based system in this subsample.

In the sample of South Asian and East Asian countries. The signs of the interaction terms of bank volatility with voice and accountability, rule of law, low levels of inflation are negative but political stability and absence of violence, high levels of inflation, liquid liabilities, stock market capitalization are positive. Whereas, the coefficients of other variables are unclear. In general, all results are not robust in the relationship with economic growth.

Lastly, in the sample of Latin American countries. We also find that the interaction terms of bank volatility with voice and accountability, government effectiveness, regulatory quality, control of corruption, low levels of inflation are negative but political stability and absence of violence, liquid liabilities, stock market capitalization are positive.

Overall, we find unclear impact of bank volatility on economic growth that may result from combining all countries together. When we combine countries across different geography, but in the same income group, this relationship is still mix. Surprisingly, the impacts of bank volatility on economic growth and the influences of country characteristics and financial development characteristics on this nexus are more clear when various countries are combined at the same geography, with the overall effects varying with the legal frameworks, institutional structure for market orientation in groups of countries.

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FINANCIAL INCLUSION AND MONETARY POLICY EFFECTIVENESS IN ASIA EMERGING MARKETS

TÀI CHÍNH TOÀN DIỆN VÀ HIỆU QUẢ CỦA CHÍNH SÁCH TIỀN TỆ TẠI CÁC THỊ TRƯỜNG MỚI NỔI CHÂU Á

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ABSTRACT

Financial inclusion and its impact on monetary policy effectiveness have become challenging issues for policymakers. However, there is limited knowledge about the current financial inclusion level and its influence on the monetary policy in Asia Emerging Markets. Therefore, using Principal Component Analysis (PCA) to construct a Financial Inclusion Index that serves as a proxy variable for the accessibility of financial inclusion in Asia Emerging markets, this study aims to analyze the impact of financial inclusion on the monetary policy effectiveness in these economies from 2007 to 2018. Adding to it, three different models including the Fixed Effect model, Random Effect model, and Driscoll and Kraay regression are employed. The results show that the increase in financial inclusion reduces the monetary policy rate, hence enhancing macroeconomic stability in Asia emerging economies. This study adds to the limited number of studies on the relationship between financial inclusion and monetary policy effectiveness in these countries.

Keywords: *Monetary policy, financial inclusion, inflation rate, Asia Emerging Markets.*

TÓM TẮT

Vấn đề về tài chính toàn diện và ảnh hưởng của nó đến hiệu quả của chính sách tiền tệ đã và đang đặt ra nhiều thách thức cho các nhà hoạch định chính sách. Tuy vậy, vẫn chưa có nhiều nghiên cứu về mức độ triển khai tài chính toàn diện hiện nay và ảnh hưởng của nó đến chính sách tiền tệ tại các thị trường mới nổi châu Á. Do đó, nghiên cứu này nhằm mục đích phân tích ảnh hưởng của tài chính toàn diện đến hiệu quả của chính sách tiền tệ tại các thị trường này bằng việc áp dụng phương pháp phân tích thành phần chính (Principal Component Analysis - PCA) để xây dựng chỉ số tài chính toàn diện cho các nước này từ năm 2007 đến năm 2018. Thêm vào đó, ba mô hình được sử dụng trong nghiên cứu này bao gồm mô hình tác động cố định (FEM), mô hình tác động ngẫu nhiên (REM) và mô hình Driscoll và Kraay. Kết quả nghiên cứu cho thấy việc phát triển tài chính toàn diện giúp kiềm chế lạm phát và góp phần ổn định nền kinh tế vĩ mô tại các nền kinh tế mới nổi ở khu vực châu Á. Nghiên cứu này góp phần đưa ra bằng chứng thực nghiệm về mối quan hệ giữa tài chính toàn diện và hiệu quả của chính sách tiền tệ tại các quốc gia này.

Từ khóa: *Chính sách tiền tệ, tài chính toàn diện, tỷ lệ lạm phát, thị trường mới nổi châu Á.*

1. Introduction

The issue of financial inclusion has attracted the attention of many scholars, researchers, and policymakers all over the world. Financial inclusion, a necessary condition for sustaining equitable growth, has a pivotal role in helping people access comfortably to financial services and providing them opportunities to build savings, make investments and avail credit. Financial inclusion generally specified as ensuring access to formal financial services at an affordable cost in a fair and transparent manner (De Koker & Jentzsch, 2013). According to Sarma (2015), 'Financial Inclusion' is a process that ensures the ease of access, availability, and usage of the formal financial system for all members of an economy.

In the global economy, financial inclusion also has become a central issue for monetary policy effectiveness. Evidence suggests that financial inclusion is among the most important factors affecting monetary policy transmission (Anarfo, Abor, Osei, & Gyeke-Dako, 2019). In other words, the increases in financial inclusion can have implications on monetary policy. More recently, the degree of financial inclusion has been argued to matter for optimal monetary policy (Mehrotra & Yetman, 2014). Also, there

is a growing body of literature reviewing the implications of financial inclusion for the effectiveness of monetary policy (i.e. Di Bartolomeo & Rossi, 2011; Lenka & Bairwa, 2016; Mbutor, 2013).

Coined by Antoine Van Agtmael in 1981, emerging countries is a set of promising stock markets, lifted from obscurity, thereby attracting the investment they needed to thrive. According to the business dictionary, emerging economies defined as rapidly growing and volatile economies of certain Asian and Latin American countries, they promise huge potential for growth but also pose significant political, monetary, and social risks. Emerging Asia was forecasted to lead the change for premium growth, expanding by three times the world average over the next two years (Re, 2019). Based on Morgan Stanley Capital International's (MSCI) classification, Asia emerging markets include China, India, Indonesia, Korea, Malaysia, Pakistan, Philippines, Taiwan, Thailand, Bangladesh, Sri Lanka, and Vietnam. However, The comprehensive Financial report G20 (Kloke-lesch, 2015) shows that in most emerging countries, only 20% to 50% of the population can access to formal financial services. Therefore, financial inclusion is considered to be the core objective of many developing nations, and play a catalytic role for economic and social development (Sharma, Sumita Kukreja, & Professor, 2013).

Though the importance of financial inclusion on monetary policy is widely recognized, the literature on financial inclusion lacks comprehensive measures to evaluate the extent of financial inclusion in an economy. The main objective of this study is thus to explore the question: whether and to what extent financial inclusion can foster or hinder monetary policy effectiveness in Asian emerging countries? Our contributions are two-fold. Firstly, to the best of our knowledge, this is one of the limited studies investigating the relationship between financial inclusion and monetary policy in Asia Emerging Markets. Secondly, Asia Emerging Markets include all developing nations and have a large scope of financial inclusion, to some extent, this paper fills the gap of literature by introducing more recent and detailed empirical evidence on the relationship between financial inclusion and monetary policy.

The remainder of the paper proceeds as follows: section 2 reviews the relevant literature, section 3 describes the dataset and econometric model, section 4 presents the main empirical results, section 5 details the discussion and conclusion.

2. Literature Review

2.1. Theoretical framework

First, with regard to the *definition* of financial inclusion, in the context of a larger issue of social inclusion, we will reflect the term financial inclusion and its alternative, financial exclusion. One of the early explications of financial exclusion has been suggested by Leyshon and Thrift (1995), referring to a process that aims to restrict certain segments of the population to use formal financial services. According to Sinclair (2001), financial exclusion means the inability of certain social groups such as the poor and the advantaged to access financial facilities. Sarma (2008) defines financial inclusion as a process built on three dimensions including the ease of access, availability, and usage of formal financial service for all members of an economy. In the same spirit, Amidžić, Massara, and Mialou (2014) stated that financial inclusion is an economic condition in which individuals and firms are able to use saving and borrowing instruments via formal financial institutions. Thus, most definitions perceive financial inclusion based on three dimensions which are the availability, the accessibility and the usage of the financial system.

Second, most of the previous studies focus on the nexus of financial structure and monetary policy through transmission mechanisms. Specifically, these studies investigate how the balance-sheet positions of banks, governments, households, and enterprises change in the response to monetary policy. However, little attention has been paid on the dynamic and causal linkage between monetary policy and the access to formal financial services such as credit, saving, and remittance which are defined as financial inclusion (Hariharan & Marktanner, 2012). Misati et al. (2010) assert that the development of financial services stemming from financial innovation could have an impact on the pace and magnitude of transmission

mechanisms to monetary policy, in turn influencing the whole economy. Additionally, in the pursuit of price stability teamed with more liquid and complete financial markets, monetary authorities need to monitor more closely movements in asset prices which can eventually influence macroeconomic variables. In other words, financial inclusion is conceived as one of the leading indicators of monetary policy effectiveness and thus, financial stability. It is therefore important to well understand the impact of financial inclusion on monetary policy regarding the operation of transmission channels in the changing financial environment. This part will highlight the monetary policy transmission channels that are affected by the level of financial inclusion. According to de Bondt (1999), monetary policy is transmitted through two main mechanisms including the interest rate and the money supply. As an alternative, monetary instruments can be gauged by price-based or quantity-based.

One of the major theories that underline the nexus between monetary policy and financial inclusion is the *interest rate channel*. There are multiple channels that could explain for a more effective interest rate tool stemming from the development of financial inclusion. It has been conceded that changes in interest rates, either up or down, would result in the variation of capital cost, driving them to spend or save in the light of the change and thus influencing the macroeconomic situation. These economic forces as a result of interest rate changes were suggested in Keynesian economic theory, causing shifts in aggregate demand. Particularly, while lower interest rates stimulate investment spending, higher interest rates reduce it. Changes in interest rates are likely to drive investment and consumption which are major components of aggregate demand. This elucidation denotes that given a low level of financial inclusion, the interest rate would not act as an effective tool of monetary policy.

In terms of the *direct monetary channel or the money supply channel*, monetary policies can be expansionary or contractionary. Providing that recession threatens, the central bank increases the money supply by employing expansionary monetary policy to increase the number of loans, shifting aggregate demand downward. On the contrary, contractionary monetary policy is to serve the purpose of curbing inflation, causing loan quantity to decrease and aggregate demand to shift upward. On top of that, the level of financial inclusion will determine how effective is the monetary policy in affecting the quantity of loan, thus boosting economic growth or mitigating the threat of inflation. Furthermore, in a literature summarization, Yetman (2018) points out that the quantity mechanism is less effective than the interest rate channel regarding the influence of financial inclusion on monetary policy choices.

Beyond the traditional monetary channels, *credit channel* refers to the influence of monetary policy regarding the informational asymmetry between the creditor and the debtor (Mishkin, 1996). In this respect, monetary policy has been transmitted through two channels, which are bank lending and balance sheet of economic agents (Bernanke & Gertler, 1995). Bernanke and Gertler (1995) also emphasize the financial accelerator effect, stating that the magnitude of monetary policy shocks would increase in an imperfect financial market. Specifically, while the bank lending channel is supposed to completely tackle information failure by depository institutions, balance sheet transmission signifies the impact of monetary policy on the net value of firms and their collaterals (Simatele, 2004). According to Chileshe (2017), the first channel is expected to be more effective given strict restrictions to credit markets. Providing that central bank engages contractionary monetary policy, a decrease in money supply causes banks to decline the number of loans, leaving a higher lending rate. The rise in borrowing cost would lead to a decreasing level of financial inclusion, which in turn affects the activities of debtors (Anarfo et al., 2019). Also, Loutskina and Strahan (2009) evidence that the bank-lending channel is less effective on the condition that mortgages are securitized. It is also noticeable that the increasing arrival of non-bank lenders also negatively influences the bank lending channel (Misati et al., 2010).

On the other hand, the balance-sheet transmission denotes the changes in borrowers' balance sheets and income statements under the impact of monetary policy. When expansionary monetary policy pushes interest rates down to a low level, economic agents are better off by the rise in stock prices, sales, and

lower debt servicing costs, thus reducing the risk of informational asymmetries. This situation hence facilitates the access to loans of bank borrowers, stimulating spending and investment. In this regard, the development of financial inclusion will enhance the effectiveness of monetary policy transmissions, consequently boosting economic activity. Regarding the face of financial securitization, Ashcraft and Campello (2007) have proven that the impact of the balance sheet channel is strengthened under this situation.

2.2. Empirical research

Existing literature mainly focused on the relationship between financial inclusion and macroeconomic variables such as growth, poverty, and income inequality. In this regard, we would focus on two aspects of earlier research. First, we would review how financial inclusion is measured in previous studies. Second, we desire to discuss its effects, with a focus on monetary policy. Furthermore, we also examine which econometric method had been applied and what conclusion had been drawn in previous studies.

Although there is an agreement in defining financial inclusion, there is still no consensus on the **measurement method of financial inclusion** (Park & Mercado, 2015). Some studies simply measure financial inclusion by the proportion of the population who are able to use formal financial services (i.e. owning formal bank accounts). However, this approach experiences numerous disadvantages that result in an inconsistent and incomparable measurement across countries. Particularly, this type of data can be attained within country and only in a limited number of countries. Also, such primary surveys would exaggerate discrepancies in survey dates, survey units, and methodologies. Thus, most scholars employ the World Bank's Global Findex Database in their studies (i.e. Demirguc-Kunt & Klapper, 2012; Demirguc-Kunt et al, 2015; Mehrotra & Nadhanael, 2016). Such method can remove the inconsistencies stemming from the countrywide primary surveys (Sarma, 2016). Other studies develop financial inclusion index or composite financial access indicators. For instance, Honohan (2008) constructed a composite indicator that reveals the proportion of adults/households using formal financial services in a given economy out of 160 countries. Nevertheless, this method only delivers a one-time measure of financial inclusion, which failed to capture the changes over time and across economies (Park & Mercado, 2015; Sarma 2016). On this reckoning, Amidžić, Massara, and Mialou (2014) develop a composite indicator that captures various dimensions of financial inclusion including outreach, usage, and quality. Each dimension is then aggregated by assigning different statistical weights. However, this measurement appears to be biased when treating the dimensions unequally.

Previous studies have also looked into **the impact of financial inclusion** to the macroeconomic and country characteristics. Having access to financial instruments has been documented to positively influence the economic situation in numerous studies (i.e. Ashraf, Karlan & Yin, 2006; Chibba, 2009; Dupas & Robinson, 2011; Sarma, 2016). Burgess and Pande (2005) evidenced that poverty reduction in India is closely linked with a state-lead expansion of the banking sector. Park and Mercado (2015) found evidence that financial inclusion contributes to poverty eradication and lower-income disparities, hence forcing economic growth. Nonetheless, there has been less attention paid to the relationship between financial inclusion and the effectiveness of monetary policy like Mehrotra and Yetman (2014), Lenka and Bairwa (2016) and Mbutor and Uba (2013). Mehrotra and Yetman (2014) indicate that greater financial inclusion would help to stabilize the inflation rate. Mbutor and Uba (2013) document that the effectiveness of monetary policy is associated with the development of financial inclusion in Nigeria. Employing data spanning the period from 2004 to 2013 in the South Asian Association for Regional Cooperation (SAARC) countries, Lenka and Bairwa (2016) propose a Financial Inclusion Index by performing the principal component analysis. They conclude that increases in financial inclusion curb inflation rates in SAARC countries. However, according to Anarfo et al. (2019), previous studies have proxied financial inclusion and monetary policy inadequately. Specifically, inflation rate is used to gauge monetary policy, which should be considered as a policy outcome rather than a policy instrument. In this

regard, Anarfo et al. (2019) suggest the central bank monetary policy rate as a more reliable and appropriate proxy of monetary policy. Additionally, they also signify two dimensions in measuring financial inclusion instead of using single-variable proxies, which are demand-side indicators and supply-side factors. In our study, we would follow the assertion of Anarfo et al. (2019) to proxy financial inclusion which should be proxied by the usage and the ability to access financial systems.

Moreover, most empirical evidence has been found in developed countries, but few studies dealt with financial inclusion in less developed countries. Specifically, earlier studies usually investigate in Africa or Latin America but rarely in Asia. To the best of our knowledge, this is the first study investigating in Asian Emerging and Frontier Markets with the focus on the impact of financial inclusion and monetary policy effectiveness, with a more comprehensive approach to financial inclusion.

3. Data and methodology

3.1. Data source and variables description

Data on monetary policy and all financial inclusion variables was originated from the international financial statistics (IFS) and World Bank development indicators (WDI). The sample consists of 11 emerging Asia countries (China, India, Indonesia, South Korea, Malaysia, Pakistan, Philippines, Thailand, Bangladesh, Sri Lanka, and Vietnam) for the 2007 – 2018 period.

The financial inclusion index (FII) is a multidimensional index. It can be gauged by the demand side and supply side, for instance the number of people using financial services and the availability of the financial system. Generally, the most common indicators, used by financial regulators, are number of bank accounts, number of bank branches, number of automated teller machines (ATMs), amount of bank credit, and amount of bank deposits (i.e. Lenka & Bairwa, 2016; Sarma, 2008; Sarma, 2016). These indicators do provide useful information on the inclusiveness of a financial system and cover a wide dimension of financial inclusion. In this study, FII includes four financial accessibility variables such as Commercial bank branches per 100,000 adults (CBB), number of ATM per 100,000 adults (NA), outstanding loans from commercial banks (OL), and outstanding deposits with commercial banks (OD). This choice of indicators is in line with previous studies (i.e. Anarfo et al., 2019; Mbutor, 2013). Besides, the lending rate (LR) and GDP growth (GG) are used as the control variable.

Furthermore, according to Lenka and Bairwa (2016), the main objective of an effective monetary policy is to curb inflation and stabilize the price level in an economy. Adding to this, since the main focus of monetary policy in emerging nations is to control inflation and to stabilize the price level, therefore inflation rate is used in our study as a proxy variable to access the efficiency of the monetary policy. The choice of monetary policy effectiveness is also akin to the study of Mbutor (2013).

Table 1: Variables selection

Variable	Notation	Description	Data source
Inflation rate	IFR	CPI, annual variation in %	IFS
Financial inclusion index	FII	Index of four variables of financial inclusion	
1. Commercial bank branches per 100,000 adults (CBB) 2. Number of ATM per 100,000 adults (NA) 3. Outstanding loans from commercial banks (%GDP) (OL) 4. Outstanding deposits with commercial banks (%GDP) (OD)			IFS
Lending rate	LR	Lending interest rate	WDI
GDP growth	GG	Economic growth	WDI

3.2. Methodology and the regression model

Principal component analysis (PCA)

To construct a financial inclusion index (FII), the study applied the principal component analysis (PCA) technique. This is a standard technique to simplify data by extracting hidden features and eliminating excessive information in the dataset. In previous studies, the PCA technique has been rarely involved to quantify the accessibility to financial products and services (Le, Chuc & Taghizadeh-Hesary, 2019). Nonetheless, this method was applied in various researches that analyze phenomena influenced by a set of financial variables (i.e. Ang & McKibbin, 2007; Adu, Marbuah & Mensah, 2013; Le, Kim & Lee, 2016). For instance, Ang and McKibbin (2007) constructed the financial depth index and financial repression index for Malaysia by applying the PCA method. Engaging the same method, Adu et al. (2013) also derived a composite index to study the long-run growth effects of financial development in Ghana. Additionally, many researchers have recognized that there are at least two main dimensions of financial inclusion (Anarfo et al., 2019) including demand-side factors and supply-side factors. Following that, this study builds up a composite index for financial inclusion from a panel principal component analysis.

Here, FII made up of two dimensions where each dimension consists of two factors.

(1) Supply-side factors: includes two indicators namely Commercial bank branches per 100,000 adults (CBB) and Number of ATM per 100,000 adults (NA).

(2) Demand-side factors: presents data on the level of outstanding deposits (OD) and outstanding loan (OL) of commercial banks.

The FII can be specified as $FII = W_{J1}CBB + W_{J2}NA + W_{J3}OD + W_{J4}OL$ which W_J is the weight of the coefficient of the factor score.

The regression model

This research firstly uses standard panel econometrics such as FEM and REM, then Driscoll and Kraay regression to tackle the problem of heteroskedasticity, autocorrelation, and cross-sectional independence. The equation modeling the relationship between Financial inclusion index and Monetary policy effectiveness are specified below:

$$\ln IFR_{it} = \alpha + \beta_0 \ln FII_{i,t-1} + \beta_1 \ln LR_{i,t-1} + \beta_2 GG_{i,t-1} + e_{it}$$

In which, the index i and t denote for country and time, respectively ($t = 2007, \dots, 2018$). The authors also specified the lags of financial inclusion index, and the lags of the controlled variables while controlling for time and country. To control for the possible endogeneity, we use the lags of independent variables. Additionally, it might take time for financial inclusion strategy to have an impact on inflation rate.

4. Results

Descriptive statistics

The descriptive statistics of the Asia emerging countries are shown in Table 2. The median of the inflation rate is 5.25%. The number of ATMs per 100,000 adults (NA) has a median value of 21.88 which much higher comparing to Sub-Saharan Africa. The median value of CBB is 10.04 which quite low in general. OL and OD have median values at 8,423,702.00 and 9,887,711.00 respectively.

Table 2: Descriptive statistics

	CBB	NA	OL	OD	GG	LR	IFR
Mean	10.795	52.798	749,000,000	821,000,000	5.327	8.869	5.254
Median	10.043	21.881	8,423,702	9,887,711	5.617	8.616	7.581
Maximum	18.699	288.632	7,120,000,000	7,980,000,000	9.145	18.892	23.116
Minimum	3.107	0.513	606,234.800	674249.900	-1.514	3.368	-0.900
Std. Dev.	4.218	74.052	1,490,000,000	1,670,000,000	1.992	3.754	4.271
N	122	122	122	122	122	122	122

Result of PCA

Using PCA method, we calculated eigenvalues of all factors. However, the value contains more than one component, then we have to consider another principal component during the analysis. Based on the factor score (weights) of PCA, we then multiply it with the respective variable and add them together for getting the final Financial inclusion index. It is worth noting that South Korea and India have quite high overall financial inclusion, whereas Malaysia got the lowest index for financial inclusion. The countries like China, India, and Vietnam are in the middle segment representing the medium level of financial inclusion.

Results of panel unit root test

This study employed the unit root test to test for stationarity of variables. To prevent spurious regression, a stationarity test is necessary. This study employed two panel unit root tests for the unbalanced panel: the Im – Pesaran - Shin (IPS) test and Fisher – type tests.

The null hypothesis is that the variable contains unit-root. All variables are checked to be stationary exception to the financial inclusion index. The results show that the financial inclusion variable is stationary on log-level. We then take the natural logarithm of all other variables except the GDP growth rate to stabilize the spread or remove skewness.

Regression results

The results, as shown in Table 3, indicate that the regression model contained three models, including the Random effect model (REM), Fixed effect model (FEM), and regression with Driscoll – Kraay standard errors.

The REM shows evidence of a negative but not significant effect of the lag of financial inclusion and the lag of lending rate on inflation rate. Also, a positive correlation was found between the lag of GDP growth and monetary policy effectiveness proxied by inflation rate. However, the coefficients are not statistically significant. In the same vein, FEM reveals a negative impact of the lag of financial inclusion, the lag of lending rate on the monetary policy. Nevertheless, they are not statistically significant.

Table 3: Estimation of regression results

Model	Variables	Coef.	Std. Err	T
Dependent variable	IIFR			
REM (R ² = 9.52%)	IFII_1	-0.649	0.099	-0.66
	ILR_1	-0.047	0.091	-0.52
	GG_1	0.019	0.033	0.60
	_cons	3.154	0.089	3.54
FEM (R ² = 9.96%)	IFII_1	-0.146	0.104	-1.40
	ILR_1	-0.062	0.090	-0.69
	GG_1	0.013	0.033	0.40
	_cons	4.879	1.122	4.35
Driscoll – Kraay estimation (R ² = 9.96%)	Variables	Coef.	Drisc/Kraay Std. Err	T
	IFII_1	-0.146*	0.080	-1.82
	ILR_1	-0.062***	0.007	-7.92
	GG_1	0.013	0.012	1.05
	_cons	4.879	1.364	3.58

, ** and * denote that coefficients are significant at the 10%, 5%, and 1% level respectively.*

To compare the two results, we used the Hausman test which shows that REM is the best-fitted model. Following, to address the problem of heteroskedasticity, autocorrelation, and cross-sectional independence in panel data, we used the Modified Wald test, Wooldridge test, and Pesaran's test respectively. The results indicate that heteroskedasticity, autocorrelation, and cross-sectional independence presented in the data.

From the above data analysis, it can be said that the standard FEM and REM estimators are consistent, although not efficient, and the estimated standard errors are biased. Therefore, the authors corrected the standard errors of coefficients using Driscoll and Kraay regression. This is a nonparametric technique of estimating standard errors, suitable for both balanced or unbalanced panels, and capable to handle missing values. In particular, with Fixed effects regression with Driscoll and Kraay standard errors, the respective fixed-effects estimator is implemented in two steps (Hoechle, 2007), thus this approach yields standard errors that are robust to very general forms of cross-sectional and temporal dependence.

After using Driscoll and Kraay regression to overcome the problem of heteroskedasticity, autocorrelation, and cross-sectional independence, the results show that the lag of the financial inclusion index and the lag of lending rate are statistically significant and negatively associated with inflation rate. In further detail, 1% increase in the lag of financial inclusion index and the lag the lending rate decreases the inflation rate by 0.146 and 0.062 % respectively. Though GDP growth has a positive influence on the inflation rate, the result is not significant.

5. Discussion and implication

Monetary policy and financial inclusion play key roles in Asian emerging economies, carrying greater implications for macroeconomic stability. The study evaluated the effect of financial on the ultimate objective of monetary policy in Asian markets by engaging a multidimensional measure of financial inclusion index. Using the data for Asian emerging countries, we documented that a higher level of financial inclusion is associated with a lower inflation rate. This result of the study supports the notion that growing financial inclusion would improve the effectiveness of monetary policy (Anarfo et al., 2019; Lenka & Bairwa, 2016; Mbutor, 2013). In other words, an improve of accessibility to financial products such as loans or deposits will reduce the inflation rate, which helps to stabilize the price level in Asian emerging markets. Moreover, Yetman (2018) also emphasizes that the effectiveness of interest rate channel will improve given a higher level of financial inclusion, hence orienting monetary authorities appropriately in ensuring price stability and general trust in the national currency. However, according to Di Bartolomeo and Rossi (2007), a fall of financial inclusion level will not hinder the effectiveness of monetary policy as the excluded households are more income-sensitive than the included ones, which is considered as the indirect policy channel. Specifically, the monetary policy first influences the consumption demand of financially included consumers, then affecting the incomes of excluded consumers and still boosting policy effectiveness.

In analyzing the impact of control variables on monetary policy, our study found that there is a significant inverse relationship between the rate of inflation and the lending rates in Asian emerging economies. The sign of interest rate clearly supports the conventional arguments, stating that a rise in the interest rate causes the opportunity cost of holding money to increase. Investment and GDP then decline as a result of the increasing interest rate, teamed with a reduction in aggregate demand regarding the consumption angle. This empirical result is also akin to the findings of Lenka and Bairwa (2016) conducting in SAARC countries and Mbutor and Uba (2013) in Nigeria. For the success of the monetary policy, Mbutor and Uba (2013) also specify that financial inclusion additionally deepens the effect of interest rate on aggregate demand.

Furthermore, it is expected that the growth rate has a positive impact on the inflation rate, but the results are less supportive. The empirical results indicate that economic growth cause the inflation rate to increase but the size of the coefficient is found to be insignificant in our study. However, for further research, we still consider the argument of Mehrotra and Yetman (2014) regarding the trade-off between output and inflation. According to Mehrotra and Yetman (2014), given a high development of financial inclusion, the central banks will choose an optimal monetary policy in which controlling inflation is served as the main focus, aiming at balancing output volatility and inflation volatility. In short, financial inclusion is found to be of benefit to maintaining stable inflation in Asian Emerging Markets, with the considerable support of the lending rates.

With these considerations in mind, we next draw some implications for Asian emerging economies. Financial inclusion and monetary policy play an essential role in Asia emerging countries and have greater implications for macroeconomic stability. The result shows that financial inclusion does help to stabilize the price level and controls the inflation rate in Asian emerging markets. Thus, it may be said that the foremost important task of the government in Asia emerging countries is to improve the efficiency of the domestic financial sector. In other words, to some degree financial inclusion can perform a similar function as monetary policy. It suggests, therefore, governments of Asia emerging countries also need to focus on developing financial inclusion, which strongly linked to economic development and economic structure of a region. This implies that to broaden financial access, it needs to strengthen the rule of law including enforcement of financial contracts and financial regulatory oversight.

The index presented in our study has certain limitations, mainly due to the lack of adequate and appropriate data. The main problem of a macro index is the loss of country-specific information on account of the aggregative nature of the data. Therefore, the financial inclusion index is still not comprehensive enough, resulting in a low R-squared. Further research might also take into account the channels through which financial inclusion influences monetary policy effectiveness.

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IMPACT OF LARGE OWNERSHIP, STATE OWNERSHIP ON SHARE PRICE OF LISTED COMPANIES IN VIETNAM STOCK EXCHANGE – CASE STUDY OF ESSENTIAL CONSUMER GOODS FIRMS

TÁC ĐỘNG CỦA CỔ ĐÔNG LỚN, SỞ HỮU NHÀ NƯỚC ĐẾN THỊ GIÁ CỔ PHIẾU CỦA CÁC CÔNG TY NIÊM YẾT TRÊN SỞ GIAO DỊCH CHỨNG KHOÁN VIỆT NAM – TRƯỜNG HỢP CÁC CÔNG TY LĨNH VỰC HÀNG TIÊU DÙNG THIẾT YẾU

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ABSTRACT

This research using data of 27 essential consumer goods firms which are listed on Ho Chi Minh Stock Exchange (HOSE) from 2011 - 2018 in Vietnam, with variables related to ownership structure, to investigate the effect of different ownership structure characteristics on these firms' market price. By using OLS, REM, FEM model, the results show that, the variables relate to the large shareholders, the company's size and rate of return on total assets significantly impacted on the stock market price. Particularly, large shareholder variables, company's size and variable rate of return on total assets have been shown the positively impact on the share price.

Keywords: *Share price, large shareholder, state ownership, firm size, return on total assets.*

TÓM TẮT

Nghiên cứu này sử dụng dữ liệu của 27 công ty lĩnh vực hàng tiêu dùng thiết yếu đang niêm yết trên Sở giao dịch Chứng khoán TP. Hồ Chí Minh (HOSE), giai đoạn 2011 - 2018, với các biến nghiên cứu liên quan đến cấu trúc sở hữu của doanh nghiệp, nhằm tìm ra tác động của các đặc tính cấu trúc sở hữu đến thị giá cổ phiếu của các công ty này. Nghiên cứu này sử dụng mô hình OLS, REM, FEM để kiểm định, kết quả nghiên cứu cho thấy, các biến liên quan đến cổ đông lớn, quy mô công ty, tỷ số lợi nhuận trên tổng tài sản (ROA) có tác động đến thị giá cổ phiếu; cụ thể, biến cổ đông lớn, quy mô công ty và ROA có tác động tích cực đến thị giá cổ phiếu của các công ty nghiên cứu

Từ khóa: *Thị giá cổ phiếu, cổ đông lớn, sở hữu nhà nước, quy mô doanh nghiệp, tỷ số lợi nhuận trên tổng tài sản.*

1. Introduction

Share price movement is always attracting investors and businesses during investment process. In addition, ownership structure in enterprises also affects the share price through impact on management and corporate governance. Currently, the share price of enterprises in the field of essential consumer goods such as food, cosmetics, leverage and so on tends to grow strongly and these groups have relatively stable and less sensitive to the economic cycle. Stocks of essential firm in services industry which have large market capitalization leading the market and their prices greatly effect to share prices. Therefore, investors are particularly interested in the share price in this industry when the stock market and the economic cycle grow, the recession cycle.

The target of this research is to find the answers to the questions: (1) *Does the board of director's ownership affect to the share price?* (2) *Does the rate of state's ownership affect the share price?* (3) *Does major shareholder of the company affect the share price?*

This study research used econometrics models to quantify the influence of factors affecting share prices. We have studied and used 7 elements divided into 2 groups: type of ownership (independent variables), including the total ownership proportion of firms' board of director, the state's ownership, the ownership proportion of major shareholders of companies under the research. Second, group of company

attributes (control variables) include: company's size, financial leverage of the company, rate of return on total assets and number of company establishment's year.

This research includes the following sections: (1) Research background and hypothesis development; (2) Methodology, data and research models; (3) Research results; and (4) Conclusions and recommendations.

2. Research background and hypothesis development

Theoretically, the ownership structure in the enterprise reflects overall the relationship of interests and responsibilities for the contributed capital of the owner, thereby determining other relationships in production and relations of products distribution as well as economic benefits which are brought by production and business processing.

Regarding the impact of ownership structure on stock price, there are huge of researches related to this topic with many different points of view. Alipour and Amjadi (2011) analyzed the impact of different aspects of ownership structure such as individual shareholders or large shareholder, internal shareholders or external shareholders, concentrated ownership or institutional ownership to the stock prices of companies listed on the Tehran stock exchange. The result indicated that the largest shareholder has much impact on the stock price, and companies' stock price with a lower percentage of shares held by individual shareholders. Besides, the rest variables have no relationship to stock prices.

Research by Alexandru et al. (2013) has developed models to measure the stock prices of 51 Jordan's companies from 2005 to 2009. The two research models were Ordinary Least Square method (OLS) and Seemingly Unrelated Regression method (SUR). The result shows that there is no significant relationship between individual shareholder and institutional shareholders to the stock prices, this means two variables do not affect stock prices much.

There have been many researches around the world about this topic, however, in Vietnam, there are not much researches about this topic.

(Phuoc, 2017) (2017) used data of listed companies in Vietnam in the period of 2009-2016, with description statistical method, the author has analyzed quantitative data with dependent variable to measure the performance of the companies, and the result shows that, enterprises have higher ownership will affect the firm value and lead to higher performance.

Besides, stock is a type of securities that is simply understand as the ownership certification of the amount of capital, which investors contribute to the issuing company when buying shares. The stock price index can be influenced by various factors such as the domestic and oversea economic situations, the company's business performance, market volatility, reputation and potential of the company. This research is going to develop hypothesis related to ownership structure and impact on stock prices.

Firstly, the board of director ownership is one of the factors that have the greatest impact on the stock price of enterprises. Morey et al. (2008) have shown that an enterprise with board of directors hold high percentage of firm proportion will have higher firm value than others. Meanwhile, Obradovich et al. (2012), Rouf (2011) have concluded that board of director with small amount of company's proportion will show the lower the value of enterprises, leading to the enterprises' stock prices will decrease.

H₁: Board of director hold high proportion of shares in the enterprise will positively impact on stock price of listed firms in Vietnam

Secondly, State ownership also affects stock market prices. According to research by Ben-Nasr and Cosset (2014), high state ownership often leads to a less transparent corporate information environment. This makes it more difficult to collect information of specific companies. Research by Hue, (2016) assessed the impact of state ownership on the stock prices of listed companies on Vietnam stock market has resulted in state ownership have a positive effect on share prices.

H₂: State ownership has negatively influence to stock price of listed firms in Vietnam

Thirdly, large shareholder is also investigated that affects stock prices. Two studies by Brockman and Yan (2009) and (Lam, 2016) shown that large shareholders in the company help improving corporate governance and increasing the quality of public information. So that it has a positive impact on stock prices on the stock exchange.

H₃: Large shareholders have positively impact on stock price of listed firms in Vietnam

In addition, this research also used control variables to find out the relationship between them and stock price of listed firms in Vietnam. The company' size is one of the variables affecting the stock prices. Research by Sharif (2016) has shown that company' size has a positive impact on stock prices. This means large enterprises with financial potential as well as high competitiveness and high reputation in the market will easily mobilize large amounts of capital from investors with high stock prices. Regarding to financial leverage, there are a number of different views on the impact of the financial leverage on stock prices, focusing on 3 opinions. The first view is that the impact of financial leverage is negligible, as the results of Heydarreza (2010) on the impact of financial indicators on food industry enterprises. The second view on financial leverage is a factor that has a positive influence on stock prices, according to the research results of Kohansal et al. (2013), indicating that the effects come from the financial leverage of the food industry has a significant influence on stock prices. The third view shows that financial leverage has a negative impact on stock prices. Specifically, Kohansal et al. (2013) emphasizes that the lower the financial leverage, the higher the value of the company.

The rate of return on total assets (ROA) is also considered by many studies to affect stock prices. Based on the value of profitability, people can know how many co-profits a company co-produces, the higher the ROA, the more effective it will be to use the asset. According to Idawati and Wahyudi (2015), ROA has a positive relationship and significantly impact on stock prices.

3. Methodology, data and research models

Methodology

This research combines qualitative and quantitative methods to build and run models based on panel data. The multiple-regression with the Ordinary Least Squares method (OLS), Fixed Effects Method model (FEM), Random Effects Method model (REM), Hausman test model.

Data analysis

This research collected secondary data, with the sample data focus on 27 enterprises in the field of essential consumer goods, which are listed on Ho Chi Minh Stock Exchange (HOSE) in Vietnam, in the period 2011-2018. Over the 8-year period under the research, the total number of research samples of 27 enterprises, which is officially used in the research paper, is 216 samples. All data such as financial Statements, annual reports, prospectus are taken from the company website. Turning to share price data, the price and the volume are taken from the website of Ho Chi Minh Stock Exchange (HOSE).

Models

The offered model of the group focuses on developing and testing the factors, which affect the dependent variables: share price, including 7 variables divided into 2 groups: group of factors of ownership types (independent variables) and group related to the company attributes (control variables). Based on the study of models related to the impact of ownership structure and stock price, determine the relevant influencing factors, consistent with the economic environment characteristics in Vietnam, the group chooses 7 variables. Independent variables are owned variables, control variables are variables that effect the business performance of the company, the dependent variable is stock price.

Table 1: Calculate variables

The variables	Symbol	Method of measurement
<i>Dependent Variables</i>		
Share price	PRI	Average price in the year
<i>Independent Variables</i>		
Board of director ownership	BDO	$\frac{\text{Total shares owned by board of director}}{\text{Total of outstanding shares in the year}}$
State shareholder ¹	STA	$\frac{\text{Total shares owned by government}}{\text{Total of outstanding shares in the year}}$
Large shareholder of the company ²	ENT	$\frac{\text{Number shares owned by large shareholder}}{\text{Total of outstanding shares in the year}}$
<i>Control Variables</i>		
Company size	SIZE	Log (Total Assets)
Financial Leverage	LEV	$\frac{\text{Total debt}}{\text{Total equity}}$
Return on Assets	ROA	$\frac{\text{Net profit after taxes}}{\text{Total Assets}}$
Number of years in operation	YEAR	2018 – Founded year

Research Model:

$$PRI_{i,t} = \beta_0 + \beta_1 BDO_{i,t} + \beta_2 STA_{i,t} + \beta_3 ENT_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 LEV_{i,t} + \beta_6 ROA_{i,t} + \beta_7 YEAR_{i,t} + \varepsilon$$

Which: β_0 : Block coefficient; β_1, β_2 : Coefficients; ε : Error; i: enterprise i; t: year t

4. Research results

Descriptive data

The descriptive statistics table shows an overview of stock price movements over the last 8 years as well as factors that affect stock prices listed on HOSE. In total 27 listed firms under the research, there are 18 state shareholder firms and 9 non-state shareholder firms. Table 3 shows that the average share price of 27 companies in the period of 2011-2018 is VND 31,582.02, with a standard deviation of VND 29,229.46. Besides, the share price of enterprises has a big gap from VND 2,090 to VND 208,600. For the leading companies in the industry, stock prices are often much higher than small and medium enterprises so the share price difference of more than VND 200,000 reflects the operating situation of companies.

¹ Ownership ratio above 5%.

² Ownership ratio above 5%.

Table 2: The number of state shareholder firms and non-state shareholder firms

Firm type	The number of firms
State shareholder firms	18
Non-state shareholder firms	9
Total firms	27

Table 3: The Descriptive statistics for all the variables for period

Variable	Obs	Mean	Std. Dev.	Min	Max
PRI	216	31582.02	29229.46	2090	208600
BDO	216	0.3742726	0.2372444	0	0.8657
STA	216	0.5833333	0.4941518	0	1
ENT	216	0.6481481	0.4786573	0	1
SIZE	216	12.09294	0.6496592	10.2735	13.86356
LEV	216	2.389623	1.89511	0.0440062	11.28056
ROA	216	0.07593	0.1045147	-0.6455064	0.7836998
YEAR	216	15.2963	6.141372	8	40

In addition, based on Table 3, we can make assessments of independent variables - factors affecting stock prices through mean, standard deviation and volatility range. Specifically, with the independent variables, the total average ownership ratio of the Board members (BDO) is 37.42726% with a standard deviation of 23.72444% and a very large fluctuation range of up to 86.57%. This suggests that the average membership of the Board of Directors owns a large share of the company, which will affect the company's executive decisions. In addition, the state ownership and major shareholders of the company accounted for a very high proportion of 58% of the company, it will greatly affect the company's operation plan. For control variables, the average index of scale, financial leverage, net profit on total assets, the number of years of establishment of enterprises is at an average level, indicating that most of the companies in this sector operates effectively, the structure of using capital and assets is relatively stable, after-tax profit grows steadily over the years. The average number of years established over 15 years, which shows the essential consumer goods enterprises have been born for a long time and are still developing steadily.

Regression model results

Correlation Test (Correlation)

Based on the table of correlation matrix below, it is generally shown that the correlation between most variables is relatively low. However, the correlation coefficients between PRI and the variables of ENT and ROA are quite high with values of 52.17% and 55.03% respectively. However, this model is still suitable because the correlation coefficients of all variables are less than 80% so this model is meaningful. Therefore, the research results show that most of the variables in the model do not have a correlation relationship with each other, and this will be a positive sign in testing and selecting appropriate econometric models.

Table 4: Correlation matrix between variables in the model

	PRI	BDO	STA	ENT	SIZE	LEV	ROA	YEAR
PRI	1							
BDO	-0.0388	1						
STA	0.2344	0.0245	1					
ENT	0.5217	0.0361	0.2032	1				
SIZE	0.3116	-0.1172	0.2714	0.2088	1			
LEV	-0.2797	0.2370	0.0638	-0.2464	0.1166	1		
ROA	0.5503	0.0028	0.1838	0.2242	0.1650	-0.3534	1	
YEAR	0.0958	-0.0284	-0.0128	0.2492	-0.2738	-0.3469	0.0974	1

4.2.2. Multivariate linear regression model (OLS)

Table 5: Results of multivariate regression model

Source	SS	df	MS	Number of obs	=	216
Model	85.5810463	7	12.2258638	F (7, 208)	=	29.55
Residual	86.0433756	208	0.413670075	Prob > F	=	0.0000
Total	171.624422	215	0.798253125	R – squared	=	0.4987
				Adj R – squared	=	0.4818
				Root MSE	=	0.64317

PRI	Coef.	Std. Err.	t	P > t	[95% Conf. Interval]
BDO	-0.0852088	0.1959698	-0.43	0.664	-0.4715506 0.3011329
STA	0.0810356	0.0949468	0.85	0.394	-0.1061458 0.2682171
ENT	0.7069257	0.1033827	6.84	0.000	0.5031135 0.9107379
SIZE	0.2088329	0.0780336	2.68	0.008	0.0549948 0.3626711
LEV	-0.029484	0.028157	-1.05	0.296	-0.0849937 0.0260256
ROA	3.521255	0.4716951	7.47	0.000	2.591339 4.451171
YEAR	-0.0027548	0.0081489	-0.34	0.736	-0.0188198 0.0133103
_cons	6.830079	0.9672996	7.06	0.000	4.923111 8.737047

Based on the results of Table 5, the coefficient of determination of R-square is 0.4987 (49.87%) and the adjusted R-square is 0.4818 (48.18%). These two R values are used to measure the suitability of the regression model. The closer $R = 1$, the better the model is built to fit the regression data. Besides, $R^2 = 49.87\%$ shows that in 100% of stock price volatility, 49.87% is due to 7 factors in the model, and 50.13% is due to random factors and other factors not in the model. Thus, both R values are close to 50%, indicating that the PRI dependent variable is explained by independent variables of nearly 50%.

Besides, the table 5 above results show us which variables have an impact on stock prices. Looking at p-value, it shows that most of the independent variables in ownership structure do not affect the share price because they are larger than 0.05. In particular, there are 3 variables having the same directional impact on share price which are ENT, SIZE and ROA.

Table 6: Results of multicollinearity testing

Variable	VIF	1/VIF
LEV	1.48	0.675732
SIZE	1.34	0.758654
YEAR	1.30	0.768218
ENT	1.27	0.785725
ROA	1.26	0.791658
STA	1.14	0.874046
BDO	1.12	0.890113
MEAN VIF	1.27	

In general, all the variables of the model in the study have a magnification coefficient of variance VIF less than 10. Moreover, the coefficients are only between 1 and less 2 and the average of all 7 variables is 1.27. Therefore, the variables in the model do not have multicollinearity phenomenon.

Fixed Effects Model (FEM)

Table 7: Result Fixed Effects Model (FEM)

Fixed-effect (within) regression		Number of obs	=	216		
		Number of groups	=	8		
R-sq:		Obs per group:				
Within	= 0.5019	Min	=	27		
Between	= 0.2946	Avg	=	27.0		
Overall	= 0.4989	Max	=	27		
corr(u_1, Xb) = -0.0011		F(7,201)	=	28.93		
		Prob > F	=	0.0000		
PRI	Coef.	Std. Err.	t	p> t	[95% Conf.	Interval]
BDO	-0.0527041	0.2065747	-0.26	0.799	-0.4600357	0.3546274
STA	0.0931247	0.1045448	0.89	0.374	-0.1130206	0.29927
ENT	0.7039567	0.1047082	6.72	0.000	0.4974891	0.9104242
SIZE	0.2093936	0.0801467	2.61	0.010	0.0513573	0.3674299
LEV	-0.0233093	0.0286812	-0.81	0.417	-0.079864	0.0332453
ROA	3.558703	0.4918842	7.23	0.000	0.588788	4.528618
YEAR	-0.002034	0.0082064	-0.25	0.804	-0.0182157	0.0141467
-cons	6.777382	0.9900703	6.85	0.000	4.825125	8.729639
Sigma_u	0.1048096					
Sigma_e	0.64655175					
Rho	0.02560533 (fraction of variance due to u_i)					
F test that all u_i=0: F(7, 201) = 0.69				Prob > F = 0.6803		

First of all, we ran the FEM model on Stata software based on panel data. When considering the FEM model, it is appropriate to test variables when P-value coefficient is less than 0.05 (5%). Based on the results of the FEM model running on Stata, the value of p-value = 0.6803 (68.03%) is greater than 0.05. Therefore, the random impact model is a model that is not statistically significant with the data set. If the statistically significant model results in three major shareholder variables (ENT), company scale (SIZE) and return on total assets (ROA) all affect the same side variable to share price (PRI) like the OLS model.

Random Effects Model (REM)

Next, to see clearly which variables affect the dependent variable, research is based on the p-value of each explanatory variable. The results are similar to the results of the OLS regression model and the FEM model, which are three major shareholder variables (ENT), company scale (SIZE) and return on total assets (ROA) all affect the stock price (PRI). Moreover, if the regression coefficient β of these variables is greater than 0, the variable acts in the same direction and vice versa. Through the results table, the group found all three variables have the same effect on the dependent variable PRI. Therefore, three variables ENT, SIZE, ROA can explain the change of PRI variable.

Table 8: Result Random Effects Model (REM)

Random-effects GLS regression		Number of obs	=	216		
		Number of groups	=	8		
R-sq:		Obs per group:				
	within = 0.5016	min	=	27		
	between = 0.3314	avg	=	27.0		
	overall = 0.4987	max	=	27		
		Wald chi2(7)	=	206.88		
corr(u_i, X)	= 0 (assumed)	Prob>chi2	=	0.0000		
PRI	Coef.	Std. Err	Z	p> Z	[95% Conf.	Interval]
BDO	-0.0852088	0.1959698	-0.43	0.664	-0.4693027	0.298885
STA	0.0810356	0.0949468	0.85	0.393	-0.1050567	0.267128
ENT	0.7069257	0.1033827	6.84	0.000	0.5042994	0.909552
SIZE	0.2088329	0.0780336	2.68	0.007	0.0558899	0.361776
LEV	-0.029484	0.028157	-1.05	0.295	-0.0846707	0.0257026
ROA	3.521255	0.4716951	7.47	0.000	2.59675	4.445761
YEAR	-0.0027548	0.0081489	-0.34	0.735	-0.0187264	0.0132168
_cons	6.8300790	0.9672996	7.06	0.000	4.934207	8.725951
sigma_u	0					
sigma_e	0.64655175					
Rho	0	(fraction of variance due to u_i)				

Select the appropriate model by testing Hausman Test

After testing two models of FEM and REM, we found that the REM model was more relevant and statistically significant than the FEM model. However, to ascertain the most accurate and accurate model of the data set, the team ran the Hausman test with two hypotheses.

H_0 : REM Random Effects Model.

H_1 : FEM Fixed Effects Model.

If the p-value is less than 5%, we reject H_0 , accept H_1 . Conversely, if p-value is greater than 0.05 (5%) then we have no basis to reject H_0 , therefore, H_0 is accepted. The result of table 9 shows that p-value equals 0.9693 (96.93%) greater than 0.05, we accept the hypothesis H_0 given. The model of random effects is the most suitable model to choose research. Therefore, the research team selected REM random effects model to test the model and get the results of REM model to draw conclusions and recommendations.

Table 9: Test results of Hausman test

	Coefficients			
	(b) Fe	(B) re	(b-B) Difference	sqrt (diag(V_b-V_B)) S. E.
BDO	-0.0527041	-0.0852088	0.0325047	0.0653371
STA	0.0931247	0.0810356	0.0120891	0.0437576
ENT	0.7039567	0.7069257	-0.002969	0.0166084
SIZE	0.2093936	0.2088329	0.0005607	0.0182827
LEV	-0.0233093	-0.029484	0.0061747	0.0054584
ROA	3.558703	3.521255	0.0374474	0.1394769
YEAR	-0.002034	-0.0027548	0.0007208	0.0009695
Test:	b = consistent under H_0 and H_a ; obtained from xstreg B = inconsistent under H_a , efficient under H_0 ; obtained from xtreg Ho: difference in coefficients not systematic chi2 (7) = (b-B)' [(V_b-V_B) ⁽⁻¹⁾] (b - B) = 1.82 Prob>chi2 = 0.9693			

According to the results obtained from the REM models above, we synthesized the table of hypothetical test results (Table 10). As shown in the table below, in the 7 research factors was selected, there are 3 factors that are major shareholders (ENT), company scale (SIZE) and return on total assets (ROA) has an impact on stock price (PRI).

Table 10: Summary of test results of assumptions

Variable name	Impact direction
Group of factors of different types of ownership in the company (Independent variables)	
Board of director ownership (BDO)	No effect
State ownership ratio (STA)	No effect
Major shareholder of the company (ENT)	Positive
Group elements of attributes in the company (Control variable)	
Company scale (SIZE)	Positive
Financial Leverage (LEV)	No effect
Return on total assets (ROA)	Positive
Number of years of establishment (YEAR)	No effect

As can be seen from Table 10, the firms which have large shareholder have positive impact on the stock price. This means, when there is the participation of large shareholders, the stock price has a positive change and vice versa.

For control variables, firm size (SIZE) also has the same directional impact on stock prices. The larger the scale of the business, the higher the share price and vice versa. This is in line with the research paper of Sharif (2016) which assumes that the firm size has a positive impact on share prices.

For the return-to-asset ratio (ROA) variable, the results show that ROA has a positive impact on PRI. When profits increase, then stock prices will rise and vice versa. This result is consistent with the research hypothesis, that firms have high profits indicate that these companies is doing well, and the dividend rate is also higher, which makes investors expect stock prices to increase in the future.

5. Conclusions and recommendations

Conclusions

Our study show that large shareholders have a positive impact on stock prices. Similar to the research results of Brockman and Yan (2009), it showed that the large shareholders of the company improve corporate governance problem and increase the quality of published information, which impacting positively to share price.

The research results also show that control variables of Company size having a positive impact on stock prices. This result is similar to the research of Sharif (2016), the research of Chaudhary and Nishat (2002), this means, large-scale enterprises or expanding the size into more industries, having great financial ability as well as great competitiveness will be hard to be defeated economically, consolidated the reliability and high reputation in the market so it will be easier to mobilize a large amount of capital from investors with high stock price.

In addition, return on total assets (ROA) has a positive impact on stock prices. When ROA of company increases, the stock price will also rise and vice versa. This result is consistent with hypothesis that the higher ROA, higher profits, the company uses assets more effectively. This result is similar to the research of Kartika et al. (2018) that the higher the ROA, the better for the company. Saeidi and Okhli (2012) also conclude that ROA has a high correlation with stock prices at all of industry's level and it can be used as the main efficiency factor affecting stock prices.

Recommendations

Research results about the impact of ownership structure on stock market are quite useful for the related objects to have suitable solutions or decisions, especially for regulatory agencies, companies and investors.

** For enterprises*

Firstly, enterprises need to attract investors, shareholders who are huge organizations with experience in managing and operating company. This will improve the reliability of corporate's information of the stock price, therefore reduce the negative impact on stock prices and increasing investor's trusty.

Secondly, corporations should have a clear directions and strategies for each step of development and expansion of their business, focus on the development of product quality on a single field. After creating a well position, gaining the trust of customers and investors, the company can expand scale to another field or industry with a suitable and strict management. In addition, firms should avoid investing in many fields but unprofitable will reduce the value of the corporate's stock.

Thirdly, firms should provide accurate information on their financial statements about their business situation in recent years to create a trusty believe for investors. When companies' return on total assets grows steadily over the years, investors will prioritize investing in that stock, helping stock prices increase. Corporations need to set specific targets for production and revenue in the future, so that they can determine the number of machines or materials needed to achieve the goal, avoid unreasonable use of assets, avoid buying too many materials or great value assets. If the corporate's ROA is lower than the previous year due to scaling up, buying more machines but not yet gaining profits, the corporate should also specify in the explanation or give a detailed notice to analysts, investors understand.

** For the investors*

Firstly, investors need to care about corporate governance factor to determine which corporates are owned by which individuals or organizations. If corporate have large organizations owned, investing in corporate is good. Therefore, when investors care about firm's stocks, they should consider the major shareholders in the company.

Secondly, investors should consider selecting large company size because the bigger companies, the higher the capitalization demand to create a good effect on the corporate's business performance, which means this corporate has a good financial position (equity ratio is greater than 1 compared to loan capital, the proportion of equity in total investment capital is greater than or equal to 50%) as well as develop and compare in many different industries.

Thirdly, investors should carefully consider the information published by the corporate before investing in one or more types of stocks. When considering, investors should pay special attention to the performance of corporates, like performance indicators, especially return on total assets (ROA) to see if the corporate doing effectively business. If the company has ROA increase, it should be invested. However, it is necessary to carefully analyze whether the increase in ROA is due to which factors, sometimes due to the company falsifying the data. A company with reduced ROA is not sure if the company is doing poorly and inefficiently, but that the size of the company's factory is expanding so the total assets increase while the profit has not been recovered, or because the price of input materials is

expected to increase, so the company buys to accumulate, making the inventory increase and so the assets increase. Therefore, investors need to accurately calculate the ROA and determine the cause of an increase or decrease in ROA, making the correct choice in investment.

** For the regulatory agencies*

Firstly, the results from the research show that major shareholders of the company have a positive impact on share price. Market managers may offer solutions or policies that increase the concentration of ownership of large shareholders in public listed companies, with more corporate investors investing in the company can also bring benefits to the company and create trust for investors. Therefore, regulators can create opportunities for companies by making requirements on the ownership rates of major shareholders in companies, as a result, this can increase stock prices.

Secondly, the size of the company has a positive impact on stock prices. Policymakers should have specific requirements for corporates which they want to expand their scale or develop new industries must ensure that, there are clear research and specific development strategies to avoid inefficient business.

Thirdly, the results of the research show that the company's ROA has a positive impact on stock prices. However, there are many cases of companies falsifying information on financial statements to cover up the company's loss or overrunning profit indicators to attract investors' investment. Therefore, the Ministry of Finance and the State Securities Commission in Vietnam should have a strict monitoring mechanism and coordinate with related organizations to measure and evaluate the quality of information given by public listed companies, like unexpected inspection or specific sanctions for violations. Therefore, this will help the users when using information will make more accurate decisions.

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USING CAMELS MODEL FOR EVALUATING STABILITY OF COMMERCIAL BANKS IN VIETNAM

SỬ DỤNG MÔ HÌNH CAMELS ĐỂ ĐÁNH GIÁ AN TOÀN CỦA CÁC NGÂN HÀNG THƯƠNG MẠI VIỆT NAM

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ABSTRACT

Commercial banks in Vietnam have experienced huge transformation in the last twenty years and are considered as an integral part of the economy. Therefore, monitoring, supervision and continuous performance evaluation of the commercial banks is compulsory to ensure the financial stability of the economy. The study is an attempt to evaluate and compare the performance of commercial banks in Vietnam. One of the most effective method for analysis of financial stability of banks is CAMELS framework. The obtained results highlight the strengths and vulnerabilities of some commercial banks, underlining the need to strengthen the concerns of the decision makers from banks to improve and increase their stability.

Keywords: *CAMELS, bank's stability, capital adequacy, assets quality, earnings ability, sensitivity to market.*

TÓM TẮT

Hệ thống Ngân hàng thương mại (NHTM) Việt Nam đã có sự thay đổi lớn trong 2 thập kỷ gần đây và được coi là một phần không thể thiếu của nền kinh tế. Do đó, giám sát và đánh giá hoạt động của các NHTM là cần thiết để đảm bảo cho sự ổn định của nền tài chính quốc gia. Nghiên cứu này đánh giá và so sánh hoạt động của các NHTM Việt Nam. Một trong những phương pháp hiệu quả nhất để phân tích sự an toàn của ngân hàng là mô hình CAMELS. Các kết quả thu được làm nổi bật những điểm mạnh, điểm yếu của một số NHTM, nhấn mạnh sự quan tâm cần thiết đối với mô hình này của các nhà ra quyết định tại ngân hàng để tăng cường sự ổn định trong hoạt động kinh doanh.

Từ khóa: *CAMELS, an toàn trong hoạt động ngân hàng, an toàn vốn, chất lượng tài sản, khả năng sinh lời, mức độ nhạy cảm với biến động thị trường.*

1. Introduction

The economic progression is significantly dependent upon the utilization of resources and most importantly operational efficiency of various sectors. The banking sector is considered as an integral part of the financial system which plays a key role in the economic development of any country through stimulating of capital formation and facilitating the monetary policy. Banking business has been shaped as the global business since the functions of banking business have reached beyond the border of a country. Most importantly, rest other businesses are greatly dependent upon the stable performance of banking business.

In the context of Vietnam, the banking sector is one of the fastest growing sectors. Until the end of 2018, there are 35 domestic commercial banks, 2 joint – venture banks and 9 foreign commercial banks operating in Vietnam. Over the last twenty years, Vietnam has achieved noticeable success regarding the access to banking services. However, modern banking is becoming more complex in nature than before since the varieties of risks are getting more complex nowadays, which leads to the fact that evaluating the performance of commercial banks is a challenging task. There are so many factors need to be considered while differentiating good banks from bad ones. In order to cope up with complexity and a mix of risk exposures to banking system properly, the bank regulators have introduced a number of measures over the past years to link the regulation of banks to the level of risk and financial viability. However, on – site supervisory guidelines are not enough to evaluate the stability of banks. Hence, it becomes imperative to develop a system of rating framework for carefully evaluating the stability of banks, which enables banks to take follow – up measures that will ensure public confidence toward banking system. Therefore, this

study attempts to evaluate the comparative performance of the selected commercial banks in Vietnam, using CAMELS framework and suggest some measures on the basis of the results of this study to further improve the financial performance of the sample banks.

2. Related Studies

Barker and Holdsworth (1993) found CAMEL ratings as an effective tool for predicting bank's failure and measuring the financial performance of banks.

Barr, Killgo, Siems and Zimmel (2002) observed CAMEL rating system as a precise and constitutive tool for regulators and examiners that measures bank's financial performance by analyzing various bank's information collected from financial statements.

Bodla and Richa (2006) used CAMEL model to evaluate the performance of SBI and ICICI from 2000 to 2004. They found that SBI performed better than the counterpart ICICI in terms of capital adequacy while ICICI performed better than the counterpart in terms of assets quality, earning quality and management quality.

Angela Roman, Alina Camelia Sargu (2013) used CAMELS model to analyze the financial soundness of commercial banks that operate in Romania. This research point out possible weakness and suggest necessary corrective measure to overcome the weakness, which enable to improve performance of banks in Romania.

Venkatesh and Chithra (2014) used CAMELS model to analyze the financial efficiency of commercial banks in the kingdom of Bahrain. This research found that the National Bank of Bahrain which is the government bank in this country has attained highest efficiency compared to its peers in the market.

Joshi, Amit and Lakhvendra (2015) attempt CAMEL model to rank 42 Indian commercial banks over 5 years (2010 - 2014). They found that Yes Bank was at the top position followed by HDFC bank and Indian Bank.

In most studies above, the authors use indicators including capital adequacy ratio (CAR), Non – performing loans (NPLs), Cost to income ratio (CIR), Return on Asset (ROA), Return on Equity (ROE), liquid asset/ Total asset to evaluate the stability of commercial banks in selected countries. This is the basis for me to suggest the system for evaluating the stability of commercial banks in Vietnam. However, 4/6 studies mentioned above did not conduct research on “S” element and the two remaining researches referred “S” element as the influence of size of bank on the stability of commercial banks. Therefore, I has found some gaps for my study. Firstly, in this study, “S” element that I refer is the sensitivity to the market of commercial banks. Secondly, none of research related to commercial banks in Vietnam which have many distinctive features from others. Hence, doing research for finding out some recommendations to ensure stability for commercial banks in Vietnam is necessary.

3. Research methodology

The data used in this research is obtained from the annual reports of banks from my sample. The sample is composed by 10 commercial banks in Vietnam in the period of 5 years (from 2013 to 2018). In order to evaluate and analyze the soundness of Vietnamese commercial banks, I use one of the most popular methods namely CAMELS. CAMELS framework was first known under the name CAMEL in 1979 in USA. The acronym CAMEL derives from 5 main segments of a bank operations: Capital adequacy, asset quality, management quality, earning ability and liquidity. Since 1996, out of the desire to stronger focus on risk, to the five components was added the six component “S”. Thus, CAMEL approach became CAMELS approach, where “S” refers to the sensitivity to market risk. All six parameters are relevant indicators for assessing the financial soundness of a bank, being recommended by the IMF and WB.

CAMELS represents for Capital adequacy, Asset quality, Management, Earning ability, Liquidity and Sensitivity to market.

Capital adequacy (C) is one of the most important indicators for financial health of banking sector because it guarantees the capacity of this sector to absorb the eventual losses generated by manifestation of certain risks or certain significant macroeconomic imbalances.

Asset quality (A) is a significant element that measures the strength of a bank and is linked with the capital adequacy because most of the solvency risks are caused by the depreciation of assets.

Management quality is great importance for the insurance of banks' stability, which ensures the survival and growth of a bank. A sound management is a key to the performance of any organization.

Earning ability (E) reflects the ability of a bank to generate and sustain profit consistently. This quality is considered as an important criterion for evaluating the profitability and performance of a bank.

Liquidity (L) is a crucial aspect which expresses the financial performance of banks. Liquidity means the ability of banks to honour its obligations towards depositors. Banks can preserve adequate liquidity position either by increasing current liabilities or by converting its assets into cash quickly.

Sensitivity to the market (S) expresses how adversely the bank is affected due to changes. Market risk is the effect of trading activities, non – trading activities and foreign exchange operation.

The variable used in my research and the method that are computed are presented in table 1. I have computed the average separately for each of the indicators used and each parameter from the CAMELS framework for the analyzed period of time (2013 - 2018). The obtained averages have been used in order to rank the banks.

Table 1: CAMELS parameters and their calculation method

CAMELS variables	Ratios	Calculation method
Capital adequacy	CAR (capital adequacy ratio)	$\frac{\text{Tier 1 Capital} + \text{Tier Capital 2}}{\text{Risk weighted asset}} * 100\%$
Asset Quality	NPL (non – performing loan)	$\frac{\text{Non - performing loan (*)}}{\text{Total loan}} * 100\%$
Management	CIR (Cost to income ratio)	$\frac{\text{Operating expense}}{\text{Gross operating income}} * 100\%$
Earning Ability	EBT/ Total asset	$\frac{\text{Earning before tax}}{\text{Total asset}} * 100\%$
	EBT/ Total equity	$\frac{\text{Earning before tax}}{\text{Total equity}} * 100\%$
Liquidity	LDR (Loan deposit ratio)	$\frac{\text{Loan}}{\text{Deposit}} * 100\%$
	Liquid asset/ Total asset	$\frac{\text{Liquid asset}}{\text{Total asset}} * 100\%$
Sensitivity to market	Ratio of the difference between interest sensitive assets and interest sensitive liabilities to the equity	$\frac{\text{Sensitive assets} - \text{Sensitive liabilities}}{\text{Total equity}} * 100\%$

(*) Non - performing loans includes bad debts, debts sold to VAMC as bad debts yet to be disposed.

4. Analysis and discussion

CAMELS model has been used with intension of ranking the selected banks because it enables the analysis the financial condition of banks to be less sophisticated. In this research, the score of parameters in CAMELS model is based on the regulation of State Bank of Vietnam (SBV).

4.1. Capital adequacy

Capital adequacy is assumed to be a crucial reflector of the financial soundness of a bank. In order to survive, it is indispensable to protect the stakeholder confidence and preventing its bankruptcy. Capital adequacy represents the overall financial position of a bank. It reflects whether the bank has sufficient capital to bear unexpected losses in the future and bank leverage. The higher CAR is, the stronger bank is. However, a very high CAR indicates that the bank is conservative and has not utilized the full potential of its capital.

Table 2: Capital adequacy ratio of sample banks

Bank's name	Average of CAR (%)	Score
Vietcombank	11.81	3
VietinBank	10.77	3
BIDV	9.62	3
MB	11.64	3
Techcombank	14.08	4
Sacombank	10.2	3
VPBank	12.68	4
SHB	11.72	3
ACB	12.95	4
VIB	15.40	5

Source: Annual reports of sample banks and author's own calculation

Table 2 is constructed based on the average of capital adequacy of sample banks in the period from 2013 to 2018, which indicates the financial strength and financial stability of those banks. The higher rate indicates the better financial health. According to this table, the CAR of sample banks satisfy the requirement of SBV. In detail, maintaining the average of CAR at least 2% higher than the regulation of SBV in this period is the basis for banks including Vietcombank, MB, Techcombank, VPBank, ACB, VIB applying Basel 2 in 2019 which is one year earlier than the validity date of circular 41/2016/TT – NHNN. By contrast, the CAR of BIDV, Vietinbank and Sacombank are only bit higher than the minimum rate. Therefore, applying Basel 2 from January, 1st, 2020 is the challenge for those banks because their CAR might be lower than 8%.

4.2. Asset quality

Asset quality is significant aspect to assess the degree of financial strength of a bank. In order to measure the quality of asset owned by banks, I selected the ratio of non – performing loan which indicates the amount of bad debts that banks own. This is because, the proportion of loan accounts for about 60% - 70% total asset of banks and the income coming from this activity generates approximately 75% - 85% total income. The higher NPL rate is, the higher risk banks overcome. Therefore, evaluating the quality of loans could allow the author to have the overview of asset quality of commercial banks.

Table 3: Asset quality of sample banks

Bank's name	Average of NPL (%)	Score
Vietcombank	2.03	3
VietinBank	1.80	3
BIDV	3.31	2
MB	3.27	2
Techcombank	3.74	2
Sacombank	14.51	1
VPBank	5.45	1
SHB	4.87	2
ACB	6.07	1
VIB	5.49	1

Source: Annual reports of sample banks and author's own calculation

Table 3 shows the average of non - performing loan rate of sample banks. The rates that I indicate in this table are higher than those in banks' annual reports. This is because the data of non – performing loan that I collect includes bad debts, debts sold to VAMC as bad debts yet to be disposed. The reason why I add the debts sold to VAMC to the data is that after buying these debts, VAMC authorizes commercial banks to deal with the debts, which means these bad debts have not been solved yet. In detail, except for the average NPL rates of Vietcombank and Vietinbank, those of the remaining banks are higher than the safety limit recommended by WB (3%). What is the worth noting is that the average NPL rate of Sacombank is 14.51% because after the merger of Sacombank and Southern Bank, Sacombank is responsible for handling with huge amount of bad debts of Southern Bank.

4.3. Management Efficiency

It is another vital parameter of CAMELS model that ensures the survival and growth of a bank. A sound management is a key to the performance of any organization, which drives the management system respond quickly to a dynamic and changing environment. To assess the management efficiency, the author choose Cost to income ratio (CIR) which is the measure of the costs of running a bank in relation to its operating income. It is an important financial tool for evaluating banks. The lower the CIR is, the more efficient the bank is being run.

Table 4: CIR of sample banks

Bank's name	Average of CIR (%)	Score
Vietcombank	39.02	4
VietinBank	47.09	3
BIDV	40.54	4
MB	40.45	4
Techcombank	40.65	4
Sacombank	63.51	1
VPBank	45.01	3
SHB	53.39	2
ACB	60.15	1
VIB	55.38	2

Source: Annual reports of sample banks and author's own calculation

According to Table 4, entire the period, none of the banks are scored 5 point because all of banks invest in banking technology which does not optimize costs in short time. The data of annual CIR of sample banks gives an overall average of 48.52%, which is chosen to rank all the sample banks to assess their operational performance. 6/10 of sample banks give an annual average CIR of less than the overall average of the sample, whereas 4/10 banks exceed the norm. Among the sample banks, Vietcombank has the lowest CIR because this bank has a huge income coming from selling other banks' share such as MB, Eximbank, SaigonBank, which leads to the fact that the total operating income exceeds the operating expenses. By contrast, Sacombank occupies the last position because the poor quality asset of this bank leads to the low income from interest, whereas large size of this bank requires big staff, which results in high expense for employees.

4.4. Earning ability

High earning ability should reflect the bank's current operating performance and a good indicator of future operating performance. The quality of earning is an extremely significant parameter which expresses the quality of profitability and capability of a bank to sustain quality and earning consistently. In this research, I choose 2 criteria EBT/Total asset and EBT/ Total Equity, which reflects the income per a unit of asset and a unit of equity respectively. These criteria evaluate the earning ability of commercial banks without effect of taxation policy.

Table 5: Earning ratios of sample banks

Bank's name	Average of EBT/Total Asset		Average of EBT/ Total Equity		Group Score
	Rate (%)	Score	Rate (%)	Score	
Vietcombank	1.27	4	20.36	5	4.5
VietinBank	0.91	3	12.70	3	3
BIDV	0.89	3	19.95	5	4
MB	1.73	5	18.37	5	5
Techcombank	2.12	5	21.32	5	5
Sacombank	0.68	2	9.82	2	2
VPBank	2.29	5	28.49	5	5
SHB	1.07	4	19.34	5	4.5
ACB	1.03	4	16.66	5	4.5
VIB	1.13	4	14.59	4	4

Source: Annual reports of sample banks and author's own calculation

According to Table 5, the large commercial banks that the state is not the dominant shareholder (MB, Techcombank, VPBank) have the highest rate of profitability, especially VPBank. This is because in this period, in the trend of development of personal finance, the financial company of VPBank (FE credit) – one of the largest financial company in Vietnam generates approximately 50% profit of banks, which enables this bank to become the most efficient operating bank among the sample banks. By contrast, Sacombank is the least efficient operating bank since the low quality asset results in the high risk provision expenses which accounts for approximately 40% of bank's income.

4.5. Liquidity

Liquidity is another noteworthy aspect which expresses the financial performance of banks. Liquidity means the ability of the bank to honour its obligations toward depositors. Bank can preserve adequate liquidity position either by increasing current liabilities or by converting its asset into cash

quickly. It also denotes the fund available with bank to meet its credit demand and cash flow requirements. In order to assess the liquidity of sample banks, the author choose criteria LDR which shows a bank's ability to cover loan losses and withdrawals by its customers and Liquid asset/ Total asset which expresses the ability to meet the demand for payment of commercial bank.

Table 6: Liquidity of sample banks

Bank's name	Average of LDR		Average of Liquid asset/ Total asset		Group score
	Rate (%)	Score	Rate (%)	Score	
Vietcombank	70.95	4	15.47	4	4
VietinBank	92.99	2	11.63	3	2.5
BIDV	92.22	2	14.50	3	2.5
MB	69.77	5	26.56	5	5
Techcombank	63.20	5	16.69	4	4.5
Sacombank	73.01	4	12.08	3	3.5
VPBank	73.46	4	17.12	4	4
SHB	74.50	4	10.54	3	3.5
ACB	75.14	4	20.47	5	4.5
VIB	78.75	4	25.97	5	4.5

Source: Annual reports of sample banks and author's own calculation

In terms of LDR, those ratios of VietinBank and BIDV are higher than that of regulation of SBV (90% for the commercial banks that the state is the dominant shareholder), whereas those ratios of the remaining banks are lower than the maximum percentage regulated by SBV (80% for joint stock commercial bank). Regarding the ratio of Liquid asset/ Total asset, according to Table 6, during the period, all of banks maintain these ratios higher than the minimum regulated by SBV (10%).

4.6. Sensitivity to the market

Sensitivity to the market is expressed as the risk which occurs due to alteration in market conditions, for example, changes could adversely impact earning and capital. Market risk includes exposures associated with changes in interest rate, foreign exchange rates, commodity prices, etc. While all of these items are important, the primary risk in most banks is interest rate risk. Therefore, I choose the ratio of the difference between interest sensitive assets and interest sensitive liabilities to the equity. This ratio reflects a bank's earnings exposure to interest rate movement. If the difference is large (in either a positive or negative direction), interest rate changes will have large effects on net interest income.

Table 7: Ratio of the difference between interest sensitive assets and interest sensitive liabilities to the equity sample banks

Bank's name	Average of Rate	Score
Vietcombank	72.9	3
VietinBank	96.4	1
BIDV	82.5	2
MB	83.6	2
Techcombank	132.6	1

Sacombank	- 216.1	1
VPBank	73.6	3
SHB	70.6	3
ACB	10.2	5
VIB	87.4	2

Source: Annual reports of sample banks and author's own calculation

As can be seen from Table 7, except for ACB, the remaining banks from the sample be influenced significantly by the change of interest rate. In detail, Sacombank whose sensitive assets are lower than sensitive liabilities might face to a loss if interest rate goes up. Meanwhile, other banks would earn profit if the interest rate rises.

4.7. Overall evaluation

The overall ranking of the banks from my sample for the financial stability, made based on the CAMELS parameters is presented in table 8. The results of the analysis that the best positioned bank is Vietcombank, followed by Techcombank and MB and the last three ranking are BIDV, VietinBank and Sacombank.

Table 8: Total score and rank of sample banks

Bank's name	C	A	M	E	L	S	Total score	Rank
Vietcombank	3	3	4	4.5	4	3	3.55	1
VietinBank	3	3	3	3	2.5	1	2.83	9
BIDV	3	2	4	4	2.5	2	2.88	8
MB	3	2	4	5	5	2	3.45	3
Techcombank	4	2	4	5	4.5	1	3.53	2
Sacombank	3	1	1	2	3.5	1	1.98	10
VPBank	4	1	3	5	4	3	3.15	4
SHB	3	2	2	4.5	3.5	3	2.98	7
ACB	4	1	1	4.5	4.5	5	3.03	6
VIB	5	1	2	4	4,5	2	3.38	5

Source: Author's own calculation

5. Conclusion

CAMELS rating approach is considered as an important tool for identifying the financial strengths and weakness of a bank. This analysis helps to point out possible weakness and suggest necessary corrective measures to overcome weakness and thus improve the overall performance of a bank. This study has been conducted to examine the stability of 10 selected commercial banks in Vietnam during the period from 2013 to 2018 with respect to CAMELS ratio. It is found that all banks is higher than the benchmark of 9% as mandated by SBV. The average CAR of VIB, Techcombank and ACB are the highest whereas those of BIDV, Sacombank and Vietinbank are the lowest among sample banks. I suggest three banks having the lowest rate should increase the capital by issuing the private placement of shares for strategic partnership, increasing the retained earning, which helps banks to improve the CAR especially in case of applying Basel 2.

Regarding to asset quality, the average of NPLs of 8/10 banks are higher than the benchmark 3% recommended by WB, especially Sacombank (14.51%). Thus, these commercial banks must enhance the credit control ability as well as actively handle with bad debts. The CIR of Vietcombank is lower than other banks, which means the efficiency of this bank is higher as compared to the others. Estimating the profitability ratios, it can be observed that VPBank's profitability is outstanding on an average among the sample banks. This is because the proportion of unsecured loans is high, which may leads to the low stability in long term. Therefore, from my point of view, I suggest VPBank should change the credit portfolio to increase the secured loans, which ensures the stability of bank in the future. In terms of liquidity, MB has maintained comfortable liquidity position although excessive liquidity may affect profitability. By contrast, the liquidity ratio (LDR) of VietinBank and BIDV is higher than the benchmark of 90% as mandated by SBV. Hence, I suggest these two banks should expand the capital mobilization to ensure the stability. Regarding to the sensitivity to the market, ACB will be affected less than the others, meanwhile, Techcombank, Sacombank and VietinBank will be affected significantly in case of the change in interest. Hence, three banks should consider changing the asset liabilities management (ALM) policy to protect banks from risk exposure. The findings from the study can be helpful for the management of these selected banks to improve their financial performance and formulate policies that will improve their overall performance.

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THE INFLUENCE OF BANKING SECTOR DEVELOPMENT ON ECONOMIC GROWTH: ANALYSIS FROM VIETNAMESE ECONOMY

SỰ ẢNH HƯỞNG CỦA PHÁT TRIỂN NGÀNH NGÂN HÀNG ĐẾN TĂNG TRƯỞNG KINH TẾ: NGHIÊN CỨU TỪ NỀN KINH TẾ VIỆT NAM

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ABSTRACT

The aim of this study is to clarify the controversial relationship between banking sector development and economic growth for Vietnam. Thus, this paper will test the relationship between banking sector development and economic growth by using quarterly data of some banking sector indexes (credit facilities, depositor fund, banking capital and interest rate) and gross domestic product during period 2009 - 2017. The factual model was conducted by using ordinary least square regression to show that gross domestic product is obviously impacted by the banking sector development. The result shows that banking credits are positively related to economic growth. This leads to the fact that banking industry development can contribute to improve productive capacity of Vietnamese economy as case of supply leading. Finally, the result of this paper points out some crucial lesson to the Vietnamese authority policymakers: there is strong real benefit from Banking credits policy owing to the important effect on Vietnamese economy.

Keywords: *Interest rate, banking industry development, banking credits, gross domestic product.*

TÓM TẮT

Mục tiêu của bài nghiên cứu là làm rõ mối quan hệ giữa sự phát triển của ngành ngân hàng và tăng trưởng kinh tế ở Việt Nam. Do đó, bài viết này sẽ kiểm tra sự ảnh hưởng của phát triển ngành ngân hàng và tăng trưởng kinh tế bằng việc sử dụng dữ liệu theo tháng liên quan đến các chỉ tiêu gồm: tổng dư nợ tín dụng, tổng huy động vốn từ nền kinh tế, vốn tự có của ngân hàng, lãi suất tái cấp vốn và tổng sản phẩm quốc nội (GDP) trong giai đoạn 2009 - 2017. Mô hình thực tế được thực hiện bằng cách sử dụng hồi quy bình phương tối thiểu thông thường chỉ ra rằng giá trị tổng sản phẩm quốc nội rõ ràng bị ảnh hưởng bởi sự phát triển của ngành ngân hàng. Kết quả cho thấy tín dụng ngân hàng có liên quan tích cực đến tăng trưởng kinh tế. Điều này cho thấy rằng sự phát triển ngành ngân hàng có thể góp phần nâng cao năng lực sản xuất của nền kinh tế Việt Nam. Vì vậy, kết quả của bài viết này chỉ ra một số bài học quan trọng cho các nhà hoạch định chính sách của Việt Nam: xây dựng chính sách tín dụng đúng đắn góp phần làm tăng trưởng kinh tế của Việt Nam.

Từ khóa: *Lãi suất, sự phát triển ngành ngân hàng, tín dụng ngân hàng, tổng sản phẩm quốc nội.*

1. Introduction

In the development strategies of each country, economic growth is always the most important priority. Especially in developing countries that are dealing with many economic problems such as unemployment, poverty, lowing living standards, inflation and etc. These countries highly demand stimulating and managing economic growth to increase their national income and to create more job opportunities in order to improve their living standards. Economic historians, such as Patrick (1966) and Richard (2003), notices that the economics developing sophisticated financial systems at early stage are the most successful. Therefore, economic growth theory believes that financial institutions specially bank is considered a useful instrument for improving the productive capacity of the economy and its important internal source of fund for any country especially in the birth stages of economic growth (Schumpeter, 1911).

Certainly, banking system is important to the economic growth due to its ability in creating financial funds for society by attracting deposits from savers. Secondly, its role in allocating the funds to encourage investment and production through providing loans. Thirdly, banking system can help to create economic expansion to the most economic sectors like agriculture, industry and trading. Finally, banking system plays associate role between savers and borrowers.

The period 2009 - 2017 can be considered as an illustration of Vietnamese economy. Vietnamese economy suffered the impact from international economic crisis. In 2009, the rate of GDP development of Vietnam only stumbled to 5.32%, the lowest amount during a decade. From 2010 to 2017, Vietnamese economy has recovered gradually and the rate of GDP development reached a peak of 6.81%, the highest number after 10 years. To obtain this achievement, Vietnamese government conducted many financial policies which not only helped to gain the economic growth but also control inflation. These policies mainly concentrated on control the operation of banking sector. In fact, in Vietnamese financial sector, banks account for the most numbers of assets, for example credit institutes owned 96.2% of assets of financial system in 2016 [22]. Therefore, banking sector has the significant influence on Vietnamese economy and controlling it effectively will bring positive impacts on economic growth.

Originally, banking sector impacting on economic growth has been widely debated. Hicks (1969) asserted that economic growth and development is boosted by financial system and it is called supply leading. Banking credits provide financial fund to support economic activities and that is the way to cause economic growth. Correspondingly, King and Levine (1993) and Miller (1998) stated that the result of financial development is economic growth. This means that the development of financial system affects the economic growth positively. However, Goldsmith (1969) verified that the root of financial development is economic development. Moreover, the higher the economic growth rate makes demand of credits higher.

In Vietnam, the literature review on banking sector still lacks of reasearches on the relationship between banking sector development and economic growth. Thus, this paper empirically tests the relationship between banking sector development and economic growth. Certainly, the goal of it is investigating the impact of banking credits on Vietnamese economic growth. Besides, it tests the impact of credit facilities, banking deposits, interest rate on credits, on gross domestic product (GDP) as proxy of economic growth rate.

The structure of the study is organized as follows: section II provides information on the previous literatures related to banking sector development and economic growth. Section III states theoretical framework and research hypothesis. Section IV provides data sources and research methodology. Section V discusses the empirical findings. Finally, Section VI concludes the results.

2. Literature review

The linkage between banking sector development and economic growth is considered as a significant and positive relationship and it has been mentioned in many previous literatures. In the early study, Schumpeter (1911) emphasizes on the important role of financial sector within economic development.

Patrick (1966) presents the same viewpoint under the title of a model in financial development and economic growth literature review. The model named Supply-Leading shows that developed financial markets increase economic growth. The impact of financial development on economic growth has been featured in capital structure theories. These theories included bank-based, market-based, financial services-based and law and finance-based theories. Bank-based theory concentrates on positive influence of commercial banks on financial development. It explains that banks can mobilize resources and reduce risk for the economy (Anwar and Cooray, 2012). Market-based theory focuses on benefits, which are created by the good performance of financial markets, to the promotion of successful economic performance (Levine, 2005). Financial services-based theory based on both bank-based and market-based theories highlight the importance of key financial services that is provided by financial system. This theory explains that financial services are involved in industrial development and economic growth (Kose et al., 2010), because financial markets and institutes contribute to optimal distribution of risk and yield. Law and finance-based theory argues that financial systems are vital factors for firms, industries, and success of national economy (Anwar and Cooray, 2012).

McKinnon (1973) confirmed that a rise of banking services and financial activities will contribute to economic growth. Likewise, King and Levine (1993) argued that funding to the economy will stimulate the movement of economic wheels. Nevertheless, basing on the causality test between financial development and growth across 16 developing countries carried out by Demetriades and Hussein (1996), no meaningful relationship between financial development and economic growth was found. Similarly, Miwa et al (2000) researched the role of central banks on improving Japanese economic growth. They explored that Japanese companies did not prefer banking credit. They considered that the manufacturing enterprises in Japan mobilize their financial resources through decentralized competitive capital markets rather than banking fund. However, Calderon and Liu (2003) analyzed the mutual relationship between financial development and economic growth using data collected in 109 countries during the period 1960 - 1994. They revealed on the fact that the influence of economic growth on financial development becomes more obvious over long periods (advanced countries). Thus, they agree with the supply-leading theory.

Hshin-Yu and Alan Reichert (2006) emphasized on the causal relationship between financial sector development and economic growth in emerging and developed countries. Granger causality and Odedokun model were used in their research. The result of this research shows that there is a strong supply-leading relation between banking sector development and economic growth. Moreover, Al-Khatib and Al-Saffar (2013) tested the relationship between financial development and economic growth in Jordan from 2001 to 2012. They found out that there is a strong demand-leading relationship between banking sector development and economic growth. It means that banking sector development is dramatically impacted by the improvement of economic output.

Frikha and McMillan (2016) researched the role of Islamic banks in the rise of gross domestic product in 10 developing countries namely Bahrain, Egypt, Jordan, Kuwait, Pakistan, Saudi Arabia, Qatar, Sudan, Turkey and United Arab Emirates. Ordinary least square regression for testing 120 banks from different developing countries was used in their research. They found that conventional banks support economic growth. Moreover, the combination between Islamic and conventional way can help to improve economic growth. However, the practice of Islamic banks is away from their theoretical mode in terms of participation results. Besides, Prochniak and Wasiak (2017) investigated the influence of financial system on economic growth in 28 EU and 34 OCED economies between 1993 and 2013. They used some banking variables such as domestic credit, nonperforming loan, capital to assets ratio, market capitalization as explanatory variables and gross domestic product as dependent variable. They found that there is a positive significant relationship between banking system and economic growth.

Zhao (2017) examined the effect of financial development to economic output by checking data collected from 286 Chinese cities from 2007 to 2014. The study used cross sectional regression model to find the results. The result showed that Chinese growth is not impacted significantly positively by the development of financial system. Nevertheless, some banking variables have negative effect on growth. Besides, Bongini et al (2017) tested the role of financial development in economic growth of Central, Eastern and South Eastern European Countries (CESEE) during the period 1995-2014. They researched whether CESEE economy benefits from the presence of foreign owned banks. The result indicated that those banks boost economic growth and indisputably positive to local market.

Thus, this research concludes that it is a controversial topic from different economies that some of them agreed with supply leading policy and others argued with demand leading policy. In fact, no study in Vietnam that primary discussed and analyzed the role of banking sector development in boosting economic growth. So, this study provides new evidence from Vietnamese economy to the money supply leading. Therefore, this research widens the existing literatures through testing the influence of banking sector development on Vietnamese economic growth.

3. Research hypothesis, Data and Methodology

3.1. Research hypothesis

The research hypothesis is presented in this section. Thus, the alternative hypothesis is the fact that the explanatory variables including banking credits, banking deposit, banking capital, and interest rate have a significant influence on gross domestic product as researches of McKinnon (1973), and King and Levine (1993), and Ehikiorya and Ismailia (2014). Then, the study hypothesis should be conducted as follows:

H1: There is a significant influence of banking sector indicators to gross domestic product.

3.2. Data

This study tests the influence of changes in banking sector to economic growth. It can be calculated by using time series data during 2009-2017. The research data is monthly and collected from annual report of State Bank of Vietnam and the General Statistic Office of Vietnam. The choice of the time period in this research was based on the availability of official data variables in the estimated model. Moreover this study uses some financial indicators to measure the banking industry development such as banking credit (CR), banking deposits (DE), banking capital (CA), and interest rate (I) – refinancing rate announced by State Bank of Vietnam. In addition, it uses gross domestic product as a proxy of economic growth (GR).

3.3. Methodology

The econometric model is used to assess the influence of banking variables on gross domestic product. Occasionally, the functional relationship between banking sector development and economic growth can certainly be verified as follows:

$$\Delta GR_t = f(CR, DE, CA, I)$$

Thus, this hypothetical model can be specified including logarithm for banking indicators as follows:

$$\text{Log GR}_t = \beta_0 + \beta_1 \text{Log CR}_t + \beta_2 \text{Log DE}_t + \beta_3 \text{Log CA}_t + \beta_4 I_t + e_t$$

The meaning of components of formulation as below:

GR: The logarithm of gross domestic product at period t.

β_0 : Constant or intercept.

β_1 : Coefficient effect of banking credits;.

β_2 : Coefficient effect of banking deposits.

β_3 : Coefficient effect of banking capital.

β_4 : Coefficient effect of interest rate.

e_t : Residual errors.

Hence, Table 1 describes the explanatory and dependent variables that used in conceptualized the research model. Besides, it also shows the definition of some banking indicators and gross domestic products that used in estimating the research model.

Table 1: Selected Variables

Variable	Definition	Predicted sign
Dependent Variable		
Economic Growth	Growth in gross domestic product	
Explanatory Variables		
Banking credits	Change in credit facilities (month to month)	+
Banking deposits	Change in total banking deposits (month to month)	+
Banking capital	Change in banking capital (month to month)	+
Interest rate	The average of interest stated by the State Bank of Vietnam	-

4. Research Findings and Discussion

Table 2 shows the descriptive statistics of research model. GDP has a mean value of VND 841,338 billion and deviated by 323,308. Whereas, banking credit is average VND 3,554,904 billion with standard deviation 1,365,129. Meanwhile, banking deposit has a mean value of VND 3,878,273 billion during the research and deviated by 1,678,601. Further, banking capital had reached on average to VND 12,339 billion. On other hand, this table shows the result of Jarque- Bera test in order to examine the goodness of fit model and the normality among research variables. It shows that the p-values for all explanatory variables are greater than significant of 5% level. Therefore, the alternative hypothesis is accepted and explanatory variables are consistently distributed. Hence, the result reveals that the estimated model is maintained the requirements and accordance with the data variables.

Table 2: Descriptive Statistics for the Variables

	GDP	CR	DE	CA	I
Mean	841,338	3,554,904	3,878,273	12,339	0.130928
Std. Dev.	323,308	1,365,129	1,678,601	6,212	0.030455
Skewness	0.128162	0.115406	0.287129	0.151088	0.168304
Kurtosis	2.565918	2.218754	2.108087	2.348145	1.571986
Jarque-Bera	0.715065	1.189002	0.954677	1.269454	0.935677
Probability	0.722293	0.549085	0.622919	0.528757	0.490096
Observations	36	36	36	36	36

Table 3 provides information on a high level of explanation and significance of influence for the explanatory variables. The structural parameter calculated obtained implies 91.5% of GDP is explained by selected variables. The coefficient of determination (R²) shows that over 91% of variation in Vietnamese economic growth is formulated by the variation of banking indexes. Moreover, F test is 59.36 and the probability of F test value 0.000 is less than the significant of 5% level. In addition, Durbin - Watson is closed to the rule of thumb 2 and this means that there is no autocorrelation problem among the research variables. The result confirmed that formulated model is correct and very well fit. Therefore, the alternative hypothesis is accepted and the coefficients calculated from research model are stable.

Table 3: The Regression Model Results (Dependent Variable: GDP)

Variable	t-value	Coefficient	Std.Error	Prob.
Intercept	3.80455	1.892456	0.609758	0.0037
CR	3.34341	0.389832	0.218668	0.0086
DE	0.99865	0.290682	0.332174	0.4879
CA	0.95673	0.275682	0.357583	0.6437
I	-0.37278	-0.434203	1.578976	0.8968
R squared	0.915			
F-statistic	59.36			
Prob (F-test)	0.000			
Durbin-Watson	2.0509			

Table 3 also shows that there is a significant positive relationship between banking credits supply and gross domestic product. This concludes that the rise of funding economic sectors by one percent will promote gross domestic product to rise by 3.34 percent. Therefore, this finding consolidates the results of King and Levine (1993) and Miller (1998) in case the vital role of banking credits and services in economic growth. However, the result shows that banking deposits does not impact on economic growth. This indicates that the rise of customer deposits by one percent tend to increase output growth by 0.998 %, so this relation is not significant. Thus, the result reveals that interest rate has a negative relationship with economic growth and the decline of interest rate can contribute to the development of economy.

5. Conclusion

Using least square model and regression analysis the researcher tested whether banking sector influences to economic growth in Vietnamese economy between 2009 and 2017. This research employed four explanatory variables to measure banking sector development such as; banking credits facilities, customer deposits, banking capital, and lending rate. It also used gross domestic product to assess the growth of Vietnamese economy.

Generally, GDP is strongly impacted by some of banking indicators especially banking credits facilities. This research indicated that more funding to economic sector tends to enhance and improve economic conditions in Vietnamese partially local productivity in public and private sectors. Therefore, banking industry is considered one of the most important factors of Vietnamese economy. This paper recommends that Vietnamese banks should decrease their cost of debt in order to provide more domestic funding and to improve their credits policy in order to reinforce local fund raising capacity and investment. To do that, Vietnamese government can do some changes such as:

- Building a framework of policies and credit programs towards green growth in Vietnam.
- Deploying a roadmap to liberalize capital transactions cautiously and appropriately.
- Thoroughly handling weak credit institutions and continue implementing measures to reduce bad debts.

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**DETERMINANTS OF BAD DEBT IN PERSONAL CREDIT SEGMENT:
EVIDENCE FROM VIETNAMESE COMMERCIAL BANKS**

**CÁC THUỘC TÍNH TÀI CHÍNH GÂY RA NỢ XẤU TÍN DỤNG CỦA KHÁCH HÀNG
CÁ NHÂN TẠI NGÂN HÀNG THƯƠNG MẠI VIỆT NAM**

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ABSTRACT

This study applies the Decision Tree model to analyze the financial data of 500 individual customers who are granted by commercial banks in Vietnam. Based on the study of credit-scoring models for individual customers and previous relevant-research, the authors select the financial attributes of individual customers that are likely to cause the bad debt to put into the initial model of Decision Tree, including bad-debt group, loan frequency, loan purpose, loan term (month), overdue-loan frequency, collateral, Loan/Collateral ratio, Debt/Total Asset ratio, total income, Reserve Expense/Debt, credit policy. The result of decision tree illustrates eight attributes leading to the bad debt, specifically loan frequency, loan purpose, loan term, overdue-loan frequency, Loan/Collateral ratio, Debt/ Total Asset ratio, Reserve Expense/Debt ratio, and credit policy. According to the research result, this paper proposes a number of solutions to prevent the bad debt of individual customers during the process of credit appraisal at commercial banks in Vietnam.

Keywords: *Financial attributes, personal credit, bad debt, non-performing loans, commercial banks, Vietnam, Decision Tree model.*

TÓM TẮT

Nghiên cứu này sử dụng mô hình Cây quyết định để xử lý dữ liệu tài chính của 500 khách hàng cá nhân đang vay nợ tại một số ngân hàng thương mại Việt Nam. Dựa trên việc nghiên cứu các mô hình chấm điểm tín dụng khách hàng cá nhân và một số tiền nghiên cứu liên quan, tác giả lựa chọn các thuộc tính tài chính của khách hàng cá nhân có khả năng gây ra nợ xấu tín dụng để đưa vào mô hình, bao gồm: nhóm nợ xấu, tần suất vay, mục đích vay, kỳ hạn vay (tháng), lịch sử tín dụng của khách hàng, số lượng và giá trị tài sản đảm bảo, tỷ lệ khoản vay/tài sản đảm bảo, tỷ lệ nợ phải trả/tổng tài sản cá nhân, tổng thu nhập, tỷ lệ chi phí dự phòng/nợ phải trả, chính sách tín dụng. Kết quả nghiên cứu chỉ ra 8 thuộc tính dẫn đến nợ xấu, bao gồm: tần suất vay, mục đích vay, kỳ hạn (tháng), lịch sử tín dụng của khách hàng, tỷ lệ khoản vay/tài sản đảm bảo, tỷ lệ nợ phải trả/tổng tài sản cá nhân, tỷ lệ chi phí dự phòng/nợ phải trả, chính sách tín dụng. Dựa trên kết quả nghiên cứu, tác giả đề xuất một số giải pháp nhằm ngăn ngừa nợ xấu tín dụng của khách hàng cá nhân trong quá trình thẩm định hồ sơ tín dụng tại các ngân hàng thương mại Việt Nam.

Từ khóa: *Thuộc tính tài chính, tín dụng cá nhân, nợ xấu, ngân hàng thương mại, Việt Nam, mô hình Cây quyết định.*

1. Introduction

Since 1986 Vietnam's economy has developed impressively accompanied by enormous capital demands mainly focusing on fields of infrastructural construction, manufacture and service business. In order to meet such growing demands, Vietnamese banking system with two main activities, specifically mobilization and lending, has efficiently perform to provide sufficient capitals for the economy and create a considerable momentum for the economic development in the long term. Business activities have become stagnant, thus causing varied financial risks to the banking system. One of major risks that commercial banks pay much attention to is the credit risk, in which the most serious situation is as the rate of non-performing loans (NPLs) increases higher and higher to a point of impossible solution. The

bad debt not only block the capital flows into the economy, but also damage the banking efficiency of commercial banks. Therefore, in 2013 the Vietnam Asset Management Company (VAMC) was established to buy and sell bad debt of all commercial banks in Vietnamese banking system. However, up to now VAMC has not been able to fulfill its mission because of an insufficient authorization of legal framework, meaning that it has not allowed commercial banks as well as debt-trading companies to handle assets of bank-borrowing enterprises. Hue, N. T. M. (2015) claims that VAMC could not find a real solution to the problem of high NPLs ratio in Vietnam, actually it just reformed the NPL, leading to an increase in the bad-debt rate.

The nature of a bank's bad debt is defined as a wrong or ineffective spend of the borrowers who are granted by banks. When a large number of borrowers faces the financial dilemma, the amount of bad debt of the whole banking system would increase dramatically, causing serious consequences for the banks themselves as well as the domestic economy. In Vietnam, the ratio of bad debt has tended to increase since the end of 2007 and became more serious since the end of 2011. According to the annual reports of financial institutions, in 2012 the banking system's bad debt is 117,723 billion VND, accounting for 4.47%. However, the State Bank of Vietnam announced that the ratio of bad debt was 8.82% in 2012, far exceeding the figures reported by commercial banks. In addition, according to Fitch Ratings, Vietnam's bad-debt ratio in 2012 was 13% of total outstanding loans. As comprehensively reassessing the figure of bad debt of banking system in 2015, the SBV issued that the ratio of bad debt was twice as high as that in 2012, at 17.21%. In an attempt to quickly and completely eliminate bad debts of financial institutions within five years (from 2016 to 2020), the SBV determined that the completion of the legal framework on restructuring weak banks would play a central role of this period. Accordingly, the SBV formulated and submitted the Resolution No.42/ 2017/ QH14 to the National Assembly for approval in 2017, with aiming to launch the pilot project of dealing with bad debts of credit institutions. The Resolution No.42 took effect in the period of 2012-2017. As a result, over the 10-month period from mid-August 2017 to June 2018, the whole system of credit institution has handled nearly 140 trillion VND of bad debt.

Handling bad debt and minimizing the credit risk of are top priorities of Vietnamese banking system. However, in order to avoid bad debt, especially in terms of bank credit for the individual customers, commercial banks must identify the financial attributes of customers that are likely to cause bad debt, and build appropriate principles of the credit policy based on their analyses. Over the recent years, Vietnamese commercial banks have applied various business strategies and policies to expand the credit operation and improve the credit quality, with aiming to increase the capital supply for the capital market in Vietnam. However, in the process of credit growth, especially for individual customers, commercial banks have encountered several challenges and risks that lead to a sharp increase in bad debt related to the credit segment of individual customer which in turn affects the banking efficiency of these banks. Therefore, it is imperative for Vietnamese commercial banks to pay much attention to the financial attributes of individual customers that are considered to be major factors causing bad debt in order to formulate an appropriate policy of preventing the credit risk. The author finds this issue to be a research gap because there are not much thorough research covering it. Determining the financial attributes of individual customers causing bad debt not only to help commercial banks find the appropriate solution, but also to fill the research gap in terms of the credit risk and bad debt issue.

This paper aims to study the theoretical basis regarding the credit segment of individual customer, bad debt, as well as the financial attributes of individual customer that can be used to predict the probability of causing bad debt. The authors then apply the Decision Tree model to identify these individual attributes and clarify how they are likely to trigger bad debts. Finally, based on the research results, this study proposes some possible solutions to help commercial banks minimize the credit risk of individual customer.

2. Literature Review

2.1. Definition of personal credit

The credit is defined as an economic category that reflects the transaction relationship between two (or more) entities. In which one side transfers an amount of money to the other for a specified period of time, following a principle that the receivers must pledge to return it on (or ahead of) time shown in a credit agreement. Accordingly, the banking credit is defined as a credit relationship between a certain bank and another party in the economy, in which the bank acts as both a borrower and lender. In other words, the bank can be seen as a financial intermediary that connect capital flows from the side having temporary surplus capital to the another being in capital shortage. The price (interest rate) of a loan set by the bank is the amount of interest that the customer obliges to pay throughout the loan cycle. Personal credit is individual's debt taken on to purchase goods and services (www.investopedia.com).

2.2. Definition of non-performing loan

The bad debt (or doubtful debt) are commonly considered to be overdue loans, meaning that the borrowers cannot afford to repay or recover their loans. This phenomenon normally happens when the debtors declare themselves to be bankrupt or to have dispersed properties. Furthermore, they are accompanied by overdue interest and/ or principal repayments categorized into different groups based on the length of time out of date. However, the categories of bad debt are fairly broad and varied in opinion on it, thus each country or each economy has a different perspective about the bad debt.

A nonperforming loan (NPL) is a certain loan upon which the borrower has not made the scheduled payments for a specified period (www.investopedia.com).

According to European Central Bank (ECB), the bad debt is defined as an irrecoverable loan, such as expired debts or unwarranted debts of the debtors who might be missing (or flee). They might also terminate or liquidate their businesses that certainly suffer losses; thus, the remaining assets are not enough to pay the debts. In these cases, the banks normally cannot contact or find the debtors. The bad debt might also be unrecovered loans, with having no collaterals or the assets offered as collaterals are not sufficient value to cover the debts, meaning that the banks cannot fully recover the debt. There are various circumstances that might lead to the bad debt eventually as follows:

- The debtors agreed to pay the debts in the past but the rest cannot be compensated. Or the collaterals are transferred for regularly payments of interest and principal but the remaining value are not sufficient to cover the whole debt.

- The debtors are troubled to repay the debts and require the banks to reschedule the payment plan. However, eventually they cannot afford to compensate for their debts within the agreed time.

- The debtors' mortgaged properties are insufficient in value to pay off the debts or the mortgaged assets, thus the debtors are unable to fully repay the debts.

- The debtors declare themselves to be bankrupt, with having the payoff be less than the outstanding balance.

According to the International Monetary Fund (IMF), the bad debt is defined as an unprofitable loan (bad debt) accompanied by the interest and/or principal payments that are overdue for more than 90 days, or accepted to be restructured/rescheduled after 90 days. It might also be the case that the interest and/or principal payments within are not overdue but there are clear reasons to doubt the debt payment will be fully implemented.

According to the State Bank of Vietnam (SBV), based on the Decision No. 493/2005 of the Governor of the SBV about how to classify banking debt. The NPL includes three groups, specifically Substandard debt (group 3), Doubtful debt (group 4), and Irrecoverable debt (group 5). They are also determined based on two factors: (i): overdue for more than 90 days or (ii): unsettling repayment capacity.

Based on these viewpoints mentioned above, this paper considers the bad debt to be a loan that might cause the debtors to be unable to stay solvent. In other words, even though a loan is still on due or just lent, but there are clear signals regarding the financial ability of individual customer that might help the banks affirm the repayment ability of customer to be suspicious, so it can also be considered as a possible bad debt. All in all, this research follows the definition and categorization of the State Bank of Vietnam about the NPLs that are applied to Vietnamese banking system.

2.3. Attributes of causing the bad debt in the segment of personal credit

Antwi et al. (2012) studied the debt repayment capacity of customers using the data of 800 observations from 2006 to 2010. The study concluded that there were two variables, specifically forms of borrowing and assets, that actually affect the borrower's ability to repay. Therefore, the banks should focus on the borrower's ability to secure the loan with assets and improve the risk of default of the borrower. In addition, Pasha, S. A. M., & Negese, T. (2014) researched the microfinance related to the provision of small loans, savings, and other services to the poor, excluding commercial bank collateral and other reasons. The authors collected data from credit institutions and analyzed using the Logistic model. The study shows that there are 14 determinants of loan repayment performance, nine of them are statistically significant. The results suggest that the level of education of customers would help them to use capital more effectively. Moreover, their labor-age and good business experience will enable them to better repay the debts.

Nawai, N., & Shariff, M. N. M. (2012) investigated the factors that affect the ability of borrowers using the research sample of 309 customers participating in micro-credit programs in Malaysia from 2010 to 2011. In which, the status of loan repayment is categorized into three specific types: punctual repayment, overdue repayment and non-performing loan. The study used Logit regression with 12 independent variables, for example gender, age, education level, education/religion, total income, loan term, monthly sales, and legal business registration affecting customers' ability to pay debts. The results show that age, education/ religion, monthly sales, and legal business registration reduce the ability to repay loans, while gender, total debt, and the repayment of a loan according to customer needs have a positive effect on the customer's ability to repay loan.

This study selects the attributes regarding the financial information of individual customers who are on loan from commercial banks based on various systems of credit criteria which Vietnamese banks apply to assess customers' financial capacity and previous studies in terms of the personal credit and bad debt. Although the factors causing the bad debt of personal credit are quite different for each commercial bank or research period, they converge into some fundamental attributes. According to the results of previous studies, this paper chooses four groups of attributes that might lead to the bad debt in the segment of personal credit as follows:

- The financial capability of customer.
- The overdue-loan frequency of customer.
- The loan characteristics.
- The credit policy of bank.

The financial capability of customer

The attributes of financial capability are used to determine whether the debtors can pay the interest and principal on time, including the total income, personalized collateral (in value and quantity).

(Owen, 2006) indicates that the total income probably affects the credit risk of loan portfolio in a positive way. In great detail, the credit risk would be reduced if the total income of customer is high, meaning that the customer has more capability to pay the interest and principal on time regardless of the cost of living and other expense. To sum up, the higher the income of customer, the smaller the probability of causing the bad debt.

Similarly, the quantity and quality of collaterals owned by the customers have a positive impact on their credit conditions. (Owen, 2006) also claims that the larger the value of collateral, the less likely the banks face the credit risk.

The credit history of customer

The detailed information on the credit history reflects the number of loans, the frequency of borrowing, the description of overdue loans. (Li, 2012) concludes that they are considered to be significant to assess the creditworthiness of a certain customer in the credit relationship with (various) commercial banks. In other words, as the customers enhance their own reliability and credit worthiness in the credit relationship with credit situations, they will be lent by the banks many times, showing in an increase of loan frequency. However, in reality, the burden of repayment and other expense might also rise when the customers are accepted to get as many as they need, leading to the surge of the credit risk that directly causes the bad debt (Xiao, 2006).

The loan characteristics

This group of attributes presents the characteristics of the loan, including the loan limit, the purpose of loan, the loan term (month), the rate of loan/collaterals rate, the rate of loan/collateral.

There are different opinions about the effect of the loan limit (for a certain customer) to the bad debt in the field of personal credit. (Steenackers, 1989) indicates that the larger the allowable limit of loan, the higher the profit that customers can generate. The smaller limit of loan is likely to cause the bad debt because the customers do not have enough capital to yield expected profits on their businesses so as to cover the financial expense. In contrast, the large loans are considered to be less risky because they are commonly strictly monitored by the banks, thus reducing the probability of causing the bad debt.

Regarding the loan term, (Steenackers, 1989) demonstrates that the banks find more difficult to manage the credit risk of long-term loans. As the customers consider their credit risks to be low, they will prefer short-term loans to long-term loans so as to reduce the financial expense.

As determined the loan purpose, the loans can be served the business or living purposes. If the customers spend the loans on their own consumptions that often do not generate the reciprocal income, the credit risk of these loans might be higher than that of business-purpose loans. It is clear that this category of loan enables the customers to gain expected profits so that they can pay the interest and principal on time, thus eliminating the possibility of causing the bad debt.

According to the traditional view, there is a positive relationship between the credit risk and the collateral, implying that if the repayment capacity of customer is judged to be weak, the bank would require larger collateral in value (or more collaterals in quantity). (Vo, 2015) indicates that the ratio of loan to collateral has a positive effect to the rate of bad debt in the segment of personal credit.

The credit policy of bank

This group of attributes introduces the credit policies that the banks apply to the customers of personal credit, including the rate of reserve expense/repayment, the credit rank of customer. They can provide the detailed information on the budget of risk reserve and favorable policies applied to the individual customer. These rates also indicate the risk appetite or the amount of bad debt in total that banks can accept. (Capon, 1982) concludes that the credit policy helps banks not only monitor the effectiveness of their business activities, but also identify the goodwill of customer in repayment and other factors that might affect customer's ability to repay debts, thus reducing the probability of causing the bad debt.

3. Methodology and data

3.1. Decision Tree model

This research uses the Decision Tree (DT) model because it helps to identify key attributes that affect the probability of repaying individual customers' debts on time. The DT model makes explicitly all

possible alternatives and traces each alternative to its conclusion in a single view, allowing for easy comparison among the various alternatives. It also allows for a comprehensive analysis of the consequences of each possible decision, such as what the decision leads to, whether it ends in uncertainty or a definite conclusion, or whether it leads to new issues for which the process needs repetition. Moreover, the DT approach is not tied by any theoretical assumption. It is a series of probabilistic algorithms in which the probability of an event occurs in different "if-then" scenarios is calculated and showed in the form of information trees. Finally, none of the previous studies in this field used the DT model in the case of Vietnam.

Technically, a tree is either a leaf node labelled with a class, or a structure containing a test, linked to two or more nodes (or subtrees). Each subtree from start to finish reflects a rule of an event and goes with a separate event, mutually exclusive, meaning that if this event occurs when the other event will not. In fact, a basic decision tree might have several internal (non-leaf) nodes denoting tests on the attributes or input features, branches representing the outcome of tests, and leaves (or terminal nodes) holding class labels. The probability algorithm can help to determine the major nodes and leaves by eliminating the disturbance properties or elements. A tree which can be considered a good outcome must include the attributes with maximum information gain ratio - the probabilities of each case with a particular value for the attribute being of a particular class.

The DT model is supported by a software named Weka- an open source software issued by the University of Waikato, thus this study uses Weka J48 which is an open Java implementation of the C4.5 algorithm, based on Ross Quinlan's ID3 algorithm. It is ranked among the top 10 algorithms in Data Mining (Wu, et al., 2008). The experts in the field of machine learning consider C4.5 algorithm a powerful learning algorithm because it is able to form a mapping from indicator values to classes, dedicated to classifying unobserved variables.

Korting (2006) showed a brief description about the C4.5 algorithm, used to create Univariate Decision Trees and Multivariate Decision Trees, as following:

The premises on which this algorithm is based are:

- If all cases are of the same class, the tree is a leaf and so the leaf is returned labelled with this class.
- For each attribute, calculate the potential information provided by a test on the attribute (based on the probabilities of each case having a particular value for the attribute). Also calculate the gain in information that would result from a test on the attribute (based on the probabilities of each case with a particular value for the attribute being of a particular class).
- Depending on the current selection criterion, find the best attribute to branch on.

Counting gain: This process uses the "Entropy", i.e. a measure of the disorder of the data. The Entropy of \vec{y} is calculated by

$$Entropy(\vec{y}) = - \sum_{j=1}^n \frac{|y_j|}{|\vec{y}|} \log \frac{|y_j|}{|\vec{y}|}$$

Iterating over all possible values of \vec{y}

The conditional Entropy is:

$$Entropy(j/\vec{y}) = \frac{|y_j|}{|\vec{y}|} \log \frac{|y_j|}{|\vec{y}|}$$

and finally, we define Gain by:

$$Gain(\sim y, j) = Entropy(\sim y) - Entropy(\sim j|\sim y)$$

The aim is to maximize the Gain, dividing by over-all entropy due to split argument \vec{y} by value j .

Pruning: This is an important step to the result because of the outliers. All data sets contain a little subset of instances that are not well-defined, and differs from the other ones on its neighborhood. After the complete creation of the tree, that must classify all the instances in the training set, it is pruned. This is to reduce classification errors, caused by specialization in the training set; this is done to make the tree more general.

For a Multivariate Decision tree, we can represent the multivariate tests with a Linear Machine (LM). Considering a multiclass instance set, we can represent the multivariate tests with a LM.

LM: Let \vec{y} be an instance description consisting of 1 and the n features that describe the instance, $\vec{y} = y_1, y_2, \dots, y_n$. Then each discriminant function $g_i(\vec{y})$ has the form:

$$\vec{w}_i^T \vec{y}$$

where

\vec{w}_i is a vector of $n+1$ coefficients. The LM infers instance \vec{y} to belong to class i if:

$$(\forall_{j,i \neq j}) g_i(\vec{y}) > g_j(\vec{y})$$

The weights vector is assigned a default value for all $w_i, i = 1, \dots, N$.

One approach for updating the weight of the discriminant functions is the absolute error correction rule, which adjusts w_i where i is the class to which the instance belongs, and w_j where j is the class to which the LM incorrectly assigns the instance. The correction is accomplished by

$$w_i \leftarrow w_i + c\vec{y}$$

and

$$w_j \leftarrow w_j - c\vec{y}$$

where

$$c = \left\lceil \frac{(w_j - w_i)^T \vec{y}}{2\vec{y}^T \vec{y}} \right\rceil$$

is the smallest integer such that the updated LM will classify the instance in a correct way.

Thermal Perceptron: For not linearly separable instances, one method is the “thermal perceptron”, that also adjusts w_i and w_j , and deals with some constants

$$c = \frac{B}{B + k}$$

The basic idea of this algorithm is to correct the weights-vector until all instances become correct, or in the worst case, a certain number of iterations is reached (represented by the actualization of B value, decreasing according to the equation $B = aB - b$, as $a = 99\%$ and $b = 0.0005$ is also a linear small decreasing of the value B).

For this research, the key instrument for collecting data is the questionnaire. A valid questionnaire must be designed in accordance with the contextual adaptation and relevant information. For this

issue, the decision tree approach offers an advantage over other models such as exploratory factor analysis or structural equation modelling. Designing a questionnaire for an EFA or SEM is bounded by multiple technical procedures and criteria. For example, their measurements are commonly tightened with a Likert scale which is uni-dimensional and only gives 5-7 options of choice, and the space between each choice cannot possibly be equidistant. Therefore, it might fail to measure the true attitudes of respondents in some cases. In contrast, the tree approach is free with the aforementioned elements. The tree approach could deal with a set of attributes with different measurement scales. Indeed, the tree approach gives greater flexibility to the researcher in establishing a questionnaire which collects as much as possible of the needed information and in establishing the whole set of relations between a different kind of information.

Despite these advantages, there are still some recommended practices.

- The attributes in a decision tree approach may be nominal categorical, or continuous. If it is a continuous-valued attribute, for example “bus waiting time”, it must be discretized prior to attribute selection (Fayyad & Irani, 1992). It is possible to use simple clustering algorithms for one-way data to divide the values into small clusters, then a continuous-valued attribute is converted into categorical properties. The discretization algorithm is automatically available with ID3, C4.5 and Fuzzy ID3 algorithm.

- If the attribute is assigned to many values, it might result in a tree with several possible outcomes, meaning that it becomes less certain and less representative. Therefore, when an attribute has a finite list of possible values, it is necessary to screen carefully, select only the typical values for each attribute.

These technical notes mentioned above are useful for designing a valid questionnaire for our decision tree analysis.

3.2. Data

This study was conducted in Hue City nested in the middle part of Vietnam. Given an access to the database of personal credit by various branches of commercial banks in Hue City, the research amassed a comprehensive data that meet the requirements of the Decision Tree approach, containing the information of loan commitment of borrowers who got loans in the period of 2017-18. The research data includes the financial information of 500 individual customers being on loan from five joint-stock commercial banks in Vietnam, specifically Vietin, BIDV, ACB, Sacom and VIB. This sample is composed of customers who repay debts on time and those whose debts are reported being overdue. The authors apply the Decision Tree model including 11 attributes- that is to say, bad debt group, loan frequency, loan purpose, loan term, overdue-loan frequency, customer’s collateral (in quantity and value), the rate of loan/collateral, the rate of liability/total asset, customer’s income, the rate of reserve expense/repayment, to assess the probability of causing the bad debt in the segment of personal credit. These attributes belong to the string type which represents a dynamically expanding set of nominal values, usually used in text classification as shown in Table 1.

Table 1: Description of attributes used in Decision Tree model

Attribute	Meaning	Characteristics
<i>Bad-debt Group</i>	The groups of bad debt according to the standard of State Bank of Vietnam	<ul style="list-style-type: none"> • Type 1 • Type 2-3 • Type 4-5
<i>Collateral</i>	The collateral of individual customer	<ul style="list-style-type: none"> • Quantity • Value
<i>Credit policy</i>	The credit policies are being applied to the segment of personal credit during research period	<ul style="list-style-type: none"> • Normal • Under control • Under control & Awareness

<i>Debt/Total Asset ratio</i>	The ratio of debt to customer's total assets	
<i>Loan Frequency</i>	How regular the customers receive personal loans from the banks	<ul style="list-style-type: none"> • One-time • Average • Frequent
<i>Loan Purpose</i>	The purposes of personal loans	<ul style="list-style-type: none"> • Business • Consumption • Household Spend
<i>Loan Term</i>	The different periods of personal loans (month)	<ul style="list-style-type: none"> • Short • Medium • Long
<i>Loan/Collateral ratio</i>	The ratio of loan to collateral	
<i>Overdue-loan Frequency</i>	Whether the customer have overdue loan during the credit history in banks' database	<ul style="list-style-type: none"> • Rare • Frequent • Punctual
<i>Reserve Expense/Debt ratio</i>	The ratio of reserve expense to debt	
<i>Total income</i>	The total income of individual customer per month	<ul style="list-style-type: none"> • Low • Average • High

Source: Author's description

4. Results and discussion

4.1. Results

The decision tree is a tool of decision making that uses a tree-like graph or model of possible consequences and displays an algorithm containing conditional control statements. The common illustration of a certain decision tree is a flowchart-like structure in which each internal node represents a "test" on an attribute, each branch represents the outcome of the test, and each leaf node represents a class label (outcome given after computing all attributes). The paths from root to leaf represent classification rules. Unlike linear models, tree-based learning algorithms map non-linear relationships quite well. They are adaptable at solving any kind of problem at hand (classification or regression). Decision Tree algorithms are referred to as CART (Classification and Regression Trees). They have a natural "if ... then ... else ..." construction that makes it fit easily into a programmatic structure, and would be well suited to categorization problems where attributes or features are systematically checked to determine a final category. The decision tree of this research is categorized into Categorical Variable Decision Tree which has categorical target variable. For example, in the scenario of the likelihood of bad debt, the target variable is "The categorization of bad debt "i.e. type 1 or 2-3 or 4-5.

In order to show the paths from root to leaf which represent how different types of bad debt are likely to be incurred and identify key attributes of a certain individual customer that might cause the bad debt during the loan period, this study uses the Weka software to exploit the data including the financial information of 500 individual customers that are reported getting into the bad debt in their credit history in banks' database. The likelihood of causing the bad debt is expressed as the decision tree as follows:

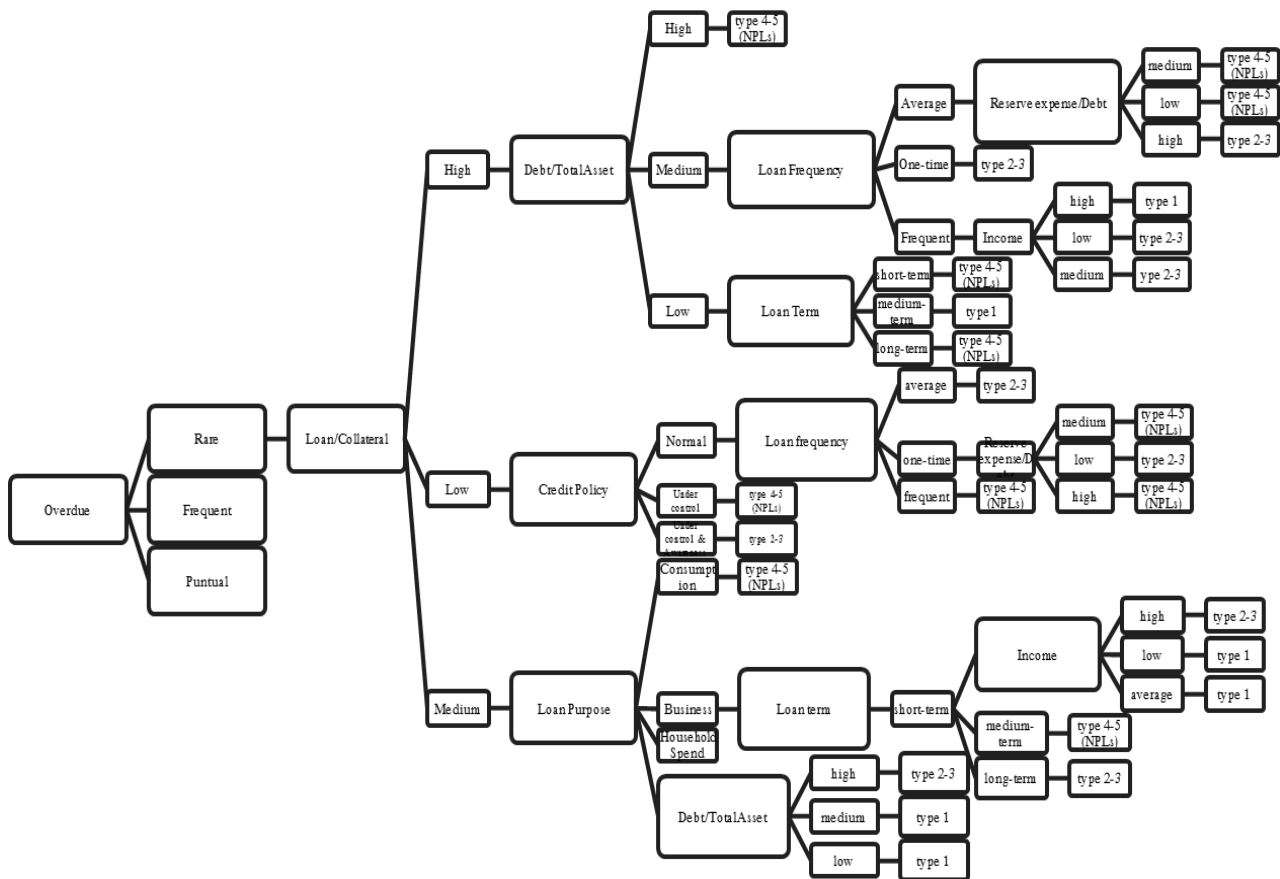


Figure 1: The decision tree of probability causing the bad debt

As mentions in Figure, the decision tree of bad-debt likelihood presents primarily financial attributes leading to different bad-debt groups that can be interpreted as follows:

The “Rare” branch:

If the Overdue variable falls into the ‘Rare’ group, and combines with high Loan/Collateral rate, what group the bad debt would belong to depends on other factors shown in varied circumstances as bellows:

- If the rate of Debt/Total Asset is high, the bad debt would belong to the group of debt type 4-5.
- If the rate of Debt/Total Asset is medium with Loan Frequency being average and the rate of Reserve Expense/Debt being high, the bad debt would belong to the group of debt type 4-5. The rate of Reserve Expense/Debt is low or medium, the group of bad debt is type 2-3.
- If the rate of Debt/Total Asset is medium with Loan Frequency getting the value of one, the bad debt would belong to the group of debt type 2-3.
- If the rate of Debt/Total Asset is medium with Loan Frequency being high and the Income being high, the bad debt belongs to the group of debt type 1. The Income is average or low, then the group of bad debt is type 2-3.

- If the rate of Debt/Total Asset is low with the Loan Term being short or long, the bad debt would belong to the group of debt type 4-5. The Loan Term is medium, then the group of bad debt is type 1.

If the Overdue variable falls into the Rareness group, and combines with low Loan/Collateral rate, what group the bad debt would belong to depends on other factors shown in varied circumstances as bellows:

- If the Credit Policy is labeled as Normality accompanied by high Loan Frequency, the bad debt belongs to the group of debt type 4-5. The Loan Frequency is average, then the group of bad debt is type 2-3.

- If the Credit Policy is labeled as Normality with the Loan Frequency getting the value of one and the rate of Reserve Expense/Debt being high or medium, the bad debt belongs to the group of debt type 4-5. The rate of Reserve Expense/Debt is low, then the group of bad debt is type 2-3.

- If the Credit Policy is labeled as Under Control and Awareness, the bad debt belongs to the group of debt type 4-5 and type 2-3 respectively.

If the Overdue variable falls into the 'Rare' group, and combines with medium Loan/Collateral rate, what group the bad debt would belong to depends on other factors shown in varied circumstances as follows:

- If the Loan Purpose is categorized into the Business with the Loan Term being short and the Income being high, the bad debt belongs to the group of debt type 2-3. The Income is average or low, then the group of bad debt is type 1.

- If the Loan Purpose is categorized into the Business with the Loan Term being medium and long, the bad debt belongs to the group of debt type 4-5 and type 2-3 respectively.

- If the Loan Purpose is categorized into the Household Spend with the rate of Debt/Total Asset being high, the bad debt belongs to the group of debt type 2-3. The rate of Debt/Total Asset is medium or low, the group of bad debt is type 1.

4.2. Discussion

The decision tree of bad debt likelihood indicates that all selected attributes of individual customer that are presented in the research hypothesis cause the bad debt labeled into debt type 1 to 5. However, there are eight attributes that lead to the bad debt in the sector of individual credit, specifically the Overdue, the Loan/Collateral rate, the Debt/Total Asset rate, the Loan Frequency, the Reserve Expense/Debt rate, the Loan Term, the Credit Policy, the Loan Purpose. Analyzing the result of decision tree helps us find that the impacts of these attributes are varied due to their characteristics. In great detail, the Overdue and Loan/Collateral rate play a decisive role in the probability of causing Bad debt in the segment of individual credit. For example, if the Overdue is labeled as Rareness, High or Low accompanied by the medium Loan/Collateral rate, it will lead to various scenarios depended on the other attributes. Furthermore, the others such as the Debt/Total Asset, the Loan Frequency, the Reserve Expense/Debt, the Credit Policy, etc. also leads to the bad debt in the sub-branches. Although each attribute creates a certain branch itself, but the connection between them enable us to understand the root causes of the bad debt in the field of individual credit.

Based on the results of the Decision Tree (Figure 1) which presents how various types of bad debt would be run up caused by essentially financial attributes of individual customers, this study proposes a number of solutions to help commercial banks prevent the bad debt from arising in the personal credit segment. First of all, banks should supervise the loan purpose after giving loans, meaning that they need to strengthen the process of supervision for individual customers so as to stop them from using loans for poor investments that might lead to their defaults. Secondly, banks need to tighten up the set of requirements for loan collateral. The result shows that the higher the value of loan collateral, the lower the likelihood of bad debt. Therefore, in order to minimize the bad debt in the future, the banks should focus on the loans accompanied by collaterals and enhance the value of collaterals for loans. Finally, banks should adjust their decisions on loan amount and loan term in accordance with customer's credit history. The result insists that the greater the size of loan the borrower get, the higher the likelihood of bad debt would incur. The main reason is that the banks have focused much on some economic sectors that are in need of large capital but with high levels of risk such as the real estate, the ship-building industry, etc. Therefore, the banks should carefully consider borrowers in each business field and stop granting too much capital on high-risk areas. Alternatively, they need to expand lending fields as well as subjects of loans, also to apply suitable loan terms to each type of customer.

5. Conclusion

The research creates a model that allows forecasting the solvency of individual borrowers in accordance with the characteristics at some commercial banks in Vietnam. The results properly assist the banks in the process of making decision on given-loan acceptance. Accordingly, there are three scenarios that embraces various attributes of personal credit, with ending up being different types of bad debts and NPLs as shown in the illustration of DT (Figure 1).

This paper applies the Decision Tree model to identify the financial attributes of individual customers that are likely to cause the bad debt in the segment of personal credit. The research result provides not only the detailed description about the fact of bad debt in Vietnamese banking system, but also the different scenarios of causing the bad debt in the segment of personal credit for the banks to prevent bad debt. Despite deliberate efforts in the research process, this study cannot avoid some limitations due to the lack of data and research experience.

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**OMNICHANNEL RETAILING – A LITERATURE REVIEW
AND FUTURE RESEARCH**

**BÁN LẺ ĐA KÊNH OMNICHANNEL – NGHIÊN CỨU LÝ THUYẾT
VÀ ĐỊNH HƯỚNG NGHIÊN CỨU TRONG TƯƠNG LAI**

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ABSTRACT

Recently, a hot issue appeared when a new interesting behavior of consumer, which is the simultaneous use of several interaction channels to search for information and during purchase, was observed. The phenomenon was labeled as “omnichannel” retailing and considered as a revolution from the previous multichannel retailing. The paper first examine the development of omnichannel conceptualization; secondly, it differentiates omnichannel retailing from multichannel and cross-channel retailing to see the revolution of omnichannel; thirdly, it categorizes the academic research in omnichannel context to date in order to determine key research themes, from then, analyzing gaps for academics and practitioners’ future research. The paper points out that there is a lack of research from the demand side of the omnichannel retailing, such as conceptualization from consumers’ perspective, omnichannel customer segmentation, customer relationship management in an omnichannel retailing environment, channel choices and effects of channel choice on retail performance, customer loyalty, and the effects of channel mix and integration on retail performance.

Key words: *Omnichannel, multichannel, cross-channel, systematic review.*

TÓM TẮT

Gần đây, một vấn đề nóng xuất hiện khi một hành vi mới, thú vị của người tiêu dùng được nhìn nhận, đó là việc sử dụng đồng thời một số kênh tương tác để tìm kiếm thông tin và mua hàng. Hiện tượng này xuất hiện trong mô hình bán lẻ đa kênh omnichannel và được coi là một cuộc cách mạng từ mô hình bán lẻ đa kênh multichannel trước đó. Bài viết trước tiên kiểm tra khái niệm bán lẻ đa kênh omnichannel; sau đó, phân biệt omnichannel với multichannel và cross-channel để thấy sự cải tiến của omnichannel; thứ ba, phân loại các nghiên cứu học thuật cho đến nay để xác định các chủ đề nghiên cứu chính, từ đó, phân tích các lỗ hổng nghiên cứu cho các học giả và các nhà thực hành nghiên cứu trong tương lai. Bài viết chỉ ra rằng hiện đang thiếu nghiên cứu từ phía khách hàng của bán lẻ đa kênh omnichannel, chẳng hạn như khái niệm từ quan điểm của người tiêu dùng, phân khúc khách hàng đa kênh, quản lý quan hệ khách hàng trong môi trường bán lẻ đa kênh omnichannel, lựa chọn kênh và hiệu ứng của kênh trên hiệu suất bán lẻ, lòng trung thành của khách hàng, và ảnh hưởng của việc kết hợp và tích hợp kênh đến hiệu suất bán lẻ.

Từ khóa: *Bán hàng đa kênh omnichannel, bán hàng đa kênh multichannel, cross-channel, hệ thống hóa lý thuyết.*

1. Introduction

The World Wide Web and the appearance of various online channel such as websites, mobile, and tablets have dramatically changed the traditional retail setting (Alba et al., 1997; Peterson et al., 1997). Companies now can use various channels to reach customers both in terms of information, promotions, or

physical products. Multichannel retail for that reason has received much hype from practitioners and academic researchers, therefore, developing such well-established literature covering all aspects of the theme. However, recently, a hot issue appeared when a new interesting behavior of consumer, which is the simultaneous use of several interaction channels to search for information and during purchase, was observed. The phenomenon was labeled as “omnichannel” retailing and considered as a revolution from the previous multichannel retailing (Brynjolfsson et al., 2013; Lazaris and Vrechopoulos, 2014; Piotrowicz and Cuthbertson, 2014; Verhoef et al., 2015). Since then, academics such as Lazaris and Vrechopoulos (2014), Verhoef et al. (2015), Galipoglu et al. (2018), and Chen et al. (2018) have attempted to review the growth of omnichannel literature from retail management perspective, logistics perspective, and customer perspective. This paper aims to put together these and other authors’ work in a literature review for the development of omnichannel retailing, from there, outlining the gap for future research in the area. The paper first looks at omnichannel conceptualization development, the difference between omnichannel, multichannel, and cross-channel retailing, and categorization of academic research in omnichannel context.

2. The development of omnichannel conceptualization

Lazaris and Vrechopoulos (2014) have revealed in their review of literature that the omnichannel idea came from the “click ‘n’ mortar” concept. To be more specific, in 2000, Otto and Chung proposed e-commerce techniques to be used in conjunction with traditional physical retailing to enhance the value of the shopping experience and they named this concept “cyber-enhanced retailing”. In 2002, Burke conducted an empirical quantitative study to investigate consumers behavior online and offline and found out that shoppers were fond of shopping features that assisted them in multichannel shopping (research online – purchase in store, shop online – pickup in store). He concluded that retailers should integrate channels so as to assist consumers to move transparently between them. Directly mentioning customer experience in one of his proceeding papers, Görsch (2002) showed that “the goal of multi-channel integration must be to provide a superior customer experience that is consistent and seamless across channels”.

However, the term “Omni” was not introduced until the IDC’s Global Retail Insights research unit reports, by Parker and Hand (2009) and Ortis and Casoli (2009). “Omni” is a Latin word meaning “all”, “universal” and the “omnichannel” shopper was viewed by the authors as an evolution of the multichannel consumer who instead of using channels in parallel, he uses them all simultaneously. In 2011, Darrell Rigby was the first to mention the word “omnichannel” as “*an integrated sales experience that melds the advantages of physical stores with the information-rich experience of online shopping*” (p. 67).

Two years from then, omnichannel retailing has received much attention from the press with 151 articles, and finally in 2013, Brynjolfsson, Hu, and Rahman were the first academic researchers to mention omnichannel in their paper “Competing in the age of omnichannel retailing”: “*In the past, brick-and-mortar retail stores were unique in allowing consumers to touch and feel merchandise and provide instant gratification; Internet retailers, meanwhile, tried to woo shoppers with wide product selection, low prices and content such as product reviews and ratings. As the retailing industry evolves toward a seamless omni-channel retailing experience, the distinctions between physical and online will vanish, turning the world into a showroom without walls*” (p. 24). In this paper, aside from physical stores and online shop (Rigby, 2011), Brynjolfsson, Hu and Rahman (2013) also considered the mobile channel and a very important feature of omnichannel “*showrooming*”. However, this cannot yet be considered the conceptualization of omnichannel retailing; physical stores, online, and mobile are only three amongst many channels that consumers can shop from.

An actual definition was not introduced until Levy et al. (2013. p. 67) came up with the term “omniretailing” and defined it as “*a coordinated multichannel offering that provides a seamless experience when using all of the retailer’s shopping channels*”. Levy et al. used multichannel management to explain

omnichannel but have mentioned the use of all retailer's shopping channels, which is a major progress from Brynjolfsson et al. (2013). According to Levy et al., omniretailing is the next advance step from multichannel in the field of retailing. In line with Levy et al., Beck and Rygl (2015, p. 175), in their attempt to categorize multichannel retailing into multi, cross-, and omni-channel retailing, emphasized the integration feature in omnichannel retailing as *"the set of activities involved in selling merchandise or services through all wide spread channels, whereby the customer can trigger full channel integration"*.

Taking a management perspective, when drawing the literature from the three retailing phases, Verhoef et al. (2015, p. 177) formally defined *omnichannel management as the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels is optimized*. Aside from the synergized of channels, the authors also stressed the importance of the interactions and the relationship between the consumer, the brand and the retail channels. From the strategy perspective, Picot-Coupey, Huré, and Piveteau, (2016) compared omni- with multi- and cross-channel retailing concepts, and concluded that omnichannel retailing is a holistic approach, where strategy takes account of all channels as customer touch points, which potentially allows for a seamless customer journey.

Table 1: Definitions of omnichannel

Year	Author(s)	Definition
2011	Rigby	Omnichannel is an integrated sales experience that melds the advantages of the physical stores with the information-rich experience of online shopping (Rigby, 2011, p. 67).
2013	Brynjolfsson, Hu, and Rahman	As the retailing industry evolves towards a seamless "omni-channel retailing" experience, the distinctions between physical and online will vanish, turning the world (Brynjolfsson et al., 2013, p. 24).
2013	Levy, Weitz, and Grewal	Omniretailing is a coordinated multichannel offering that provides a seamless experience when using all of the retailer's shopping channels (Levy et al., 2013, p.67).
2015	Beck and Rygl	Omnichannel retailing is "the set of activities involved in selling merchandise or services through all wide spread channels, whereby the customer can trigger full channel integration" (Beck and Rygl, 2015; p. 175).
2015	Verhoef, Kannan, Inman	Omnichannel management as the synergetic management of the numerous available channels and customer touchpoints, in such a way that the customer experience across channels and the performance over channels is optimized (Verhoef et al, 2015; p.177).
2016	Picot-Coupey, Huré, and Piveteau	Omnichannel retailing is a holistic approach, where strategy takes account of all channels as customer touch points, which potentially allows for a seamless customer journey (Picot-Coupey et al., 2016; p. 342).
2018	Shen, Li, Sun, and Wang	Omnichannel as a kind of service that allows customers freely choose among all parallel channels, and seamlessly switch among the different channels, without any information loss or reiteration (Shen et al., 2018, p. 63).

On the other hand, Shen et al. (2018) conceptualized omnichannel from customer engagement perspective, defined omnichannel as a kind of service that allows customers freely choose among all parallel channels, and seamlessly switch among the different channels, without any information loss or reiteration. This definition mentioned two very important features of consumer behavior that will be mentioned in the later part, consumer channel choice and channel switch.

It can be seen from Table 1 that most omnichannel definitions to date is about integration of all of the retailer's channels which has been seen by many as the major difference between omnichannel and multichannel retailing. There is a lack of researchers conceptualize omnichannel from customer perspective even though customers play a central role in omnichannel retailing as its optimal goal is to bring a seamless customer experience.

In order to identify other research gaps, it is important to see whether academic researchers have understood the nature of omnichannel retailing by looking at how they differentiated omnichannel, multichannel, and cross-channel retailing.

3. Omnichannel versus multichannel versus cross-channel retailing

Since the appearance of omnichannel, various studies have been carried out to differentiate omnichannel, multichannel, and cross-channel retailing such as Lazaris and Vrechopoulos, 2014; Verhoef et al., 2015; Beck and Rygl, 2015; Picot-Coupey et al., 2016; Juaneda-Ayensa et al. (2016); and Shen et al., 2018. These papers outlined the differences between the phases in terms of concepts, degree of integration, channel scope, objectives, and so on and most importantly, demonstrated the development of omnichannel literature on the base of multichannel literature.

Most researchers agreed that omnichannel is an evolution of multichannel and cross-channel retailing (Table 2). The multichannel retailing implies that customers would choose one channel for their complete shopping experience, whereas, cross-channel integrates multiple channels to allow consumers cross-channel movements and synergies (Chatterjee, 2010, Cao, 2014). While omnichannel shoppers move freely among all channels in a transaction process, often called customer journey. There is now no boundary between channels.

In term of channel scope, in the multichannel, customers are to choose from physical stores, websites, or mobile channel which are interactive channels (channels providing two-way communication); the channels operate in parallel and uncoordinated manner (Galipoglu et al., 2018). For cross-channel, sellers can sell merchandise or services through more than one channel but not all widespread channels, where the customer can trigger partial channel interaction and/or the retailer controls partial channel integration (Beck and Rygl, 2015, Cao and Li, 2015). Whereas, the omnichannel involves not only interactive channels but also customer "*touchpoints*", such as mass-communication channels, including TV, radio, customer to customer (C2C) and print (Neslin 2006; Verhoef et al. 2015). The touchpoints refer to points or moments of contact and/or communication between an organization and a stakeholder, here an end user (Jenkinson, 2007; Galipoglu et al., 2018). These touchpoints served as informational and transactional contact points with the brand and the customer can use them seamlessly and interchangeably during the search, purchase, and post-purchase process (Juaneda-Ayensa et al., 2016).

Another development of the paradigm is that omnichannel retailing has a more customer-centric orientation, with customers moving freely, seamlessly among all channels. The customer journey should be smooth and holistic; and the aim of the companies now are provide a seamless, unified customer experience, rather than maximizing the performance of each channel (Piotrowicz and Cuthbertson 2014; Shen et al 2018). A key behavior of the consumer was observed here. Channel switching together with behaviors such as showrooming and webrooming have sparked interests from numerous academic researchers.

In addition, omnichannel retailing places much importance on the relationship and the interactions between the customer, the brand, and the channels, rather than simply customer-channel interactions (Neslin et al. 2014; Piotrowicz and Cuthbertson 2014; Verhoef et al. 2015). Therefore, it demands firms' synergetic management of the channels and customer touchpoints towards optimizing the holistic shopping experience for customer (Verhoef et al. 2015).

Thus, omnichannel exhibits four key differences compared to multichannel and cross-channel: it involves more channels; it has a broader perspective as it includes not only channels but also touchpoints; there is no border between channels; and customer-brand experience is more emphasized (Piotrowicz and Cuthbertson, 2014; Verhoef, Kannan and Inman, 2015; Picot-Coupey, Huré and Piveteau, 2016). Evidently, the key evolution feature of omnichannel from multi-channel is that omnichannel is centered on the customers and their interaction with the brand, and their holistic shopping experience. Therefore, studying the omni-consumer behavior and the interaction between the customers, the brand, and the channels becomes an urging issue for academic researchers and practitioners.

Table 2: Omnichannel versus multichannel versus cross-channel retailing

	Multichannel	Cross-channel	Omnichannel
Definition	The operation of multiple channels as independent entities to align channels to specific target customer segments. (Picot-Coupey, Huré and Piveteau, 2016)	Cross-channel integrates multiple channels to allow consumers cross-channel movements and synergies. (Chatterjee, 2010)	Customers freely choose among all parallel channels, and seamlessly switch among the different channels in their shopping journey. (Shen et al., 2018)
Channel scope	Physical, websites, and mobile channel.	More than one channel but not all widespread channels.	Store, website, mobile channel, social media, and all other customer touchpoints (including mass communication channels such as TV, radio) served as <i>informational and transactional touchpoints</i> .
Channel integration	No switching between channel, Use channels in parallel	Allow consumer cross-channel Synergies among channels	Seamless <i>switching</i> among all channels and touchpoints, Use channels simultaneously
Customer interaction	No possibility of triggering interaction. Customer – channel interaction.	Can trigger partial interaction. Customer – channel interaction.	Can trigger full interaction. Customer – brand – channel interaction.
Channel goals	Channel objectives such as sales per channel, experience per channel.	Synergies among channels	Overall customer experience, total sales over channels.
Channel management	Maximizing the performance of each channel—physical, phone, web, and mobile.	Management of channel conflicts, suppression of the frontiers between channels and minimize potential frictions when cross-moving	Synergetic management of the channels and customer touchpoints towards optimizing the <i>holistic shopping experience</i> .

Source: Chatterjee, 2010; Cao, 2014; Cao and Li, 2015; Beck and Rygl, 2015; Verhoef, Kannan and Inman, 2015; Juaneda-Ayensa, Mosquera and Murillo, 2016; Picot-Coupey, Huré and Piveteau, 2016; Galipoglu et al., 2018; Shen et al., 2018.

Having identified the need for more research in the field of consumer behavior in omnichannel context, the paper then examines several key papers categorizing omnichannel literature to see the direction that academic researchers have taken in the omnichannel retailing context.

4. Categorization of omnichannel literature

In the literature review for omnichannel from multichannel, Lazaris and Vrechopoulos (2014) listed channel switching, consumer decision-making, and brand loyalty as three most important subjects to study in omnichannel. Whereas, in the context of e-commerce literature, channel usage, importance of information technology (IT) in developing omnichannel, and application of information and communication technologies (ICT) to integrate all channels generated most researches by information and communication technologies academics. The authors called for more in-depth and exploratory empirical research in areas of (a) Omnichannel Retail Store Atmosphere (ORSA) effects on shoppers, (b) Store selection criteria in omnichannel retailing, (c) Classification and detailed profiling of shoppers according to the intensity of using omnichannel practices, (d) Omnichannel retail personal selling techniques, (e) Strategic impact of omnichannel retailing on retailers, (f) Customer Relationship Management (CRM) dynamics in an omnichannel retailing environment, (g) Personalization/customization of the omnichannel retail mix, (h) Loyalty & free riding behavior in omnichannel settings. It can be summarized into three themes as retail performance, customer segmentation and switching behavior, and retail mix, which goes in line with Verhoef's et al. (2015) classification a year later.

From retailing management perspective, Verhoef et al. (2015) classified omnichannel literature into three themes: (1) Impacts of channels on performance, (2) Consumer behavior, and (3) Retail mix. The themes were based on their previous classification of literature in multi-channel retailing (Neslin et al., 2006; Verhoef, 2012). The first theme is mainly focus on the contribution of a channel or multiple channels on firm's performance metrics, the impact of channel additions, the impact of channel integration, and the impact of touchpoints on performance/marketing metrics. The second theme mainly study customer behavior during the shopping journey, specifically channel choice or channel adoption and usage. Lastly, the third theme is looking at retail mix instrument, impact of integration, showrooming, and cross-channel effect. Verhoef et al. (2015) listed retail mix as an area that needs more attention both in multichannel context and omnichannel context.

Galipoglu et al. (2018) providing a literature review of omnichannel retailing from the perspective of logistics and supply chain management has identified three major research areas for omnichannel which are channel demand side, channel supply side, and channel management and strategy (Chopra and Meindl, 2015). The areas are then broken down to smaller research themes: characteristics/profile of multi/omni-channel shoppers (channel demand side), multi/omnichannel retail logistics (channel supply side), and the impact of digitization of multi/omnichannel retailing, transformation to multi/omnichannel retailing, influential factors in selecting multichannel strategies, and comparison of multichannel strategies (from channel management and strategy area). According to the authors, channel management and strategy (32 articles) has dominated the past research scene, followed by channel supply side (30 articles) and channel demand side (8 articles). It can be seen that more literature are needed in channel demand side, or consumer side of omnichannel retailing.

Chen et al. (2018) introduced a framework of omnichannel research that differentiates four dominant research streams according to their perspective (consumer versus retailer) and research orientation (diagnostic versus prescriptive). The four themes are: (1) retailer centric and diagnostic, (2) retailer-centric and prescriptive, (3) consumer-centric and diagnostic, and (4) consumer-centric and prescriptive. In terms of perspective, consumer perspective omnichannel research focus on factors that influence consumers' receptivity to omnichannel, while retailer perspective research emphasize the importance and the application of omnichannel from the standpoint of retailers. Regarding research

orientation, diagnostic researches are descriptive in nature, looking for the reasons behind consumer behavioral patterns and firm strategies. Prescriptive researches are to look at the development of omnichannel solutions. Chen et al. (2018) have outlined research gaps for each theme including conditions for retailers' migration to omnichannel (retailer-centric, diagnostic stream), effectiveness of omnichannel arrangements, role of supply chain management in cross-channel integration, and supply chain re-design for omnichannel retailing (retailer-centric, prescriptive stream). From consumer perspective, there is a need for research on customer touchpoint analysis (consumer-centric, diagnostic stream), and customer lock-in (consumer-centric, prescriptive stream).

5. Recommendation for future research

From the review of omnichannel definitions to date, it can be seen that omnichannel needed to be looked at more from customer perspective as the goal of omnichannel retailing is to bring a seamless and holistic customer journey. Moreover, this is also the key difference between omnichannel, multichannel, and cross-channel retailing. Analyzing the papers comparing and contrasting the three paradigms show that omnichannel is centered on the customers and their interaction with the brand, and their holistic shopping experience. Therefore, studying the omni-consumer behavior and the interaction between the customers, the brand, and the channels becomes an urging issue for academic researchers and practitioners.

Papers from Lazaris and Vrechopoulos (2014), Verhoef et al. (2015), Galipoglu et al. (2018), and Chen et al. (2018) have outlined some areas that needed further research which can be categorized as omnichannel customer segmentation, customer relationship management in an omnichannel retailing environment, channel choices and effects of channel choice on retail performance, customer loyalty, the effects of channel mix and integration on retail performance. In other words, there is a need for more in-depth insights into the demand side of omnichannel retailing, i.e from customer perspective.

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**THE IMPACT OF MANAGERIAL OWNERSHIP ON
CAPITAL STRUCTURE OF FIRMS IN VIETNAM: EMPIRICAL EVIDENCE
FROM NON-FINANCIAL LISTED FIRMS ON HOSE**

**TÁC ĐỘNG CỦA SỞ HỮU CỔ PHẦN BỞI NHÀ QUẢN LÝ TỚI CẤU TRÚC VỐN
TRONG CÁC DOANH NGHIỆP TẠI VIỆT NAM**

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ABSTRACT

This research focuses on examining the impact of the managerial ownership on the choice of capital structure of Vietnamese firms. Managerial ownership is among the most crucial corporate governance's components and are supposed to be relevant in determination of the company's financing decision. The research uses quantitative method to investigate and explain the causal relationships between the two factors. Data sets collected for more than 300 firms listed in Ho Chi Minh Stock exchange in Vietnam to test the regression model. The positive and significant relationship is found between managerial ownership and capital structure.

Keywords: *Managerial ownership, capital structure, corporate governance, debt to equity ratio.*

TÓM TẮT

Nghiên cứu tập trung vào tìm hiểu ảnh hưởng của cổ phần sở hữu bởi các nhà quản trị tới sự lựa chọn về cấu trúc vốn của các doanh nghiệp Việt Nam. Sở hữu của nhà quản lý là một trong những thành phần cốt lõi thuộc quản trị công ty và đã được nhiều nghiên cứu chứng minh là một trong những yếu tố quyết định tới cấu trúc vốn của doanh nghiệp. Bài viết dựa trên phương pháp nghiên cứu định lượng để quan sát và giải thích mối quan hệ nguyên nhân - kết quả trên. Dữ liệu của nghiên cứu được thu thập cho hơn 300 doanh nghiệp niêm yết trên sàn giao dịch chứng khoán thành phố Hồ Chí Minh. Kết quả của mô hình hồi qui cho thấy mối quan hệ có ý nghĩa và cùng chiều giữa tỷ lệ cổ phần sở hữu của các nhà quản trị tới quyết định về việc sử dụng nợ vay trong các doanh nghiệp tại Việt Nam.

Từ khoá: *Sở hữu của nhà quản lý, cấu trúc vốn, quản trị công ty, tỷ lệ nợ trên vốn chủ sở hữu.*

1. Introduction

For many years, there has been a large amount of academic discussions including both theories and empirical researches studying the existing of the optimal capital structure as well as the factors influencing the choice of capital structure of firms. Until now, managers have been facing with questions of the best company's capital structure because it includes various considerations on different aspects such as the firm's cost of capital and liquidation.

The concept of corporate governance appears to be closely related with the financing pattern of a firm because they all affect the firm's performance. From narrow perspective, corporate governance centres around the topic of company management. Agency theory is the early theory that urges the appearance of corporate governance and also proposes the relationship between corporate governance and capital structure. According to Watson & Head (2016), agency itself can manifest in the firm's financing decision. Equity finance is preferred by managers over debt finance due to the lower interest payment although it will make the WACC of the company increase, which is unexpected from the shareholders' viewpoint.

Recently, empirical studies on relationship of firm's corporate governance and capital structure have largely been explored by a lot of researchers in different countries. Detthamrong, Chancharat & Vithessonthi (2017) found the relationship between corporate governance, capital structure and firm's performance in Thailand. The direct impacts of firm's age and corporate governance's features on both decision of using debt and how much debt to employ were also supposed by Kieschnick & Moussawi (2018). Managerial ownership is considered to be one of key corporate governance's features that have strong impact on the firm's choice of capital structure.

From the command model before 1980s, Vietnam's economy has been transforming to market – oriented approach thanks to the introduction of the comprehensive economic reform (Batten & Vo, 2015). These constant economic reforms result in recently strong developments in Vietnamese equity and bond market especially the development of stock market, which gives firms more options to raise finance for their investments (Tai, 1998). According to a report of Vietnamese Ministry of Finance, companies with high debt - to - equity ratio are mainly small companies because of weak economic potential and limited access to capital mobilization channels, their loans is mainly based on commercial banks.

Ho Chi Minh stock exchange (HOSE) is the first stock exchange in Vietnamese, which is established in 2000 with just only 4 firms listed. After nearly two decades, a strong development of Vietnamese stock market is witnessed in terms of both number of companies listed and total trading volume. It is currently the largest stock exchange in Vietnam with 63– member securities companies and more than 300 firms listed, which are considered the best companies in terms of corporate governance in Vietnam (Vo, 2017).

This research studies the impact of managerial ownership on the decision on capital structure of non-financial listed firms in HOSE. The research is motivated by several perspectives.

Firstly, it is built on a growing literature studying capital structure decision of the companies. It is well established that the companies' capital structure is determined by various factors including board size, board independence, board gender, managerial ownership. However, different firms behave differently depending on the particular context in which they operate.

Secondly, although there are many studies researching the choice of Vietnamese firms on their capital structure, only few of them investigate the influences of corporate governance's features on capital structure. This research, therefore, will contribute to the current literature as it provides further understanding of the relationship between corporate governance and capital structure of firms in emerging markets of Vietnam.

2. Literature review

The firm's capital structure (also called the capitalization) refers to the resources of financing employed by the firm (Kent Baker, Gerald & Martin, 2011). In details, it is the permanent pattern of financing represented by long – term debt, shareholder' equity and preferred stock (Weston and Copeland, 1992). In addition, capital structure can include other items such as pension-fund liabilities, deferred taxes, and intermediate – term loans (Capital structure, 2018).

There are some main theories to the company's best capital structure: The traditional approach; Miller and Modigliani (I and II) approach (Also known as the net income and corporate tax approach); And trade – off theory. All of these theories try to explain the relationship between the company's gearing level and its cost of capital based on the conclusion that debt finance is always cheaper than equity finance.

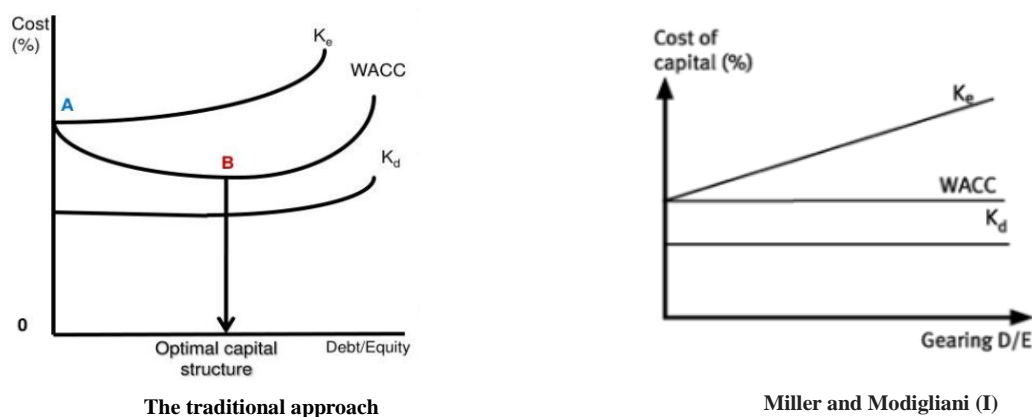


Figure 1: The traditional approach and Miller & Modigliani (I)

Source: Watson & Head, 2013

The traditional approach and Miller and Modigliani (I): The traditional theory argues that the firm's optimal capital structure does exist at a reasonable level of gearing (Represented as point B in Figure 1) as the benefit of cheaper debt outweighing any increase in the cost of the remaining equity finance. Whereas, in Miller and Modigliani (I), the WACC of a business is suggested to remain unchanged because the benefit of using an increased level of cheaper debt is exactly offset by the increasing cost of the company's equity finance (Figure 2.1) (Watson & Head, 2013).

Miller and Modigliani II: Modigliani and Miller proposed the theory II that the company's WACC decreases as the business gears up by replacing equity with debt thanks to the tax shield advantage.

Trade – off theory: This theory was first introduced by Kraus and Litzenberger in 1973. It argued that deadweight costs of financial distress and bankruptcy (Off – setting costs) are threats that firms should consider while making use of tax shield's benefit of debt (Kent Baker, Gerald & Martin, 2011) and balance should be made by firms between the benefit of tax shield of debt against cost of financial distress (Kent Baker, Gerald & Martin, 2011).

Pecking-order Theory: Financing sources are ranked by this theory according to the degree that information asymmetry affect them, where internal sources of finance exhibit the lowest and equity finance the highest adverse selection costs. Accordingly, profitability of firms seems to be inversely associated with debt finance and retained earnings are favoured over external sources of finance (Suto, 2003). More specifically, retained earnings will be the most favourite choice of managers to finance the firm's assets, followed by debt the last option is equity finance (Goyal, n.d.).

The theories of capital structure do not give definitive answers to crucial issues to how firms should be financed. Therefore, there are many researches which have been carrying on to find the determinants of a company's capital structure. The common factors studied among these are: Industry median leverage, liquidity, profitability, firm size, market-to-book assets ratio, expected inflation (Frank & Goyal, 2009).

A number of studies have been conducted to research the influence of corporate governance on a firm's financing choices. There is not a single component of corporate governance influencing capital structure. Haque, Arun & Kirkpatrick (2011) found that firm-level Corporate Governance Index (constructed by the model of ownership, rights of shareholders, the board's independence and responsibilities, disclosures and duties towards firm's stakeholders), ownership concentration, firm's size, growth and profitability have positive influence on capital structure. The study of the relationship was also carried out in Thailand for different sizes of firms. In average firms in Thailand, corporate governance components (Board's size and independence, size of audit committee, female directorship, CEO duality, ownership managerial, and reputation of audit firm) is concluded to have no impact on

capital structure (Detthamrong, Chancharat, & Vithessonthi, 2017). In contrast, capital structure has positive relationship with board independence but negative relationship with audit committee size in large firms in Thailand. For small firms in Thailand, more female directors means higher financial leverage and small firms with CEO duality have lower leverage than the ones without CEO duality. For most of the empirical studies on the corporate governance and capital structure's relationship, the researchers adopted positivist stance and deductive research approach, carrying the quantitative research on the causal relationships between variables.

The major corporate governance covers the discussion over directors and board structure (the size, components, roles, duties of the board) which is organized and structured differently according to different corporate entities in different countries (Mallin, 2016) and managerial ownership is among the most crucial components.

Managerial ownership relates to the shares owned by directors, their spouses and children. If directors hold shares in their firm, they are less likely to consume additional resources or investing in the ineffective project. Therefore, managerial ownership is supposed to be an effective way to decrease agency conflict and is one of the most crucial corporate governance's features. Higher level of managerial ownership is, higher level of debt finance is used (Jensen & Meckling, 1976). This view is also supported by the research of Akram, Zhang & Ramiz-Ur-Rehman (2017) when they found that managerial ownership has positive impact on capital structure. Research of Granada- Peiró & López- Gracia (2017) in Spain reveals the influence of managerial ownership on the firm's financing decision. They found that when the managerial ownership's level is below 39.5%, managers' actions are aligned with the other shareholders' interest; level of debt used is observed to increase as the level of managerial ownership increases. To investigate the impact of the factor managerial ownership on the choice of capital structure of firms in Vietnam, the null - hypothesis is proposed as follow:

Managerial ownership has no impact on capital structure (D/E ratio)

3. Research method

As analysed above, the main purpose of the research is to explain the managerial ownership and capital structure's causal relationship. To test these hypotheses, the pooled regression model is employed in the study. Besides board size and managerial ownership, previous studies also found some of corporate governance components and other factors that have impact on the capital structure including firm size, profitability, liquidity and growth opportunity. Hence, the hypotheses are formulated, using capital structure as the dependent variable; board size and managerial ownership as the explanatory variables; liquidity, firm size, profitability and growth opportunity as the control variables. The models developed as follow:

Model:

$$DR_{it} = \beta_0 + \beta_1 MOWN_{it} + \beta_2 BS_{it} + \beta_3 LIQ_{it} + \beta_4 FS_{it} + \beta_5 ROA_{it} + \beta_6 GROW_{it} + \epsilon_{it}$$

The summary of variables coding and definition are shown in figure 1

Table 1: Variable definition

Variable name	Code	Variable definition
Capital structure	DR	Debt to equity ratio (total long-term debt to total equity ratio)
Managerial ownership	MOWN	Ratio of number of share owned by directors, their spouses and children to total share of the firm (%)
Board size	BS	Total number of directors in the board.
Firm size	FS	Total assets

Profitability	ROA	Ratio of profit before taxes to total assets (%)
Liquidity	LIQ	Ratio of current assets to current liabilities.
Growth opportunity	GROW	Tobin's Q - The ratio of market value of equity plus book value of debts to the total assets
it	Firm/year	Firm i, year t

In the research of Chang, Chen, & Liao (2014) studying reliably important determinants of capital structure in china, the researchers compared the measure and definition of variables between previous studies on the similar topics us to identify reliable and robust option. The preference and optimal proxy for firm size and profitability is total assets and ratio of profit before taxes to total assets, respectively.

Growth opportunity can be measured by asset growth, sales growth or Tobin's Q (The market to book value of total assets ratio or the ratio of market value of equity plus book value of debts to the total assets). According to Vo (2017), Tobin's Q is considered to be a better indicator for the firm's future growth as it reflects the firm's market value and the investors' valuation to the firm. This ratio is also widely used as a reliable proxy for firm growth opportunity in many studies such as in the research of Rajan and Zingales (1995), Huang and Song (2006), Frank & Goyal (2009), Chang, Chen, & Liao (2014), and Vo (2017).

Similarly, there are some choices to measure liquidity of firm. It can be taken by the ratio of current assets to current liabilities (Current ratio) or the ratio of current assets minus inventories to current liabilities (Quick ratio). Following the research of Akram Naseem, Zhang, Malik, & Ur-Rehman (2017) and Vo (2017), this research used the first ratio as the proxy for firm liquidity.

All the data needed for the research including ratio for capital structure, board size, managerial ownership ratio, total assets, ratio of return on equity and liquidity will be collected from public reports of non-financial listed firms on HOSE from 2014 to 2019. The detailed explanation of data collection method as well as data analysis will be presented in the next sections.

Most of the data needed to calculate variables will be collected from the listed companies' annual audited financial statements and corporate governance report which are publicly published on the official website of HOSE stock exchange (<https://www.hsx.vn>).

4. Data analysis and interpretation

4.1. Descriptive Statistics

The research employs the set of data of public firms listed on HOSE in the period from 2015 to 2019. The data of banks and financial companies are excluded in the data set due to their special financial behaviors and business nature (King & Santor, 2008). The last sample consists of 336 companies with 1467 observations, which come from 10 industries including consumer discretionary, consumer staples, diversified financial, industrials, utilities, energy, health care, information technology, real estate, and insurance.

The data are taken from the companies' annual audited financial statements (balance sheets, income statements) and their corporate governance reports and then used to calculate variables measuring: Capital structure, board size, managerial ownership, firm size, profitability, liquidity and grow opportunity of a firm.

Figure 2 is the summary statistics of the data for the research's sample over the period studied including maximum, minimum values, average and standard deviation of both dependent as well as explanatory and control variables.

Table 2: Data description of variables

	Observation	Minimum	Maximum	Mean	Std. Deviation	Unit
DR	1467	0.00	4.89	0.33	0.57	Times
BS	1467	1.00	14.00	4.02	1.88	People
MOWN	1467	0.00	73.12	6.04	11.27	%
FS	1467	122,778	213,792,057	4,055,902	11,774,131	Million VND
LIQ	1467	0.26	229.78	3.00	8.67	Times
ROA	1467	-164.54	99.38	7.47	11.45	%
GROW	1467	0.16	9.04	1.14	0.67	Times
Valid N	1467	1467	1467	1467	1467	

From the figure 2, we can see that in the period of 2015 to 2019, the lowest capital structure of listed firms in HOSE is 0.00, the highest is 4.89, and the average level is 0.33. According to Department of Corporate Finance Policy - Ministry of Finance (2018), this level of long term debt to total equity ratio of firms in Vietnam is quite low compared to other countries in the same region, and is also decreasing compared to the previous period of 2011 - 2015. One of the possible macro- economic reasons to explain this is that Vietnamese enterprises limit their use of loans in this time due to mobilizing interest rate of 7 - 8% per annum and the interest rate of return to the bank is over 10% per year while the return on capital is only 3 - 6%. The low rate of return on capital decline is due to the State policies, especially monetary policy, most of them are short-term. These frequent changes in macroeconomic policy and volatile economic environment of emerging markets also result in the banks' reluctance to give long term credit borrowing. In addition to this, from January 1st, 2016, the businesses' debt to equity ratio will be restricted if companies want their interest expenses to be deducted when determining corporate income tax (Phuong,2015). Therefore, the choice is using other alternative sources of finance including equity and especially short - term debts.

The managerial ownership received value from 0 to 73.12% with average percentage of 6.04% for non – financial firms listed on HOSE. Accordingly, some of the directors do not even own any shares of their companies. This level of managerial ownership is the same with that of firms in Spain, which is the average level in comparison with firms in other countries (Granado-Peiró & López-Gracia, 2017). The high value of MOWN's standard deviation of 11.27 shows the big gaps and differences between the managerial ownership rates of companies and their average figure.

The smallest firm in the research's sample has the total assets' value of 122,778 million VND while the largest one owns the total assets of 213,792,057 million VND. It is the HOSE listed requirements that a listed company should have charter capital of at least 120,000 million VND. On average, Vietnamese non – financial listed firms in HOSE have size of 4,055,902 million VND. The biggest average firm size belonged to insurance sector, following by that of energy and real estate industry.

4.2. Result and Discussion

Figure 3 represents the matrix of correlation results amongst variables. It shows correlation coefficients between explanatory and control variables for the sample of 1467 observations. As for the correlation coefficients, the values are generally below 0.50 (the highest correlation coefficient among them is 0.261), it therefore can be concluded that there is no issue of serious multi-co linearity among them.

The research employs the hierarchy linear regression function as the suitable functions to test the model. The results for the regression model including both t-test and f-test are shown in the figure 3 and 4.

Table 3: Correlations between variables

		DR	BS	MOWN	FS	LIQ	ROA	GROW
DR	Pearson Correlation	1						
	Sig. (2-tailed)							
BS	Pearson Correlation	.472**	1					
	Sig. (2-tailed)	0.000						
MOWN	Pearson Correlation	.400**	.261**	1				
	Sig. (2-tailed)	0.000	0.000					
FS	Pearson Correlation	.149**	.192**	.056*	1			
	Sig. (2-tailed)	0.000	0.000	0.033				
LIQ	Pearson Correlation	-.067*	-.091**	-.052*	-0.039	1		
	Sig. (2-tailed)	0.010	0.000	0.046	0.131			
ROA	Pearson Correlation	-.210**	-.083**	-.139**	0.008	0.039	1	
	Sig. (2-tailed)	0.000	0.001	0.000	0.756	0.139		
GROW	Pearson Correlation	-.102**	-0.013	-.092**	.159**	0.003	.437**	1
	Sig. (2-tailed)	0.000	0.629	0.000	0.000	0.914	0.000	
Observation		1,467	1,467	1,467	1,467	1,467	1,467	1,467

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

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

It can be seen from figure 4 that R^2 and adjusted R^2 , coefficient of determination of linear regression outcomes are 0.328 and 0.325, respectively, that means 32.5% of the variance in the dependent variable Capital structure (DR) could be explained by the six explanatory and control variables in the model. Overall the linear regression model has a good fit and seems highly significant as evident from the significance (Sig.) of 0.000.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.552 ^a	0.305	0.304	0.479
2	.573 ^b	0.328	0.325	0.471
a. Predictors: (Constant), MOWN				
b. Predictors: (Constant), MOWN, BS, GROW, LIQ, FS, ROA				
c. Dependent Variable: DR				

Overall, the regression test has the same result predicted by correlation matrix as board size, managerial ownership and firm size have positive effect on capital structure while the others (Liquidity, profitability and grow opportunity) have negative influence on capital structure (Figure 5). Among them, liquidity and grow opportunity show insignificant result as their P-value > 0.1.

As the positive and significant influence of managerial ownership on capital structure is found for firms in Vietnam, it can be interpreted that the more shares are owned by directors and their family, higher level of debt will be used to finance the company's assets. This result is also supported by some of previous studies. Jensen & Meckling (1976) argued that higher holdings of CEO, managers, their spouse, children point towards higher use of debt and it is the indication of alignment of interest of shareholders and management (2006). Berger, Ofek & Yermack (1997) also revealed a significant positive relationship between CEO's holdings and level of debt. Similarly, Bokpin and Arco (2009) concluded that managerial holdings have a significant positive impact on the choice of using debt in Ghanaian listed firms. The conclusion that managerial holdings are considered to be an effective tool against agency problems is drawn in the research of Akram, Zhang & Ramiz-Ur-Rehman (2017) studying about capital structure determinants of firms in Pakistan. However, some of opposite results also found about this relationship. Fosberg (2004) while studying US corporations suggested that managers will prefer their personal incentives over the interests of shareholders, he therefore proposed an inverse significant relationship between managerial ownership and debt - to - equity ratio. A study of in China has also revealed negative correlation between managerial holdings and leverage (Huang & Song, 2006). The reason for the mixed empirical findings found might be mainly because of the different characteristics between firms studied in different countries.

The finding of the research confirms the prediction stated on the positive relationship between managerial ownership and capital structure and rejects the hypothesis 1 (H1) proposed that board size has no impact on capital structure.

Similarly, the positive and significant impact of board size on capital structure is also revealed in the research. Larger board size of director means the higher level of long – term debt can be employed to finance the firm's asset. This conclusion is also supported from previous study of Jensen (1986) with findings based on the idea of "Agency theory-based explanation of capital structure" mentioned in literature review section. Similarly, while studying the relationship between corporate governance and capital structure decisions of the Chinese listed firms, Wen, Rwegasira, & Bilderbeek (2002) concluded that larger board size is associated with higher debt, either to improve the firm's value or because the larger size prevents the board from reaching a consensus on decisions, indicating a weak corporate governance system.

Table 5: Coefficient

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-0.242	0.030		-8.183	0.000		
	MOWN	0.015	0.001	0.297	13.180	0.000	0.932	1.073
	(Constant)	-0.163	0.037		-4.417	0.000		
2	MOWN	0.014	0.001	0.279	12.441	0.000	0.916	1.091
	BS	0.115	0.007	0.375	16.501	0.000	0.893	1.120
	FS	3.112E-15	0.000	0.064	2.868	0.004	0.931	1.074
	LIQ	-0.001	0.001	-0.010	-0.480	0.631	0.989	1.011
	ROA	-0.007	0.001	-0.135	-5.256	0.000	0.696	1.437
	GROW	-0.008	0.022	-0.009	-0.342	0.732	0.687	1.456

The research also found the positive and significant effect of firm size on its capital structure. This positive impact is consistent with the suggestion in agency theory, trade-off theory and similar to the findings of previous studies (Marsh, 1982; Whited, 1992; Booth et al., 2001; Vo, 2016).

Strikingly, also shown in figure 5, the negative relationship is found between the other three control variables (Liquidity, profitability and growth opportunity) and capital structure. The direction and intensity of these links tends to differ according to different theories. The result of negative impact of liquidity and growth opportunity on capital structure of firms in Vietnam supports the argument of agency theory which supposes that creditors tend to reduce the debt financing limit available to firms when the agency costs of liquidity are high (Myers and Rajan, 1998) and firms with high growth opportunities tend to retain financial flexibility in order to be able to borrow more in subsequent years (Myers 1977; La Rocca et al., 2009). In addition to this, as mentioned above, because of Vietnamese government's strict policy on debt to equity ratio (from January 1st 2016), Vietnamese firms are limited to use more debt to fund their quick growth.

5. Conclusion

In brief, this is a quantitative research explaining the influence of the key corporate governance's component - managerial ownership on the decision of capital structure of Vietnamese listed firms. The results of regression model suggest that managerial ownership might be the good determinant for capital structure of listed firms in Vietnam. As the result, the hypothesis is rejected. Besides, among control variables, apart from the statistically non-significant impact of two factors liquidity and growth opportunity, it can be concluded that board size and firm size are positively correlated with capital structure while the negative impact is found between profitability and capital structure. The revelations are also supported by a number of previous theories and studies carried out in different countries such as argument of agency theory, trade-off theory and researches conducted by Jensen & Meckling (1976), Adam and Mehran (2003), Bokpin & Arco (2009) and Akram, Zhang & Ramiz-ur-Rehman (2017).

Beside these significant findings, the research also has its own limitations regarding the proxy of measuring variables. The choice of variable measures in the research are deliberately considered in order to find the best proxies. Nevertheless, there are different ways to measure one variable, each of them has its own value and significance. Hence, it is hard to choose a proxy which can be complete substitute for one variable. One more problem of the research might be about the data collection stage. Although the research sample of 336 listed companies (accounts for more than 90% listed company in HSE) can be considered to be the representative sample, but there is still a chance that the result is affected due to the data missing of some observations.

These limitations mentioned above come from many reasons which are both objective and subjective. However, both achievements and limitations of the research will become the new motivations for the researcher to carry on further studies related to this interesting topic.

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PRELIMINARY RESEARCH ON MILLENNIALS' ONLINE SHOPPING IN VIETNAM

NGHIÊN CỨU SƠ BỘ VỀ THỰC TRẠNG MUA SẴM TRỰC TUYẾN CỦA THẾ HỆ Y TẠI VIỆT NAM

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ABSTRACT

Online shopping has been an indispensable trend globally. In Vietnam, the trend of online shopping is becoming popular and gaining strong development steps. With the characteristics of a young population, it is essential to look at the state of online shopping in Vietnam among the Millennial age group (18 to 35-year-old). The paper first examines the development of online shopping in Vietnam in general, then the state of online shopping in the Millennials age group in particular. Finally, the authors present a preliminary investigation on the online shopping behavior of the Millennials in Vietnam and propose some directions for future research. The quantitative results show that millennials in Vietnam are increasingly shopping online but products purchased online are often of low value; movie tickets and food are two new items preferred, and social networks and e-commerce floors are favorite channels for online shopping of millennials. Further research could focus on the factors that may influence the online purchasing decisions of millennials in Vietnam, reasons behind low spending, the potentials of entertainment and food sectors, and reasons behind the choice of social networks and e-commerce sites.

Key words: *Online shopping, consumer behavior, millennials, preliminary research.*

TÓM TẮT

Mua sắm trực tuyến là một xu thế tất yếu trên toàn cầu. Tại Việt Nam, mua sắm trực tuyến đang trở nên phổ biến và đạt được các bước phát triển mạnh mẽ. Với đặc điểm của dân số trẻ, việc nghiên cứu tình trạng mua sắm trực tuyến tại Việt Nam trong nhóm tuổi thế hệ Y (từ 18 đến 35 tuổi) là điều cần thiết. Bài báo trước tiên xem xét sự phát triển của mua sắm trực tuyến ở Việt Nam nói chung, sau đó, tình trạng mua sắm trực tuyến của thế hệ Y nói riêng. Cuối cùng, các tác giả trình bày kết quả thống kê mô tả về hành vi mua sắm trực tuyến của thế hệ Y tại Việt Nam và đề xuất một số hướng nghiên cứu trong tương lai. Kết quả từ nghiên cứu định lượng cho thấy, thế hệ Y tại Việt Nam đang ngày càng mua sắm trực tuyến nhiều hơn nhưng các sản phẩm mua trực tuyến thường có giá trị thấp; vé xem phim và thực phẩm là hai mặt hàng mới được ưa chuộng; và mạng xã hội và sàn thương mại điện tử là các kênh yêu thích để mua sắm trực tuyến của họ. Nghiên cứu sâu hơn có thể tập trung vào các yếu tố có thể ảnh hưởng đến quyết định mua hàng trực tuyến của thế hệ Y tại Việt Nam, lý do đằng sau mức chi tiêu thấp cho mua sắm trực tuyến, tiềm năng của ngành giải trí và thực phẩm, và lý do đằng sau sự lựa chọn kênh mạng xã hội và sàn thương mại điện tử.

Từ khóa: *Mua sắm trực tuyến, hành vi mua, thế hệ Y, nghiên cứu sơ bộ.*

1. Introduction

Online shopping is an indispensable trend globally. In Vietnam, the trend of online shopping is becoming popular and gaining strong development steps. At the recent conference "Consumer protection in e-commerce" taken place in Ho Chi Minh City, Mr. Nguyen Sinh Nhat Tan, Head of the Competition and Consumer Protection Department quoted that currently nearly one third of Vietnam population (around 30 million people) involved in online shopping (Sanh, 2019). The total revenue of e-commerce reached 8 billion USD in 2018, up 30% compared to 2017, double compared to 2015 (ibid, 2019). At the Online Marketing Forum 2019, "Personalizing experiences" organized by the Vietnam E-Commerce

Association (VECOM), Ms. Lai Viet Anh - Deputy Head of E-Commerce and Digital Commerce Department, Ministry of Industry and Trade, said “e-commerce growth in Vietnam is very fast”. According to Ms. Anh, Vietnam's e-commerce market capacity is second to Southeast Asia after Indonesia with about 40 million online shoppers (An, 2019).

This impressive development sparks the interest of academic researchers to study the consumer online shopping behavior in the context of Vietnam. The majority of the research so far focus on studying consumer purchase intention (Nguyen et al., 2007; Lee and Ngoc, 2010; Ho and Chen, 2014; Thang, 2015; Hsu and Luan, 2017; Pham et al., 2018); factors affecting online behavior (Khanh and Gim, 2014; Gim, 2014); consumer satisfaction (Nguyen, 2014; Wang and Le, 2015); and consumer perception and attitude (Choi and Mai, 2018; Dang et al., 2018).

Studying the factors affection online purchase intention of consumers in Vietnam, Thang (2015) finds that consumers' age is one of the factors that can influence their intention to purchase online. The author also points out that consumer trust in online shopping and their attitude have a positive relationship with consumer age. This means that there exist differences in online purchase intention and perhaps online purchase behavior between age group.

Vietnam has been known as a young-population-nation (Bui, 2018). The total population of the country reached 96 billion people by mid year 2019 with the median age of 30.9 years old (Worldometers, 2019). Of which, the Millennial age group (18-38 years old) accounts for 35% of the population and is the key group in the workforce as well as consumer target (Anjoubault, 2018). The report, Vietnam: Into the minds of Millennial shoppers, by Worldpanel (2018), have explored some distinctive characteristics of Vietnamese Millennials such as they have different thinking, lifestyles, and expectations, therefore purchase behavior from older generations, and digital platforms influence greatly on the Millennials' social life and each stage of their shopping journey. Therefore, it is very important to look at the situation of online shopping in Vietnam among the millennial age group (18 to 35 year old) for the future direction of the online retail industry.

To achieve this, the authors present a preliminary research on the development of online shopping in Vietnam in general and Millennials in particular to propose some directions for future research related to online shopping of Millennials in Vietnam.

2. Online shopping in Vietnam

The state of online shopping in Vietnam is first examined in terms of size, growth and potential, then consumer capacity, consumer spending, and finally, segmentation of products purchased online.

First, e-commerce market in Vietnam experiences strong growth and high potential.

Reported in the conference "Consumer protection in e-commerce" (Sanh, 2019), the total revenue of e-commerce reached 8 billion USD in 2018, up 30% compared to 2017, double compared to 2015. Another report of the Vietnam E-Commerce Association - VECOM in 2017 on online retailing, online revenue in 2017 increased by 35% compared to 2016. This shows that the e-commerce market is growing at the average rate of around 30% annually. The online retail revenue is expected to reach 10 billion USD (Vietnamnews, 2018). With this growth rate, it is certain that online shopping in Vietnam is on a good development path. Since 2016, Vietnam has been one of the six fastest-growing e-commerce markets Southeast Asia (Figure 1, Maybank, 2016). By 2019, the country has risen to the second rank among Southeast Asia fastest-growing internet economies (Google, E-conomy SEA report, 2019).

	E-Commerce Market (\$b)	% of Total Retail Sales
Indonesia	1.7	0.6
Malaysia	1	1.1
Singapore	1	2.1
Thailand	0.9	0.8
Philippines	0.5	0.5
Vietnam	0.4	0.6

Unit: Billion USD

Figure 1: Online retail sales of 6 Southeast Asian countries in 2016

Source: Maybank, 2016

Despite strong growth in online shopping revenue, the proportion of online shopping in Vietnam is still low (Maybank, 2016). In 2016, largest online retail sales in Southeast Asia belong to Indonesia, about 1.7 billion USD per year, equivalent to 0.6% of total retail revenue. In Vietnam, the corresponding figures are USD 0.4 billion and 0.6%. Vietnam ranks last in 6 Southeast Asian countries in terms of revenue worth. By 2019, Vietnam ranked second in SouthEast Asia region and ranked fourth in Asia Pacific region (EVBN, 2018; Google, 2019).

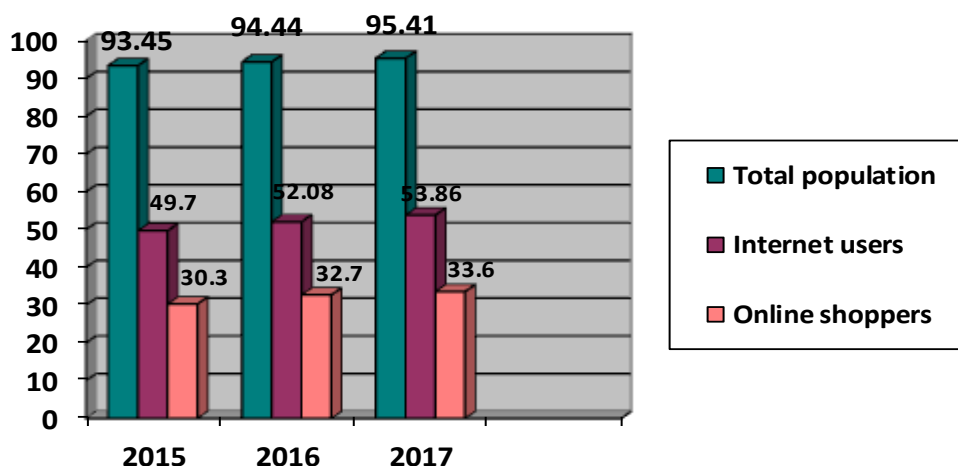
With total retail sales of 191 billion USD (Das, 2019), e-commerce sales accounted for 4.2% of total revenue. Compared to larger markets like China and Korea with the proportion of online retail sales is 16% and 18% respectively, online shopping in Southeast Asian countries in general, and Vietnam, in particular, has not fully developed its potential. This is both a challenge and an opportunity for online businesses in Vietnam.

Second, the number of online shoppers in Vietnam has increase more than 30% per annum from 2015 to 2018.

As announced in 2017 by the Department of E-Commerce and Digital Economy (Ministry of Industry and Trade), in the three years from 2015 to 2017, the number of online shoppers in Vietnam has increased sharply (Figure 2). If in 2015, the country had about 30.3 million people online shopping (32.4% of total population), by 2016, this number increased to 32.7 million people (34.6% of total population). Then, by 2017, there were 33.6 million people (35.2% of total population) participating in online shopping, an increase of 3.3 million people compared to 2015.

Figure 2 shows that over 50% of Vietnam's population uses the Internet, higher than the world average of 48.2% (We are social Singapore, 2017), over 60% Internet users do online shopping. Compared to Korea, the largest online shopping market in Asia, according to Korean statistics, in 2017, South Korea had 45.28 million Internet users (88.1% of the population), and the proportion of online shoppers accounted for 59.6% of Internet users. It can be seen that, although the number of Internet users in Vietnam is not as high as that of South Korea, the percentage of people buying online is close to that of South Korea (ibid, 2017).

Even though the number of online shoppers accounts for just over 30% of Vietnam's population, it has been increasing over the years, which shows that Vietnam is a potential market for online businesses. In a research report by CBRE Vietnam in 2017, surveying about 1,000 people in Ho Chi Minh City and Hanoi, 25% of consumers surveyed intends to reduce shopping frequency in physical stores, while 45 - 50% of respondents think they will shop online via desktop/laptop or smartphone /tablet, more often in the future.



Unit: Million people

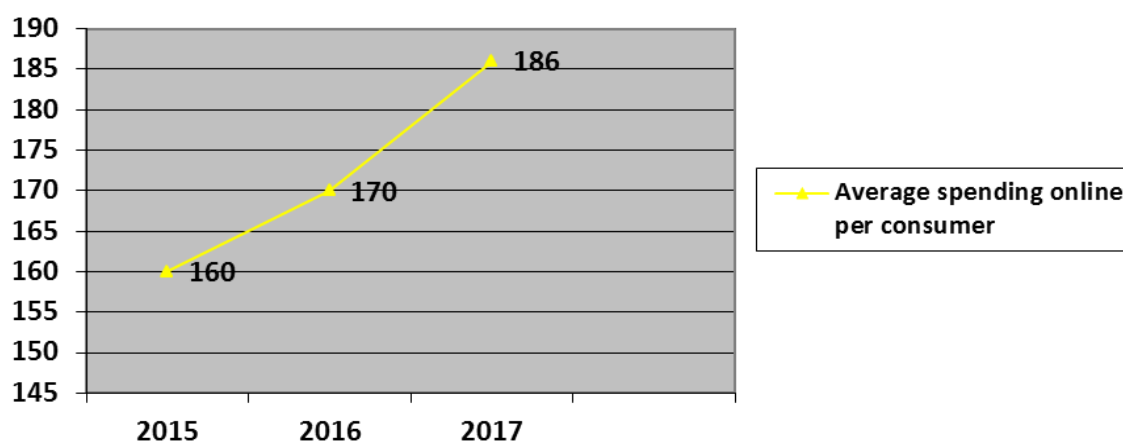
Figure 2: Number of online shoppers in Vietnam 2015-2017

Source: Department of E-Commerce and Digital Economics, 2017

According to a Nielsen report at VOBF 2017, 45% of Vietnamese people access the internet with an average access time of 2 hours/day. Besides, the Creative Commerce 2017 conference lists 91% of people owning smartphones and identified the rapid rise of connected devices (smartphones, tablets). These are favorable factors for more developed online shopping in the coming years in Vietnam

Third, consumers are spending more online and have more trust in online shopping over time.

Along with the increase in the number of shoppers, the amount of money spent online shopping with each person also shows signs of increasing over the years. In 2016, an increase of 10 USD compared to 2015, 2017 increased 16 USD compared to 2016 (Figure 3, Department of E-Commerce and Digital Economy, 2017). Together with the increase in the amount of online shopping, Vietnamese people have more trust in online shopping over time, instead of being afraid to buy online as before.



Unit: USD

Figure 3: The average amount of online shopping per person per year from 2015-2017

Source: Department of E-Commerce and Digital Economy

However, the amount of money spent online shopping is still low (the average spending of Vietnamese in 2016 is approximately 1,200 USD / year), indicating that consumers choose to buy low-

value products. This may stem from consumers perceiving product risks and financial risks from online shopping so they only choose low-value products to buy online. This spending amount per person per year for online shopping is expected to rise to 350 USD by 2020 (Dong, 2018).

Finally, preferred online-purchased-products are electronics goods, apparel, cosmetics, home appliances, and books and stationery.

Survey results of the Department of E-commerce and the Digital Economy (2017) showed that 60% of goods purchased online are electronics, up 25% compared to 2015. Other popular online products are clothes, shoes, cosmetics (60%), then home appliances (34%), books and stationery (31%).

According to Nielsen's Global Survey Connected Commerce report in 2017, Vietnamese consumers have changed in terms of online shopping products (Figure 4). Specifically, apparel such as clothing and footwear accounted for the largest proportion of 64%, up 4% compared to 2016 and became the most purchased online product. Information technology products, meanwhile, dropped to 40%, behind cosmetics products by 40% and books and stationery (51%). Shopping for household products accounted for 29%, down 5%.

Thus, in recent years, with the boom of the Internet and the revolution 4.0 creating favorable conditions, online shopping in Vietnam has had a strong development with a rapid growth rate of over 30%, in terms of revenue. Vietnamese consumers increasingly shop online when the number of online shoppers also increases sharply in absolute numbers, the amount spent on online shopping also increases. Online shopping in Vietnam has not yet exploited the inherent potential as only 30% of the Vietnamese population participating in online shopping; the proportion of online shopping revenue is still low. Therefore, it is necessary to research and have solutions to enhance and promote online shopping in Vietnam in the coming years.

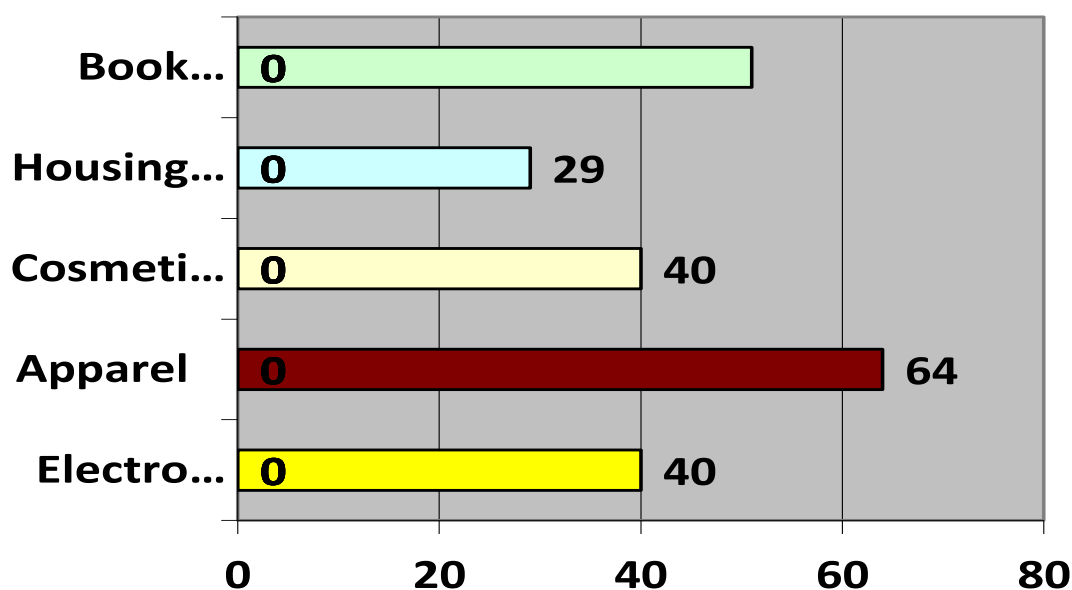


Figure 4: Types of products that consumers purchased online in 2017

Source: Global Survey Connected Commerce in Q1 2017, Nielsen

The preliminary research shows that the e-commerce market in Vietnam has strong growth and potential with increasing revenue, number of online customers, and consumer spending annually. In terms of product categories, apparel, electronic goods, cosmetics, book and stationery, and housing appliance are among the most popular to be purchase online by Vietnamese consumers.

3. Millennials' online shopping in Vietnam

Based on the online shopping situation in Vietnam, the authors evaluated the current shopping situation of Millennials in Vietnam through secondary data collected from documents, reports and research works and the primary data collected by the authors through survey. This section also provides descriptive results of the research and discusses further research direction in the coming period.

Millennials play central role in the development of Vietnam e-commerce market.

Young people accounted for 52.2% of Vietnam's population in 2016 (48.54 million people). According to the projection of Vietnam's population (Statistics, 2017), the population aged 20-35 will increase around 5% annually by 2020 (Figure 7). The Millennial age group (18-38 years old) accounts for 35% of the population and is the key group in the workforce as well as consumer target (Anjoubault, 2018). According to the research results of the Consumer Behavior Research Department - Nielsen Vietnam Market Research Company, in 2016, millennials from the age of 18 to 35 are the main group of online shoppers in Vietnam.

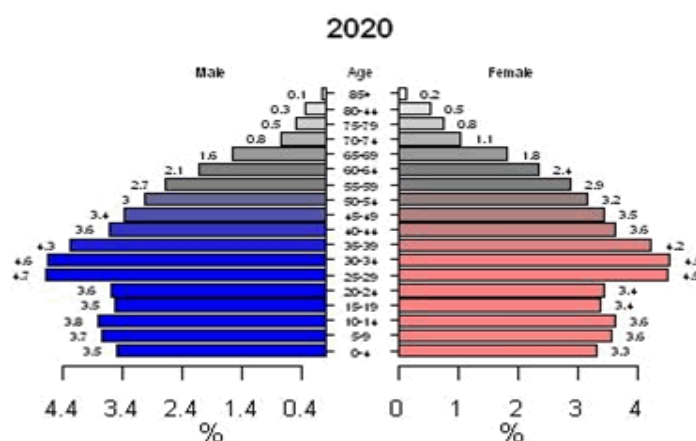


Figure 7: Vietnam population pyramid in 2020

Source: Statistics, 2017

The report, Vietnam: Into the minds of Millennial shoppers, by Worldpanel (2018), have explored some distinctive characteristics of Vietnamese Millennials such as they have different thinking, lifestyles, and expectations, therefore purchase behavior from older generations, and digital platforms influence greatly on the Millennials' social life and each stage of their shopping journey. Therefore, Millennials (18 to 35 year-old) play vital role in the future direction of the online retail industry.

Moreover, young people are the age using internet the most among the internet users in Vietnam. According to the report of NetCitizens Vietnam (2018), currently, the average age of using the internet in Vietnam is 29, only about 25% of internet users are over 35 years old (Figure 8).

Methodology

A survey was conducted with people of age 18-35 years old in Hanoi city, Vietnam over the period of 3 months using random sampling strategy. There are total of 266 participants in the sample, of which 52.2% are female, and 47.8% are male. By age, 198 participants are of 18 to 25 year-old-group (74.4%), 44 participants are of 26-30 years old (16.5%), and 24 participants are of 31-35 years old (9%). In terms of income, 156 participants earn less than 2,600 USD per annum (58.6%), 84 participants have income from 2,600 USD to 5,100 USD (31.5%), and 26 participants have income more than 5,100 USD (9.7%). The descriptive results of the survey demonstrate partly how millennials shop online, which are also in line with the findings from secondary research.

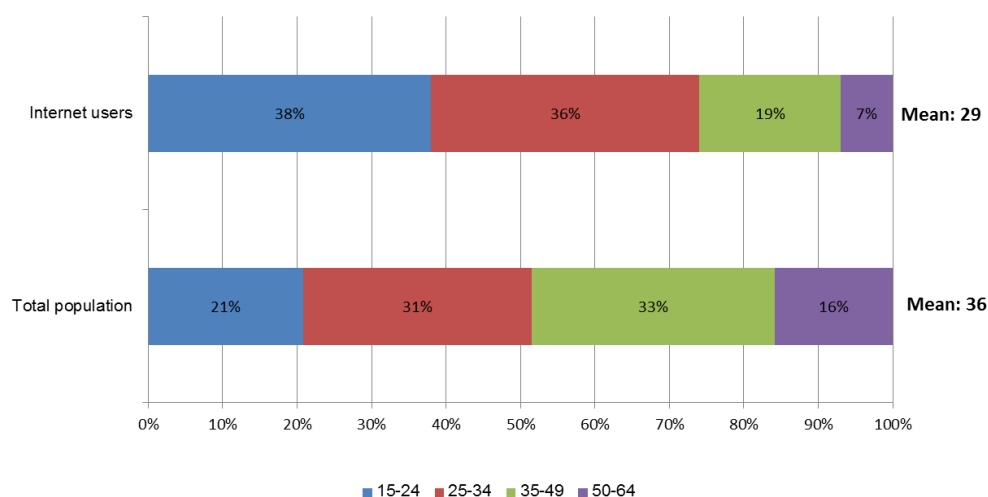


Figure 8: Age of internet users in Vietnam

Source: NetCitizens Vietnam, 2018

First, Millennials spend more time on the Internet compared to an average person

The descriptive results of the survey show that 100% of the sample had visited an online website and the online shopping rate for the sample was 96.7%. The internet access time among the participants is very high when the number of Internet users with the time of over 5 hours/day accounts for 69.9% (the average time Vietnamese people access the Internet is 5 hours 10 minutes – WeAreSocial Singapore, 2017). In addition to online shopping, accessing social networks is the main purpose of Millennials when using the Internet (92.3%) (Table 1).

Table 1: Internet usage time and purposes of using the Internet of Millennials in Vietnam

Internet usage time	Frequency	(%)
<1 hour	4	1,5
1-5 hours	32	12
5-10 hours	154	57,9
>10 hours	76	28,6
Purposes of using the internet		
Online shopping	257	96,7
Reading news	217	81,4
Information search	209	78,6
Social networks	246	92,3
Email	184	69,5
Others	91	34,2

Second, more than half of the Millennials surveyed (60.9%) purchase online more than 10 times per years

Table 2 shows that the most popular online shopping frequency among Vietnamese millennials is from over 20 times/year (33.7%), from 11-20 times accounting for 27.2%, while the frequency of buying online less than 5 times only accounted for 17.6%. This shows that Vietnamese millennials shop online quite often.

Table 2: Online shopping frequency of Vietnamese millennials

Online shopping frequency per year	Frequency	%
0 time	8	3,2
1-5 times	37	14,6
6-10 times	55	21,3
11-20 times	86	27,2
Over 20 times	71	33,7

Third, the most popular product categories are apparel (93.6%), cosmetics (92.7%), and books and stationery (85.4%).

The research results show that Vietnamese young people buy online a variety of products (Table 3). In particular, the most often bought product categories are apparel (93.6%), cosmetics (92.7%), books and stationery (85.4%). This result is similar to the research results of online shopping products of Vietnamese consumers in general mentioned above.

Table 3: Types of products that most often buy online by Vietnamese millennials

Types of products	Frequency	%
Apparels	240	93,6
Cosmetics	238	92,7
Electronics	176	68,3
Household appliances	135	52,6
Books and stationery	220	85,4
Food	133	51,8
Movie tickets	192	74,6
Other	96	37,3

In addition to the types of products that are frequently purchased online: apparel, cosmetics, books and stationery, and electronics. For millennials, products such as movie tickets and food are favorable (74.6% - 51.8%). This is also the difference in online shopping at different ages. For the reason, they might not have much time for shopping and cooking, therefore, they buy online to save time on shopping. This trend and reason need more qualitative and quantitative research in the future.

Fourth, 84.1% of online transactions by millennials are less than 45 USD (1 million VND).

Table 4 indicates that the value of online shopping products by millennials in Vietnam is mainly low-value products as the proportion of products purchased online less than 1 million accounts for 84.1%.

Table 4: Value of online shopping products of young people in Vietnam

Value	Frequency	%
under 100.000 VND	21	8,3
100-500.000 VND	114	44,2
500-1.000.000 VND	81	31,6
1-3.000.000 VND	30	11,8
More than 3.000.000 VND	11	4,1

This may stem from the following reasons: Fear of risk (perceived risk) of buying online: due to the disadvantages of online shopping, customers do not directly see the product, the product may be exchanged upon delivery, especially in the case of payment before delivery, the risk is increased. In addition, the income also affects the value of purchased products, as mostly the income of young people in Vietnam according to the survey results is less than 5 million (58.8%) and between 5-10 million VND (31.7%). Therefore, the spending and product selection of young Vietnamese will also be affected. This also explains more clearly why consumers' spending on online shopping is low as the main online shoppers are young people.

Fifth, social networks (48.3%) and e-commerce sites (32.7%) are two most popular channels for millennials.

Research results show that young people often shop online via social networks and e-commerce platforms, while sellers' websites are less likely to be online shopping methods for young people. Social networking is booming in Vietnam, when about 87.5% of Internet users have been using social networks, mostly young people, among the age of 15-34 (about 71%) (ComScore, 2017). E-commerce platforms in Vietnam are also increasingly popular as the number of e-commerce platforms is increasing in quantity and quality.

Table 5: Channels for online shopping

Online channels	Frequency	%
Seller's website	43	16,7
E-commerce sites	84	32,7
Social networks	124	48,3
Other	6	2,3

As reported by the Vietnam Chamber of Commerce and Industry, by May 2018, there are currently 35 verified e-commerce platforms in Vietnam with over 3 million members. The number of successful transactions through these exchanges is about 1.5 million, with a total transaction value of over VND 4,000 billion. The e-commerce platforms with the largest market share in Vietnam today are Shopee, Lazada, Tiki (Asia Plus, 2017). Website is a method that is losing advantage in online shopping when previously if you wanted to buy online, this is the only channel that consumers can approach. However, consumers in general and young people, in particular, can find more information about products and businesses, the accuracy and reliability of information are also higher from online websites. So, not because of the tendency to switch to online shopping via social networks, e-commerce floors, should businesses ignore website development.

4. Conclusion

The primary research shows that millennials in Vietnam (ages 18-35) are increasingly shopping online as they spend more time on the Internet than average, purchase more frequently online (more than 10 times per year). Products purchased online are often of low value; movie tickets and food are two new items appearing at the age of 18-35 compared to the figures of consumers nationwide, and social networks and e-commerce floors are two favorite online shopping addresses of young people in Vietnam.

Further research could focus on the factors that may influence the online purchasing decisions of millennials in Vietnam, reasons behind low spending, the potentials of entertainment and food sectors, and reasons behind the choice of social networks and e-commerce sites.

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A COMPARATIVE ANALYSIS OF STARTUPS FINANCING IN VIETNAM

SO SÁNH HOẠT ĐỘNG HUY ĐỘNG VỐN ĐẦU TƯ CỦA CÁC DOANH NGHIỆP KHỞI NGHIỆP SÁNG TẠO VIỆT NAM

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ABSTRACT

The purpose of this paper is to compare the ability and efficiency of start-ups financing in Vietnam during 2010 - 2018. Probit regression is employed to clarify the differences of fundraising ability among some sectors. In addition, liner regression is also applied for investigate the efficiency of start-ups financing. The finding shows that start-ups in financial technology and e-commerce have advantages in raising capital. Furthermore, start-ups in the service technology dominate the efficiency of raising money. In addition, the study also shows that the older of start-ups age, the higher ability and efficiency of capital mobilization. The paper attributes valuable results to both academic and practical field. Entrepreneurs can seize opportunity to be success in the new venture. Paper can be better if it takes a deep research in some characteristics of seperate industries and comparative.

Keywords: *Start-up finance, economics sectors, technology-based company.*

TÓM TẮT

Bài nghiên cứu so sánh khả năng và hiệu quả huy động vốn đầu tư của các doanh nghiệp khởi nghiệp sáng tạo ở Việt Nam trong giai đoạn 2010 - 2018. Nghiên cứu sử dụng mô hình hồi quy biến nhị phân Probit để kiểm chứng khả năng hoạt động huy động trong các ngành khác nhau, tiếp theo sử dụng phương trình hồi quy tuyến tính để xem xét sự khác biệt của hiệu quả huy động vốn trong những ngành đó. Kết quả hồi quy cho thấy các doanh nghiệp thuộc ngành công nghệ tài chính và thương mại điện tử có lợi thế trong việc huy động vốn đầu tư. Bên cạnh đó, tuổi của doanh nghiệp khởi nghiệp cũng có tác động cùng chiều với hiệu quả huy động vốn. Nghiên cứu đã đóng góp một phần vào lý thuyết và thực tiễn của hoạt động huy động vốn của doanh nghiệp khởi nghiệp sáng tạo, vốn vẫn còn mới mẻ ở Việt Nam. Tuy nhiên bài nghiên cứu sẽ tốt hơn nếu có thêm các nghiên cứu sâu hơn từng lĩnh vực, đây cũng sẽ là hướng đi tiếp theo của nghiên cứu.

Từ khóa: *Huy động vốn đầu tư khởi nghiệp sáng tạo, khởi nghiệp sáng tạo, doanh nghiệp công nghệ.*

1. Introduction

Entrepreneurial activity fosters the innovation and technological change of a nation (Schumpeter, 1943). It is widely acknowledged the fact that places with high numbers of enterprises usually have high economic growth. This is because starting a business does not only create value for the economy but also create many job opportunities, thereby improving the quality of life of people. Shane (1995) demonstrates entrepreneurship is a key for the economic growth by investigating contribution of entrepreneurial firms to the US economic growth in the period 1947-1990. Moreover, new ventures are responsible for job creation (Vesper, 1996). Many studies (Stangler and Kedrosky, 2010; Kane, 2010) show that startups are accountable for almost all the new jobs created in the USA (about 63 percent). A research by Haltiwanger et al. (2013) on the US economy in the period 1992-2005 confirms that existing firms are job destroyers, losing one million jobs combined per year. By contrast, in their first year, new firms add an average of three million jobs. During recessionary years, job creation at startups remains stable. For all these reasons, entrepreneurship has attracted the attention of scholars since many decades and startups are becoming a growing area of interest. The success of start-ups has an impact on the economy, so that governments in developed and developing countries have adopted a variety of supportive policies and efforts, creating a favourable business environment to promote startups growth.

For innovative startups, investment capital is very important, especially in the early stages so that businesses can maintain and realize their ideas. But a large percentage of innovative startups fail because of the lack of capital to implement their strategies and programs. Therefore, creating conditions for these businesses to have easy access to business capital is essential, but it is important to need help from the government to create a favorable environment to help businesses. creative start-up becoming more and more successful.

Currently, the Ministry of Planning and Investment has a National Startup Support Fund with a capital of up to VND 2,000 billion, and Ho Chi Minh City has also developed a capital support policy for startups in the area, with the capital the investment for each project is up to VND 2 billion. However, the number of creative startups accessing this capital is very limited. The reason is that the policies supporting the start-up projects are still difficult for businesses to access capital, for example such as industry limitations, and the main cause is the human capital of the business owner.

From the research on the factors affecting the capital raising activities of startups, we can see that the macro factors related to the industry environment are also important factors. For some businesses, the macroeconomic and sectoral context can affect profits more than the relative outcome of firms within the sector. Besides, the industry's profit has an impact on the ability and efficiency of raising capital of businesses, in detailed businesses need to pay attention to the macro economics and industry. This paper focuses on startups, which are fast growing, small, new and dynamic with annual growth rates ranging from 20 to 25 percent per year. The growth of the company may be due to the general growth of the industry or increase in market share also.

Our analysis aims to figure out the differences between industry in ability and efficiency of mobilization of Start-ups in Vietnam. This study contributes to the entrepreneurship literature specify in startup financing and provide important implications for researchers and practitioners who are more and more interested in startup companies in general. The research consists of five parts, in addition to the introduction section, the second part is the theoretical basis and research hypotheses. Next is the research data and methodology. The research results presents the results obtained from descriptive statistics and model regression. Finally, we provide conclusion and limitations of the study.

2. Literature review

2.1. Startup financing

Entrepreneurship is a very complex category that involves many activities, such as identifying and evaluating opportunities and motives; search and allocate resources; corporate governance; fundraising. As pointed out by Clarysse et al. (2011), the growth paths of young technology-based firms result from structuring resource portfolios. Resources embrace human, technology, and financial resources. More specifically, this entrepreneurial model is usually associated to a need for capital exceeding the founders' ability to self-fund and the company's capability to self-sustain. Consequently, new ventures (also referred as "startups" or "young and new technology-based companies/NTBF") in the early stages base their development on the resources collected through external financing, which comes from investors specialized on equity (seed and venture capital, as well as business angels, incubators, accelerators, recently also crowdfunding). Equity capital acquisition is one of the most critical factors in the growth path of a startup/new venture (Hustedde and Pulver, 1992; Colombo and Grilli, 2010; Colombo et al., 2010). The lack of adequate funds hinders firms' growth and even threatens survival because it is strong correlated to resources acquisition (Carpenter and Petersen, 2002).

Therefore, it is critical to understand the variables affecting the ability of new ventures – specifically in the early-stage phase – to access to financial resources. In additionally, only a few studies have focused on the influence of human capital and firm's characteristics on fund raising. Cressy (1996) suggests that human capital determines the ability of a company to access to financial resources, while others affirm that capital raised by a startup is positively related to the entrepreneurs' level of education

(Bates, 1990). By contrast, Storey and Wyncarczyk, 1996 find that company-specific factors also have a great explanatory power as fund raising is involved.

While the importance of equity capital on future new venture performance has been deeply investigated, access to equity capital for start-ups at an early stage and the existing linkages with human capital and firms' characteristics still remain an open research problem. In particular, the study of factors affecting the successful fundraising of startups is quite new. However, research in the world often focuses on developed country contexts, where business environment is more advanced, and probably completely different from emergent contexts, such as in Vietnam. The research in Vietnam is very new, and it focuses mainly on the first issue (studying the factors that influence the entrepreneurial intention of the business).

In addition, studies on the economic and environmental conditions of the industry, as well as factors on the type of business, also affect the performance of the business. Research by Khandwalla (1976) and Utterback (1996) shows that information technology enterprises are more likely to raise capital, so that the skills of human capital in information technology. The information of the business owner have a positive impact on the capital raising efficiency of the business. It is assumed that the impact of human capital on the capital mobilization results of innovative start-ups in high-tech industries will be greater than in low-tech industries.

The year of establishment of an enterprise is also of interest to entrepreneurial researchers, according to Davidsson and Honig (2003), the age of the business is a key factor in assessing the capacity of human capital. Owners of young businesses are often more active than those of older businesses (Aldrich and Wiedenmayer, 1993; Stinchcombe, 1965). It is assumed that the impact of human capital on young firms on start-up capital mobilization will be greater than that of large firms.

The first study in Vietnam by Tran Thi Thanh Huyen (2015), "Capital mobilization activities for startups: Current situation and solutions", highlighted the current situation of capital raising activities of start-up businesses. According to Nguyen Thi Hanh et al (2016), capital mobilization activities of Vietnamese start-ups exist in many forms and have not been clearly recognized by businesses and investors. There is an information asymmetry phenomenon, which leads to many difficulties in accessing investment capital of creative startups. According to Le Thai Phong et al (2018), factors affecting enterprises' capital mobilization activities come from the characteristics of the founders, enterprises and environmental and institutional factors. Researches on capital raising activities of innovative startups in Vietnam are still in the early stage.

In these studies, most of the business or economic sectors are considered as an element of the observed variable and have not been studied in depth and analyzed in detail the specific characteristics of industries, especially for Creative start-up businesses. This study will analyze how to segment the industry for innovative startups and explore its impact on the ability and efficiency of raising capital.

2.2. Economic industrial classification

Industry is a group of companies that provide similar products or services. These companies often have similar production processes, organizational behaviors, sales behaviors and markets. Industries are often categorized in a variety of ways, at the top level of the industry are often categorized into three groups: the basic industries (mining, agriculture), the manufacturing and the service sectors. The criteria for sub-sectors are often based on product functions and similar markets. For example, classification based on products such as construction, chemicals, petroleum, automotive, electronics, electricity, software, fisheries, textiles, etc. The market-based classification has Global Industry Classification Standard and Industry Classification Standard, which are commonly used for financial markets. There are also classification systems that apply this classification method: International Standard Industrial Classification of all economic activities of the United Nations, Standard Industrial Classification of the United States, and Vietnam System Industrial Classification (VSIC) in 2007.

VSIC is divided into five levels with the following levels: level 1 consists of 21 sectors coded by the alphabet, level 2 consists of 88 industries formed by each corresponding level 1 industry and encoded with two digits from 01 to 99, level 3 consists of 242 sectors formed by each corresponding level 2 branch and encoded in three digits from 011 to 990, level 4 includes 437 branches formed by each corresponding level 3 branch and is encoded by four digits from 0111 to 9900, and a level 5 industry consisting of 642 sectors formed by each corresponding level 4 industry and encoded with five digits from 01110 to 99000. The economic sector in VSIC 2007 is the aggregation Economic activities are the same based on the following three priority criteria: Manufacturing processes and technologies delicate; Input materials that economic activities use to create products; Characteristics of the output of economic activity.

In addition, a new trend in economic sub-sectors is emerging economic sectors. Emerging economic sectors are characterized by great growth potential, this is different from the economic sector is having a large growth rate. In these emerging economic sectors, the growth potential is still forecast, but these industries often grow faster than the common ground and lower than the economic sectors entering a high growth period. These industries often have the following characteristics to identify: (i) formed on the basis of new products, new services and new ideas resulting from changing customer needs, and often use as Key enabling technology; (ii) include entirely new industries, or more commonly, restructuring, integrating and converting old industries into new industries; (iii) tend to research and in-depth knowledge of the industry, because their appearance is often the result of creativity and innovation; (iv) this industry often has a combination of entrepreneurship and innovation, (v) they activate and allow changes in market structure, creating new suppliers, new customers, new business models, products and services; (vi) the emergence of this industry often creates breakthrough changes and affects the existence of other industries; (vii) and the industry tends to cluster highly, emerging industry companies tend to be geographically focused. Examples of current emerging technologies include educational technology, information technology, biotechnology, new materials technology, automation technology and artificial intelligence. And Silicon Valley is a valley in San Francisco USA is considered the paradise of startups, many businesses around the world gather here to start a business.

According to a recent report by the European Union on emerging industries, these industries are often categorized according to the emerging technology that they apply, including seven main types of industry, such as: (i) environmental technology – Eco Industries; (ii) creative industries; (iii) maritime industries; (iv) mobility industries; (v) life science industries; (vi) information technology and (vii) services. In which Eco industry includes businesses providing innovative products and services that have a positive impact on the environment; Creative includes creative advertising, architecture, art, design, fashion, film, performance art, software, toys, games, etc... Maritime industry includes companies providing innovative products and services related to the traditional maritime sector; the transportation industry includes products and services that optimize the time and journeys of goods and people; Information technology services sector includes companies providing new communication solutions.

From the above concepts, the paper is based on the industry classification of Vietnam's Economic Sector System, and the trend of emerging industries temporarily categorizes the economic sectors that businesses innovate in Vietnam. These are agriculture technology, educational technology, financial technology, biotechnology and health, e-commerce, service technology and information technology.

2.3. Influence of industries on the efficiency of capital mobilization activities of startups

A startup generally has an uncertain future, which is a risk for investors. However, the investor can assess the startup according to the market they (aim to) operate in. An often reported requirement of a VC investor is that the market of the startup allows for rapid growth (Rea, 1985; Kaplan & Strömberg, 2000). The investors require the growth of the firm to get a better return on investment. Investors are also, but less explicitly, attracted to startups that potentially create new markets or change existing ones (Kaplan & Strömberg, 2000). The market opportunities influence all types of investments. However, they are more

determining in early stage investments because startups not yet have a proven record in that stage. Vinig and De Haan (2003) show that investors in the Netherlands show special interest in startup in markets in which they are familiarized. In other words, investors target companies in specific industries.

Multiple studies show different chances of attracting funding in different industries. Hellman and Puri (2000) discover that companies in the telecom and medical industry have more chance to attract funding, while this is less likely for companies in the computer industry. Chang (2004) recognized two categories of internet startups; e-commerce companies and internet platforms. The market for e-commerce companies proved to be more mature than the investment market for internet platforms. The study of Puri and Zarutskie (2012) showed that mainly companies in capital intensive industries, like electronics and biotech, are more likely to attract venture capital. Capital is indeed more abundant in the biotech industry; the companies in the sector are mainly targeted for their technology and product (Baum & Silverman, 2004; Häußler, 2009).

The industries that were most present among the startups in both cities are included in the analysis; the analytics industry, FinTech industry and media / content industry. The media and content industry is a long established industry, advances in ICT have however led to an upturn of digital advertising (Simon et al, 2012; McKinsey & Company, 2015), The media industry is globally the same size as the FinTech industry, with both a transaction size of around 1,6 billion dollar (McKinsey & Company, 2015; SparkLabs, 2016). However, the online media and content is only a small share of the total industry. Moreover, the size of the FinTech industry is expected to grow 65% (Spark Labs, 2016) and the media industry merely 5% (McKinsey & Company, 2015). FinTech refers to financial technology; the industry consists of businesses that use software to provide financial services (FinTech Weekly, 2016). The funding of FinTech companies has risen 215% in Europe between 2014 and 2015, with the Nordics and the Netherlands as important sources (Accenture, 2015). The analytics industry consists of businesses that employ Big Data and/or Business Intelligence. Big Data is the information processing of complex voluminous data collections (Gartner, 2016a). Business Intelligence (BI) is a collection of applications, tools and other means for applying data in company operations (Gartner, 2016). The global Big Data analytics market has shown unparalleled growth, the market (measured in revenue) grew 260% from 7,6 billion dollar in 2011 to 27,4 in 2014 (Kelly, 2015). The growth is however projected to stabilize the coming years. This makes analytics startups in the sample of special interest, because they were in business during the period of the strongest growth.

H1: The economic sector has an impact on the ability of creative startups to raise capital.

H2: The economic sector has an impact on the efficiency of capital mobilization of creative startups.

2.4. Hypothesis

Based on the theoretical basis, and measurement of the ability to raise capital and the efficiency of capital mobilization, the hypotheses are given as above.

The paper uses the ability to raise capital and the efficiency of capital mobilization to measure capital mobilization activities of SMEs. Besides, the observed variable is the number of years of operation of the enterprise.

Table 1: Summary of variables

Variable	Description	Relationship expectation
1. Agri	Equal to 1 if the enterprise belongs to agricultural technology, equal to 0 if not.	+,+
2. Ed	Equal to 1 if the enterprise belongs to education technology, equal to 0 if not.	+,+
3. Fin	Equal to 1 if the enterprise belongs to financial technology, equal to 0 if not.	+,+

4. BioHeal	Equal to 1 if the enterprise belongs to biology and health technology, equal to 0 if not.	+,+
5. Ecom	Equal to 1 if the enterprise belongs to ecommerce, equal to 0 if not.	+,+
6. Sev	Equal to 1 if the enterprise belongs to services technology, equal to 0 if not.	+,+
7. LogAge	By Logarithm the years of foundation	+,+
8. Financing	Equal to 1 if the enterprise belongs to financial technology, equal to 0 if not.	+,+
9. LogAmount	By Logarithm the value of capital mobilization	n/a

3. Data and methodology

The research data of the project is taken from the CrunchBase database, from January 1, 2005 to December 31, 2018, including startups that have registered business establishment and are still operating to the present time. The sample collected includes 338 enterprises with complete information and data on the intended variable included in the regression model. Where Y (1) is Callability, which is inherently the identifier and Y (2) is Callability, which is inherently constant.

$$Y(1) = \begin{cases} 1, n = 144 \\ 0, n = 194 \end{cases}$$

$$Y(2) = \begin{cases} \text{non disclose}, n = 60 \\ \log(a), a = [1000, 133800000], n = 84 \end{cases}$$

The quantitative model for analyzing callability variables is the regression polynomial identifier model, the estimated model is the polynomial probit according to Finney (1952) because the dependent variable is a binary variable with only two values. are 0 and 1. Also the dependent variables are discrete and multi-cataloged variables. The project examines the impact of the economic industry on the efficiency of capital mobilization activities of creative start-ups. The SMEs are divided into seven sectors and take the biotechnology and health sectors as their base choices. Since the total probability of seven sectors is one, it is therefore not possible to estimate all probabilities independently, but the probability of biotechnology and health is determined automatically. The formula of the research model is as follows:

$$P_i = \Pr(Y_i=1) = \frac{1}{1 + e^{-Z_i}}$$

In which:

$$Z_i = B_1 + B_2Agri_i + B_3Edu + B_4Fin + B_5Ecom + B_6Sev + B_7LogAge + u_i$$

P_i is the probability when $Y_i=1$ (raised capital)

Z_i is a model to estimate the correlation between variables of different industries and the observed variable is logarithms of firm's age.

To estimate the efficiency of capital mobilization of enterprises, the research team used a linear regression model to test, the formula as follows: $V_i = B_0 + B_2Agri_i + B_3Edu + B_4Fin + B_5Ecom + B_6Sev + B_7LogAge$

In which: $V_i = \text{Log}(\text{Amount of money startup raising fund})$

The remaining variables remain the same.

4. Results and discussion

Overview of the number of innovative start-ups during 2005-2018 by industries is as follows:

Table 2: Start-ups by industries from 2005 - 2018

Industry	Number	Percentage (%)
Agritech	21	6.2%
Edtech	32	9.5%
Fintech	24	7.1%
Biotech and health	26	7.7%
Ecommerce	46	13.6%
Services	132	39%
Information technology	57	16.8%
Total	338	100

Source: Crunch Base, 2019

The majority of SMEs focus on the next service (39%) technology and information technology (16.8%) and e-commerce (13.6%). The remaining industries account for over 30% with 103 out of 338 start-ups. It can be seen that new industries are still very potential in Vietnam market.

Table 3: Number of deals that have been raised and failed to raise capital in the period of 2005-2018

Deals	Number	Rate
Number of Start-ups who have mobilized capital but announced the amount.	84	25%
Number of Start-ups have mobilized capital without disclosing the amount.	60	18%
Number of Start-ups have not yet mobilized capital.	194	57%
Total	338	100

Source: Crunch Base, 2019

It can be seen that the number of positive innovative startups in Vietnam, in the survey sample of 338 transactions, can be seen that the rate of successful capital-raising deals is 43%, which can be explained for this ratio as: The number of times a firm calls for capital is often large, so the loop increases but the actual number of businesses is lower than the number of deals. But this rate is positive for businesses when deciding to invest in innovative startups.

Table 4: Descriptive statistics of quantitative variables

Variables	α	Std. Dev	Min	Max
Age	5.868613	6.546332	1	14
LogAge	.5553599	.4289468	0	1.272098
Amount	7,728,270	1.880000	1000	133,800,000
LogAmount	6.054553	1.047577	3	8.126456

Statistics from 2005 so the business year of the SME enterprises have 14 year old enterprises. However, often these enterprises raise capital at the time, unlike the SMEs in the world, this time is often slower than the world. The largest amount raised was Momo e-wallet, with 133.8 million dollars, through 04 rounds of fundraising.

Table 5: Regression according to the variable Probit model depends on the ability of Startups financing

Financing	α	Std. Dev	z	P-value
Agri	.0557609	.5287425	0.11	0.916
Ed	.4271508	.4703964	0.91	0.364
Fin	1.375533	.581254	2.37	0.018**
Ecom	1.133812	.4635294	2.45	0.014**
Sev	.6450354	.4118661	1.57	0.117
IT	.2422081	.4443437	0.55	0.586
LogAge	2.427081	.277799	8.74	0.000***
LR-Chi square	140.77			
Pseudo-R Square	0.3730			
Observations	338			

*** , *** P-value <0.05; 0.001*

We see the model has only three significant variables, of which two variables have P-value <0.05 that is the Fin variable and the Ecom variable, 1 variable with P-value value <0.001 is the LogAge variable. Thus, the results show that assumptions about the SMEs in the financial technology industry, e-commerce and the observed variable of years of operation of enterprises have an impact on the ability of enterprises to raise capital.

Enterprises in the financial technology industry have a higher probability of raising capital than enterprises in the biotechnology and financial industries. Pi regression parameters here are 1.37 and $z = 2.37$, which means that enterprises involved in financial technology, the ability to raise capital increased 1.37 times. This result is consistent with the theory that the number of investment deals in the financial sector has been increasing in recent years, and the market of this industry is still very large and the solution. The technology has become very useful when applied to financial sector startups.

Through Figure 5, the regression parameter of the Ecom variable is positive and at 1.133, businesses in the e-commerce industry have an advantage in the ability to raise capital with the remaining industries. This result supports the judgment of Yang (2015), that the ability to mobilize capital of innovative start-ups in the e-commerce industry is influenced by industry and environmental factors. business. It can be seen that in the opposite direction, enterprises in the e-commerce industry will have advantages for better business operations, higher ability to raise capital.

A result with p-value <0.001 is the number of years of operation of the enterprise, this ratio shows the statistical significance of the business age variable is very large. This is also true compared to previous studies and also almost obvious. The longer a business, especially the startups, the longer its operating time, the better its ability to do business, the better its ability to do business, the higher its ability to raise capital. Next, examine the regression model on the efficiency of capital mobilization activities of the startups by sectors.

**Table 6: Regression of linear model of industry influence
on capital mobilization efficiency of SMEs**

Amount of Financing	α	Std. Dev	t-stat	P-value
Agri	-.3991785	.7626101	-0.52	0.602
Ed	.169757	.630623	0.27	0.789
Fin	.8895705	.6702611	1.33	0.189
Ecom	.9185335	.588869	1.56	0.123
Sev	1.062981	.5616084	1.89	0.062*
IT	.7256238	.6213987	1.17	0.247
LogAge	.7938875	.2710732	2.93	0.005**
Prob > F	0.00098			
R- Square	0.2809			
Obs	84			

*,** P-value < 0.1; 0.05

According to the table above, the results of estimating the regression model depending on the capital mobilization value of the SMEs by economic sector have two significant variables, namely the Sev variable - service technology with P-value < 0.1 (0.062) and the LogAge variable (0.005 < 0.05). It can be seen that, in terms of capital mobilization efficiency, enterprises in the service sector mobilize a larger amount of capital compared to enterprises in the remaining industries. Explaining this, it can be seen that the number of service sector deals accounts for a large proportion in the observed sample, because when the economic sub-sector, the financial sector is much narrower than the tourism service sector and transport services. However, because the resources invested in transport and tourism services need more capital than the financial industry, the amount of capital invested in the service industry is understandable.

Age is a strong factor in raising large capital (0.81), because the more businesses start up, the more investment they need, and the more trust they have built in investors then they will get the fastest and the right amount as they expected so here the age of the business has a strong correlation and a great impact on the amount of capital raised by the business.

Through two research models of capital mobilization and capital mobilization efficiency, we can see that there exists a relationship between economic sectors and capital mobilization activities. More specifically, in the context of the Vietnamese market, industries such as financial technology, e-commerce, and service technology are the sectors that attract the most investment capital of investors. On the other hand, the number of years of operation of an enterprise is proportional to both the ability and effectiveness of capital mobilization of SMEs in Vietnam.

5. Conclusion and limitations

Research paper on capital mobilization activities of innovative startups in Vietnam has shown the influence of factors on the ability and capital mobilization activities of innovative startups. In which, important factors to be considered are: Business sector and the age of the business. Among these factors, business factors have a great influence and need to be focused, because each business has its own characteristics and needs a different amount of capital to maintain operations. The age of the business also plays an important role in raising funds for the organization. The results show that businesses with longer operating time will need more capital and also easier to raise capital.

Research on innovative start-up businesses in Vietnam is inherently a new research problem, so it is difficult for the authors to avoid some difficulties during the research process. Because of the difficulty in collecting and refining data, the article only analyzes the impact of three main factors: industry, model and age of innovative start-ups to capital mobilization. without research further combined with other impact factors. Data of Vietnamese enterprises has not been published really accurate compared to reality, because many of the information is either theoretical or unreasonable. The research paper tried to screen and minimize as many false figures as possible but certainly could not avoid errors. Entrepreneurs and those who plan to start a business in the future will have more useful knowledge about raising capital for businesses.

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THE IMPACT OF EARNINGS QUALITY ON THE INVESTMENT INEFFICIENCY OF LISTED COMPANIES IN VIETNAM

TÁC ĐỘNG CỦA CHẤT LƯỢNG LỢI NHUẬN ĐẾN TÍNH KHÔNG HIỆU QUẢ ĐẦU TƯ
CỦA CÁC DOANH NGHIỆP NIÊM YẾT TẠI VIỆT NAM

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ABSTRACT

The purpose of this research is to study the impact of earnings quality on investment inefficiency of listed companies on Vietnam stock market. We used secondary data of 540 listed non-financial companies on two stock exchanges which are Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) over a period of 10 years (2008 to 2017). The inefficiency investment was presented by residual from the regression model of annual revenue growth. The research concentrated on the effect of two main proxies, namely persistence and predictability earning on inefficiency investment. Control variables which consist of size, revenue growth, state ownership, and financial leverage influence inefficiency investment. Regression result shows that a positive impact has been created on inefficiency investment by the size of company. However, in the same period, predictability earning, state ownership and financial leverage causes negative effects on inefficiency investment. Meanwhile, revenue growth, persistence earning in regression model has no statistical meaning.

Keywords: *Earnings quality, investment efficiency, listed companies.*

TÓM TẮT

Bài viết nghiên cứu tác động của chất lượng lợi nhuận đến tính không hiệu quả đầu tư của các doanh nghiệp niêm yết trên thị trường chứng khoán Việt Nam. Nhóm tác giả đã sử dụng dữ liệu thứ cấp của 540 doanh nghiệp phi tài chính niêm yết trên Sở Giao dịch Chứng khoán Thành phố Hồ Chí Minh (HOSE) và Sở Giao dịch chứng khoán Hà Nội (HNX) trong vòng 10 năm (từ năm 2008 - 2017). Tính đầu tư không hiệu quả được đo lường bởi phần dư từ mô hình hồi quy tăng trưởng doanh thu hàng năm. Nghiên cứu tập trung xem xét tác động của hai biến chính, đó là tính bền vững và tính dự báo của lợi nhuận. Các biến kiểm soát bao gồm quy mô, tăng trưởng doanh thu, sở hữu nhà nước và đòn bẩy tài chính cũng đều có ảnh hưởng đến sự không hiệu quả trong đầu tư. Kết quả hồi quy cho thấy tác động thuận chiều từ quy mô của doanh nghiệp lên tính đầu tư không hiệu quả. Tuy nhiên, tính dự báo của lợi nhuận, tỷ lệ phần trăm sở hữu nhà nước, đòn bẩy tài chính lại có tác động ngược chiều lên khả năng đầu tư không hiệu quả của doanh nghiệp. Bên cạnh đó, tốc độ tăng trưởng doanh thu và tính bền vững của lợi nhuận trong mô hình hồi quy không có ý nghĩa thống kê.

Từ khóa: *Chất lượng lợi nhuận, doanh nghiệp niêm yết, tính không hiệu quả đầu tư.*

1. Introduction

Investment is an important activity stimulating the development of businesses as well as the growth of the economy. Investing through investment projects not only facilitates the development of infrastructure and increases the employment growth but also boosts the development of the capital market. Therefore, investment decisions and investment efficiency of firms not only play an important role to firms but also affect the economy in general.

In the world, there are numerous studies on several investment aspects such as measuring and evaluating investment efficiency; considering factors affect investment efficiency in terms of economic sectors or listed companies in different markets and economies; assessing the factors affect the under-investment or over-investment status of firm. Richardson (2006) argues that investment plays an important role in ensuring that companies develop sustainably in a competitive market and create new value for shareholders; investment policies of firms are determined based on factors such as the overall economy, macro monetary policy, capital market as well as factors of the company's operations. Over-

investment is understood as the use of capital flows into projects that are not profitable for businesses. This is one of the issues that many researchers concern about because it comes from the conflict of interests between shareholders and managers. In particular, studies of over-investment have been also carried out in emerging and marginal markets, which are similar to the Vietnamese market. Appearing with over-investment, enterprises may also encounter underinvestment. Consideration of inefficiencies in investment through measurement of under-investment and over-investment is approached by many researchers to make recommendations on management situation for businesses.

In Vietnam, there has not been any specific studies on the investment status of firms whether they have over-investment or under-investment problems especially for listed companies which are important parts of the economy and express the power of the economy. Therefore, it is necessary to have a research on investment inefficiency as well as impacting factors to help businesses improve their investment efficiency and avoid under-investment or over-investment. Prior studies have also focused on the factors affecting investment inefficiencies such as financial reporting quality (FRQ), factors from management such as overconfidence or redundancy in cash flow. Earnings quality is one of the remarkable factors. In particular, earnings quality (EQ) is researched further in academic after a series of accounting scandals have occurred around the world during the last decade. Outstanding examples are the large American firms like Enron, Healthsouth, Parmalat, Tyco, Worldcom and Xerox, which lead to great losses for investors. In this study, from acquiring prior studies on how the financial reporting quality affects investor's decisions, we study the relationship of earnings quality and decision of business owners.

2. Research overview

Accounting information plays an important and essential role in the management of micro and macro levels taking on the role of managing information resources for businesses. Accounting information is used by many objects in the economy, so the financial reporting quality is a remarkable issue. Besides, the earning is assessed as a comprehensive measure reflecting most closely with the financial situation and operation of the business. Therefore, earnings quality becomes a major concern for both inside and outside entities and attracts many research scholars. P. Dechow et al. (2010) summed up 300 earnings quality studies in leading accounting journals, thereby giving broader definition of earnings quality which is an useful characteristic for any economic decision made by any entities. They point out that the measures of earnings quality consist of two groups which are characteristics of earnings quality and the level of investor's responsibility when considering the published profit. Besides, the authors also added a proxy to assess the earnings quality through external evidences about errors in reported earning information.

In addition to the theoretical background research, there are specific studies of earnings quality associated with specific events such as Jennifer Francis et al. (2006) examined the signification of earnings quality in capital market. The idea is that the precision of financial reporting information is associated with capital market participant behavior. This research indicates the idea that factors such as the auditor size, the independence of the board of manager or the ownership structural influence earnings quality. Beisland, L. A., and Mersland, R. (2013) study about earnings quality in the microfinance industry, administrate generally the earnings quality metrics developed in the accounting literature. The authors conclude that the earnings quality in the microfinance industry to be inferior to that of other corporations. However, earnings quality in microfinance industry is assessed through scores on several earnings proxies such as smoothness, persistence, predictability or earnings management almost similar to other industries, appropriated in prior (Dechow and Dichev 2002; Francis and Smith 2005; Lang et al. 2006; Barth et al. 2008; Dichev and Tang 2009).

Moreover, there are many studies on the impact of earnings quality on economic entities as evaluating earnings quality in U.K. Private Firms (Ball, R., and Shivakumar, L., 2005). However, the majority of researchers often analysis factors affecting earnings quality such as Auditor Industry

Specialization and Earnings Quality (Balsam, S., Krishnan, J., and Yang, JS (2003), founding family ownership and earnings quality, (Wang, D. (2006), the impact of product market competition on earnings quality (Cheng, P., Man, P., and Yi, CH (2013),... Consequently, studying in earnings quality is a searching branch which is being interested by scholars and researchers in the literature on financial reporting quality in particular and financial accounting in general. However, this issue is quite complex and inadequate, so this will be a topic to attract future researchers.

Today, countries issue many different policies to increase investment capital from home and abroad. One of the key reasons is that investment contributes a great deal to encourage economic activities, increase national output and save foreign exchange or even increase foreign investment. In general, investment can be interpreted as a "sacrifice" of money in the present to buy real or financial assets with the aim of gaining greater profits in the future (Haming and Basalamah, 2010). In order to identify the factors affecting investment efficiency, studies examine the relationship between investment efficiency and financial and non-financial variables of firms (Seyed Moosa Mohammadi, 2014). In this paper, earnings quality indicators will be used to evaluate the impact on investment efficiency. Earnings quality is a summary indicator of the overall quality of financial reports in providing necessary information for investors when evaluating the efficiency operation of enterprises (Earnings Quality, Jennifer Francis, Per Olsson and Katherine Schipper, 2008).

Based on the theory and research overview, the research team proposed the following research hypotheses:

The persistence of earning considered is the stability of profit. Financial proxies are a source of information for investors to access the company's operational situation to make investment decisions. The more quality accounting information is, the less the problem of asymmetric information is, thereby the problem of inefficiency investment is also improved. With highly stable profit, the company will raise more capital from investors, thereby invest in projects with positive NPV, minimize under-investment.

Hypothesis 1: The persistence of earning has a negative impact on the inefficiency investment of enterprises

Those who use accounting information consist of managers, shareholders, and potential investors also pay attention to predictable earnings. If this prediction is increasing, managers will be able to catch the upward or downward trend of earnings. Therefore, this can improve inefficiency investment problem. When earning information reflects plenty of its tendencies, it might influence the performance of investors.

Hypothesis 2: The predictable earning effects negatively on ineffective investment in the company.

Previous researches have indicated that there is a negative link between the ratio of state ownership and the effectiveness of investment. The state-ownership company witnesses more and more the agency cost theory. Maria Maber and Thomas Andersson (1999) pointed out that their managers increased self-interest instead of maximizing the benefits of shareholders. This allows them to invest in the under-performing projects rather than effective projects, which created overinvestment and underinvestment. (Jiang et al., 2009) state that state-owned enterprise managers are more likely to be self-interested because they are appointed by the government and this is a non-market technique. Besides, firms which have a high proportion of government ownership are easily supported by their governments when it encounters financial issues. Therefore, these managers tend to expand investment with the less concern about risk, which easily leads to overinvestment.

Hypothesis 3: State ownership influence positively on inefficient investment.

Size of company reflects quantitative factors about production and business of the company through total asset ratio. Large corporations often face political cost. This means that when companies extend about the size, they will be strictly controlled by governments (Watt & Zimmerman) (1990). Moreover, large enterprises often have available capital supplies. Therefore, these companies often implement overinvestment more than those, which have limited capital and need to make investment choice carefully.

Hypothesis 4: Scale enterprises affect positively inefficiency investment

Using financial leverage appropriately affects positively on companies. Companies often use debt to makes use of tax shield. These companies must be strict oversight of government, creditors, and constraint of covenant debt. Thereby, managers often attempt to improve profitability to meet the legal requirement, pay interest and principal for creditors. They also boost effective operation to keep the leverage ratio reasonably and avoid highly maintaining borrow. Therefore, it helps companies to optimize the cost of capital to keep company through financial problems, which lead to bankruptcy. So, underinvestment and overinvestment also are restricted.

Hypothesis 5: Leverage ratio influence negatively on inefficiency investment

Companies which maintain sustainable sales growth extended potentially production and business. Therefore, it makes increase the interest of shareholders. In the enlarging process, enterprises can get around to projects to increase company value through investing on effective which have positive NPV.

Hypothesis 6: Revenue growth effect negatively on inefficiency investment

3. Research methods

The method of data collection

The purpose of this research is to study the impact of earnings quality on investment efficiency of listed companies on Vietnam stock market. We used secondary data of 540 listed non-financial companies on two stock exchanges which are Ho Chi Minh City Stock Exchange (HOSE) and Hanoi Stock Exchange (HNX) over a period of 10 years (2008 to 2017). Data was selected on the following basis: companies are required to have sufficient data of research variables: Income statement, balance sheet, cash flow statement. Data was provided by Stoxplus Corporation.

Data processing methods

First of all, using the collected data, we calculated the necessary criteria by Microsoft Excel 2013. Then Panel Data model in Stata statistics software was used to continue to analyze the data. We analyzed the correlation between the independent variables in the model and conduct descriptive statistics the variables of the model through some typical quantities such as average, variance, standard deviation, maximum value, minimum value. Then, we used the estimation method in building regression model with array data, leading to the choice between three models which are Random Effect, Fixed Effect or GLS to regression by Stata software.

4. Research model

4.1. Research variable

Dependent variable: Investment inefficiency

As stated by Biddle et al. (2006), Chen, Hope, Li & Wang (2011) and Gomariz & Ballesta (2014), for measuring investment inefficiency, we use deviation from the expected investment formula via investment prediction model as a function of revenue growth model. The residual error is negative value, which is under-investment and in contrast, the positive value of the residual error represents for over-investment. Below is the research model:

$$\text{Invest}_{i,t} = \beta_0 + \beta_1 \text{NEG}_{i,t-1} + \beta_2 \% \text{RevGrowth}_{i,t-1} + \beta_3 \text{NEG} * \% \text{RevGrowth}_{i,t-1} + \varepsilon_{i,t}$$

In which,

- Invest: The capital expenditures.
- $\text{NEG}_{i,t}$ Dummy variable which will be equal 1 if the value of a firm's revenue growth is negative and 0 if otherwise.
- $\text{RevGrowth}_{i,t-1}$: The annual revenue growth rate of firm i in year $(t-1)$, which is equal to:

$$\text{RevGrowth} = \frac{\text{Revenue}_t - \text{Revenue}_{t-1}}{\text{Revenue}_{t-1}}$$

- $\varepsilon_{i,t}$: Residual value.

According to Biddle et al. (2009), the value of deviation from the expected investment (the amount of residual error) is a proxy for investment inefficiency. The negative value means under-investment and the positive one indicates over-investment.

Independent variable: Earnings quality

For measuring earnings quality, we focus on 2 proxies: persistence and predictability of earnings quality.

Predictability: for measuring the predictability of earnings quality, we use the model proposed by Beisland (2013) with data of listed companies on HOSE and HNX from 2008 to 2017.

The estimation model is as follow:

$$\text{Earnings}_{i,t} = \beta_0 + \beta_1 \text{Earnings}_{i,t-1} + \varepsilon_{i,t}$$

In which:

- $\text{Earnings}_{i,t}$: Net income of firm i in year t .
- $\text{Earnings}_{i,t-1}$: Net income of firm i in year $t-1$.
- $\varepsilon_{i,t}$: residual value.

Estimating this model, predictability of earnings quality is calculated via R^2 from the model.

Persistence: Following Leuz et al. (2003), we calculate the persistence of earnings via the ratio between the standard deviation of earnings and the standard deviation of cash flow from operation activities:

$$\text{Persistence} = \frac{\text{Std}(\text{Earnings})_t}{\text{Std}(\text{CFO})_t}$$

In which:

- Persistence: Stability of earnings.
- Std (Earnings) $_t$: Standard deviation of Net income.
- Std (CFO) $_t$: standard deviation of Cash Flow from Operation activities.

Control variables

For promoting the model, control variables in this model are firm's size, the growth rate of revenue, financial leverage and the proportion of state ownership in companies.

Firm's size is the natural logarithm of total assets, the ratio of leverage is measured by dividing total debts to total assets and the growth rate of revenue is measured in the following way:

$$\text{RevGrowth} = \frac{\text{Revenue}_t - \text{Revenue}_{t-1}}{\text{Revenue}_{t-1}}$$

4.2. Research model

Based on prior research related to the impact of financial reporting quality on investment efficiency of companies, this study measures the influence of earnings quality on investment efficiency of firms as well as the impact of factors which are firm's size, financial leverage, ownership structure and the growth rate of revenue on investment efficiency as control variables in this model. Based on our given hypothesis, we test our hypothesis by regression models which are as follows:

Model 1:

$$\text{InEff}_{i,t} = \beta_0 + \beta_1 \text{PERSIS}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{LV}_{i,t} + \beta_4 \text{STATE}_{i,t} + \beta_5 \text{GROWT}_{i,t} + \varepsilon_{i,t}$$

Model 2:

$$\text{InEff}_{i,t} = \beta_0 + \beta_1 \text{PREDIC}_{i,t} + \beta_2 \text{SIZE}_{i,t} + \beta_3 \text{LV}_{i,t} + \beta_4 \text{STATE}_{i,t} + \beta_5 \text{GROWT}_{i,t} + \varepsilon_{i,t}$$

Table 1: Research variables in the model

	Variable	Sign	Measurement	Effect
Dependent	Investment inefficiency	INEFF	The residual value of model 1	
Independent	Persistence	PERSIS	$\frac{\text{Std}(\text{Earnings})_t}{\text{Std}(\text{CFO})_t}$	-
	Predictability	PREDIC	The residual value of model 2	+
	State ownership	STATE	The ratio of state ownership: $\frac{\text{The total state investment capital}}{\text{Total equity}}$	+
	Size	SIZE	Firm's size: Ln (Total assets)	+
	Leverage	LV	The leverage ratio: $\frac{\text{Total debts}}{\text{Total assets}}$	-
	Revenue growth rate	GROWT	The growth rate of revenue: $\frac{\text{Revenue}_t - \text{Revenue}_{t-1}}{\text{Revenue}_{t-1}}$	-

Source: Summed up by research team

The chart shows the relationship between factors in the model.

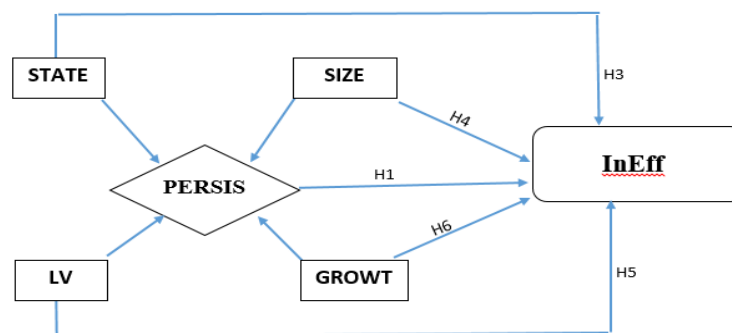


Chart 1: Relationship between factors in model 1

Source: Summed up by research team

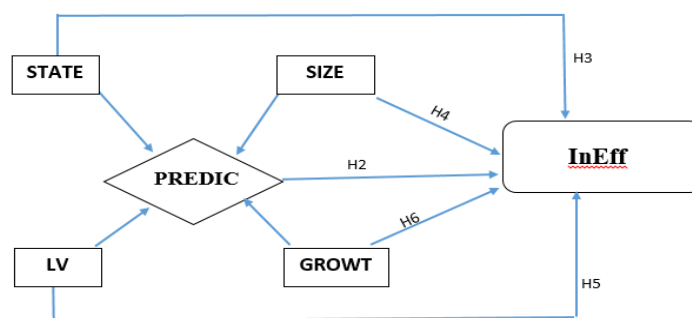


Chart 2: Relationship between factors in model 2

Source: Summed up by research team

Besides, when considering earnings quality, firm's size, revenue growth rate, financial leverage and state ownership in enterprises affect investment efficiency, in empirical test, several studies point out that these factors have relationships and effects on each other. Therefore, the next goal of this paper is examining the effect of control variables on earnings quality in companies. So, the research model is built based on Structural equation modeling.

5. Research findings

5.1. Descriptive statistics of data series

Table 2: Descriptive statistics of variables in the model

Variable	Mean	Standard deviation	Min	Max
INVEST	9.34e+10	9.42e+11	-2.05e+13	2.87e+13
PERSIS	0.8443844	0.4761926	-0.223309	1.2922
PREDIC	1.008035	1.616754	0.0111964	6.319385
STATE	22.73092	24.08434	0	65.8
SIZE	27148.13	1476.574	24473	30065
LV	49.31802	22.29326	10.1	80.6
GROWTH	11.33648	35.13208	-46.5	138.1

Source: Calculated by the research team based on statistical software Stata

Regarding investment value, the total investment of listed companies on HOSE and HNX in the period of 2009-2017 had the mean value of 93.4 billion VND, the lowest of -20500 billion VND and the highest of 28700 billion VND. In addition, the coefficient of variation ($CV = \text{standard deviation} / \text{mean}$) of about 10.09 showed that the level of dispersion was quite high and that there was a distinct difference in total investment among companies.

Regarding company size, industries in the economy, on average, were quite large in terms of total assets. Based on the results of descriptive statistics stated above, Ln (total assets) had the mean value of 27.15, the lowest of 24.47. Thus, it can be seen that the average total assets of companies is about VND 537.4 billion, which is ranked in the category of large scale; the lowest of about 42.38 billion dong. The private capital size of VND 100-500 billion accounts for the largest proportion. However, the proportion is gradually decreasing and there has been instead a stable increase at those companies of 2000- billion total assets during the last 10 years. This has shown that the total assets size of the whole economy is leisurely expanding.

Regarding state ownership structure, the average state capital ratio of companies is 22.73%, from non-state-owned companies to the highest capital ownership of 65.8%. The standard deviation of this indicator of 24.08% is also high and there is a distinct difference with the expected value of large companies.

Regarding leverage ratio, the average leverage ratio of listed companies is 49.31%, with the max value of 80.6% and the min of 10.1%. The standard deviation of leverage ratio is 22.29%, $CV = 0.452$. With such value of coefficient of variation, it can be seen that the distance between the highest and lowest LV values is short, reflecting the narrow dispersion of the leverage target.

Regarding the revenue growth, the mean value of revenue growth is 11.34%, with the highest of 138.1% and the lowest of -46.5%. The standard deviation of this target is 35.13%, which is quite high

showing the great level of variability and dispersion around the mean value due to the typical industries with unforeseen growth compared to the average of other sectors.

Regarding the earnings persistence, the earnings persistence value is expected to be 0.844 with the standard deviation of up to 0.476. The range of this indicator is also quite narrow when the min is -0.022 and max is up to 1.2922.

Regarding the earnings predictability, the mean value is 1.008035, with a standard deviation of 1.616754.

Table 3: The matrix of correlation coefficients among independent variables in the model

	PREDIC	PERSIS	STATE	SIZE	LV	GROWT
PREDIC	1					
PERSIS	-0.2637	1				
STATE	-0.0233	-0.0298	1			
SIZE	-0.0099	0.0085	-0.0162	1		
LV	-0.1057	-0.0083	0.0562	0.3549	1	
GROWT	0.0212	0.0269	-0.1286	0.0922	0.0485	1

Source: Calculated by the research team based on statistical software Stata

Table 3 shows the correlation among factors is quite low. In particular, the correlation coefficient between Persis and Leverage is -0.0083, and between Leverage and Size of 0.3549 is the highest. This shows that the factors are not closely related to each other and are fairly independent. The purpose of checking the close correlation between independent and dependent variables is to eliminate factors that can lead to multicollinearity before running the regression model. The correlation coefficient among the independent variables in the model does not have any pairs greater than 0.8; therefore, multicollinearity is less likely to occur. In particular, the correlation coefficient of -0.2637 is a practical demonstration of the inverse relationship between predictability and persistence of earning quality (according to Mohammady, A. (2010)).

5.2. Model selection

❖ Model 1:

$$INEFF_{i,t} = \beta_0 + \beta_1 PERSIS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LV_{i,t} + \beta_4 STATE_{i,t} + \beta_5 GROWT_{i,t} + \varepsilon_{i,t}$$

The research team compared and selected which model would be suitable for the regression of INEFF dependent variable according to PERSIS in the three models: OLS (ordinary least squares), REM (Random effects model), FEM (Fixed impact model). To consider and select the appropriate model among these three regression methods, the research team used F test and Hausman tests.

First, F test was conducted to make the choice of using OLS or FEM model. The team used F-test with the hypothetical pairs: H_0 : OLS model is appropriate; H_1 : FEM model is appropriate. The result showed that $\text{Prob} > F = 0.0000$, i.e $p\text{-value} = 0.0000 < 5\%$. Therefore, with the significance level of 5%, H_0 hypothesis was rejected, accepting H_1 and using FEM, OLS was inappropriate as there existed fixed effects in every company over time.

After selecting FEM model instead of OLS, the research team gradually estimated the available data based on FEM and REM models. The Hausman test was used to compare the choices between two models with a pair of hypotheses that essentially tested whether there was a correlation between ε_i and independent variables or not: H_0 : ε_i and independent variables have no correlation and H_1 : ε_i and independent variables are correlated. The Hausman test result showed that $\text{Prob} > \chi^2(2) = 0.0000$, i.e $p\text{-value} < 5\%$, which meant sufficiently grounded to reject H_0 , showing that the use of FEM is appropriate.

However, before analyzing in details the factors affecting INEFF, the research team conducted the following tests: Heteroscedasticity, autocorrelation and necessary corrections to overcome the limitations of the model.

Testing the Heteroscedasticity: If the test result indicates p-value was small, commonly less than 0.05, the hypothesis H₀ would reject, H₁ accepted. The test result was shown that the Prob value > chi² = 0.0000, p-value < 0.05, rejecting H₀, accepting H₁. Thus, with the significance level of 5%, the model had the phenomenon of Heteroscedasticity.

Testing autocorrelation: The Wooldridge test method was adopted to examine whether autocorrelation occurs or not. The Test result indicated p-value = 0.0000 < 0.05, thus rejecting H₀, accepting H₁, which meant the model had the autocorrelation.

Table 4: Regression results of investment efficiency with the variable of persistence

	Coef.	Std.Err.	t	P > t	[95% Conf.	Interval]
PERSIS	0.0351594	0.0345823	1.02	0.309	-0.0326498	0.1029686
GROW	0.0113258	0.0443969	0.26	0.799	-0.0757279	0.0983795
SIZE	0.0009466	0.0000527	17.97	0.000	0.0008433	0.0010499
STATE	-0.0006095	0.0002185	-2.79	0.005	-0.0010379	-0.000181
LV	-0.0016049	0.0002024	-7.93	0.000	-0.0020017	-0.0012081
_cons	-0.659798	1.425996	-0.46	0.644	-3.455896	2.1363

Source: Calculated by the research team based on statistical software Stata

The estimation results show that state ownership (STATE) and leverage ratio (LV) have the negative impact on the investment inefficiency. The LV variable has the negative impact on the investment inefficiency, consistently with the views of Weill (2008), Berger and Bonaccorsi di Patti (2006). According to Jensen (1986), using debt reduces the phenomenon of overinvestment from the phenomenon of representative expense. The debt puts the companies under the supervision of creditors and more strictly when the lender is a bank. Companies are required to pay their debts regardless of their financial status, rather than whether they can choose to pay dividends or not. Therefore, managers tend to restrict excessive investment, limiting the phenomenon of inefficient investment. The results of the negative relationship between the growth rate and the investment inefficiency are consistent with the previous hypotheses and studies of Anthony and Ramesh (1992), Feng Chen (2010), Sajjadi et al. (2009). The increase in the revenue growth rate of the company makes investors believe in it and contribute capital to implement projects that have positive NPV without which the company could ignore such projects, leading to underinvestment. The ownership structure has the negative impact on the investment inefficiency, which is contrary to the hypothesis proposed. It can be explained that when a company has a high rate of state ownership, it is entitled to policy incentives as well as funding when necessary and can avoid ignoring projects with negative NPV, minimizing the underinvestment. This is also consistent with the views of Sun, Tong and Tong (2002), Tian and Estrin (2005), Rui (2006).

In contrast to STATE, LV, the model indicated that there existed a positive correlation between firm size (SIZE) and investment inefficiency. This is consistent with some previous hypotheses and studies. (Watts and Zimmerman, 1990) argued that large companies were more likely to prefer disruptive and downward activities because of the higher possibility to increase the government control when they become bigger and more profitable.

❖ **Model 2:**

Similar to model 1, the group also performed steps including Hausman test, F test, model limitation test and error correction by using GLS model. The result was shown in Table 5:

Table 5: Regression results of investment efficiency with earnings predictability

	Coef.	Std.Err.	t	P > t	[95% Conf.	Interval]
PREDIC	-0.0244445	0.0112516	-2.17	0.030	-0.0465069	-0.002382
GROWT	-0.0034376	0.0450498	-0.08	0.939	-0.0917727	0.0848976
SIZE	0.0009334	0.0000542	17.23	0.000	0.0008272	0.0010396
STATE	-0.0006814	0.000221	-3.08	0.002	-0.0011147	-0.000248
LV	-0.0015771	0.0002062	-7.65	0.000	-0.0019815	-0.0011728
_cons	-0.2523354	1.46704	-0.17	0.863	-3.128957	2.624287

Source: Calculated by the research team based on statistical software Stata

The research findings also revealed that there were three factors that negatively affect the investment inefficiency of the company, including state ownership, leverage and earnings predictability, while size have positive impact.

The earnings predictability has a negative impact on the investment inefficiency, which is consistent with the hypothesis stated. Other factors have the same effect as the given results in model 1.

6. Conclusion

The paper examined the impact of earnings quality along with the corporate characteristic factors on the investment inefficiency of the non-financial companies listed on Vietnam's stock market in ten years from 2008 to 2017. Based on the research findings, all of the four factors proposed for analysis are related to the investment efficiency of the company. The research results show that only the earnings predictability has an impact on the investment inefficiency of enterprises in the sample. This shows that forecasting and planning are important factors contributing to the better investment efficiency of businesses. Profit information may be reflected in the business results of the enterprise.

Especially, two factors need to be paid proper attention to: the firm's size and leverage. Large-scale companies often own excess capital and are prone to unprofitable projects, which increases the level of overinvestment. This result promotes companies to use debt in a reasonable structure to reduce the investment inefficiency.

Based on the research findings, the research team would like to propose a number of solutions and recommendations for businesses to minimize under and overinvestment as follows:

Firstly, the factor of business size, measured by the total amount of assets, reflecting the business performance of an enterprise has a positive impact on the investment inefficiency, i.e. when the production and business situation of a company improve, it has to face more government control, often having more available capital, thus more over-investment, as well as reducing investment efficiency and increasing inefficiency. Therefore, the company is required to establish a skilled management system, capture its current stage of development, from which it can take the right step and avoid investment inefficiency.

Secondly, leverage in business represented by the debt to total assets ratio has also been demonstrated to have a negative effect on the investment inefficiency. When this ratio increases, it is likely that businesses have made use of the debt advantages to increase earnings, thereby helping to enhance the investment efficiency as well as reduce the inefficiency of companies. Thus, the determination of a reasonable capital structure with the specific situation of each enterprise to balance the benefits from debts and avoid the risk of default is an important task for each company.

Thirdly, the ownership structure factor represented by the state ownership ratio of the company has a negative relationship with the investment inefficiency. The higher the percentage of state ownership, the more likely it is to receive support from the state, thereby increasing the efficiency of investment, as well

as having a negative impact on the investment inefficiency. However, in Vietnam, there is a fact that the number of state-owned enterprises investing inefficiently with the lengthy investment period leading to multiplied capital inflows is not small and this has caused damages to the economy. Therefore, it is necessary to strengthen the management and supervision of the state in the investment implementation of companies, in addition to providing policy incentives that will help state enterprises to make full use of their own advantages.

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**ENHANCE PROFESSIONAL SKILLS FOR VIETNAMESE EXPORT
AGRICULTURAL SMALL AND MEDIUM SIZED ENTERPRISES**
NÂNG CAO KỸ NĂNG CHUYÊN NGHIỆP CHO CÁC DOANH NGHIỆP NHỎ VÀ VỪA
XUẤT KHẨU NÔNG NGHIỆP VIỆT NAM

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ABSTRACT

Although Vietnamese export small and medium sized enterprises (SMEs) make up a considerable portion of the economy, the development of Vietnamese SMEs is still insignificant due to their limited resources. In such situation, supports with regard to finance, policies, mechanism, and human resources for Vietnamese SMEs, especially measures assisting them to satisfy a range of difficult conditions such as rules of origin (ROOs), technical standards, Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS) are strongly needed. To develop training programs to facilitate Vietnamese SMEs to enter foreign markets successfully, this paper investigates training needs on professional skills, including networking skills, communication skills, negotiation skills and problem-solving skills, perceived by Vietnamese agricultural SME managers. Qualitative approach with the participation of 124 Vietnamese SME managers was used. The research findings are expected to be helpful for SME managers and training/consulting institutions to enhance professional skills for their success in international business.

Key words: Vietnamese SMEs, professional skills, agriculture, export.

TÓM TẮT

Đóng một vai trò quan trọng trong nền kinh tế, tuy nhiên, sự phát triển của các doanh nghiệp nhỏ và vừa Việt Nam hiện nay vẫn còn chưa đáng kể, một phần nhiều xuất phát từ sự hạn chế về nguồn lực. Trong bối cảnh này, các hỗ trợ liên quan tới các yếu tố như tài chính, chính sách, cơ chế và nguồn nhân lực cho các doanh nghiệp nhỏ và vừa Việt Nam, đặc biệt là những biện pháp giúp doanh nghiệp nhỏ và vừa vượt qua những khó khăn liên quan tới Quy tắc xuất xứ (ROOs); tiêu chuẩn kỹ thuật; hàng rào kỹ thuật (TBT); vệ sinh dịch tễ và kiểm dịch động thực vật (SPS), là rất cần thiết. Nhằm xây dựng các chương trình đào tạo hỗ trợ cho các doanh nghiệp nhỏ và vừa Việt Nam thâm nhập thành công các thị trường nước ngoài, bài viết này nghiên cứu nhu cầu đào tạo về các kỹ năng chuyên nghiệp, như là kỹ năng thiết lập mối quan hệ, kỹ năng giao tiếp, kỹ năng đàm phán, và kỹ năng giải quyết vấn đề, từ góc nhìn của các nhà quản trị doanh nghiệp nhỏ và vừa Việt Nam trong lĩnh vực xuất khẩu nông nghiệp. Phương pháp nghiên cứu định tính đã được sử dụng, với sự tham gia của 124 nhà quản trị doanh nghiệp nhỏ và vừa xuất khẩu nông sản Việt Nam. Kết quả nghiên cứu được mong đợi là hữu ích cho bản thân các nhà quản trị doanh nghiệp nhỏ và vừa, cũng như cho các tổ chức đào tạo/tư vấn trong hoạt động hỗ trợ các nhà quản trị nâng cao kỹ năng chuyên nghiệp, nhằm đạt được thành công trong kinh doanh quốc tế.

Từ khóa: Doanh nghiệp nhỏ và vừa Việt Nam, kỹ năng chuyên nghiệp, nông nghiệp, xuất khẩu.

1. Introduction

“Going global” can be seen as the effective path for enterprises, especially for SMEs to expand their business and acquire useful lessons for operation and management from international partners. However, to gain success in such activities, SME managers are required to be equipped with numerous professional skills, including professional skills such as networking skills, communication skills, negotiation skills and problem-solving skills. This paper investigates the perceptions of SME managers in export agricultural field with regard to their professional skills needed in international business. Based on such investigation, recommendation on training programs are provided. Previous literatures have mostly discussed about general management skills, studies on professional skills needed in international business of agricultural SMEs are still lacked. Therefore, this paper is expected to make both theoretical and practical contribution.

2. Literature review

2.1. Training and training needs identification

Buckley and Caple (2009), p.1 defined training as “a planned and systematic effort to modify or develop knowledge/skill/attitude through learning experience, to achieve effective performance in an activity or range of activities. Its purpose, in the work situation, is to enable an individual to acquire abilities in order that he or she can perform adequately a give task or job”. Nazli, Sipon and Radzi (2014), and Rikkua and Chakrabartyb (2013) also considered training as the systematic acquisition of knowledge and skills in order to develop competencies necessary for completing tasks professionally and for effective performance at the workplace.

Historically, training needs analysis may be seen as the phase or tool by which the training content is determined (Roberts 2006). As an important stage of the systematic training process (Bowman & Wilson 2008), training needs analysis not only helps training developers create meaningful programs to obtain specific outcomes, but also enhances the effectiveness of the ensuing stages, such as training design and development, or training assessment and evaluation. Without adequate investigation of actual training needs, the time and effort spent on building and conducting a training program will likely prove to be wasteful, with vague achievements and a non-enhanced performance (Tovey & Lawlor 2008). In addition, due to an inaccurate identification of internal needs, companies may waste valuable training funds and be unable to design appropriate training and enhancement programs (Denby 2010). Carlisle, Bhanugopan and Fish (2011) also believed that when training needs analysis is not adequately conducted, consistency between training and the needs of employees and the organization cannot be achieved. Thus, the appropriate use of training needs analysis may help organizations to avoid spending on unsuitable training programs, and concentrate on programs that may assist the organization to improve their HR and obtain organizational goals (Carlisle, Bhanugopan & Fish 2011).

2.2. Training needs with regard to professional skills in internationalization

The professional skills that managers need in international business have been debated by numerous scholars (Jackson 2010; Javidan, Teagarden & Bowen 2010; Neupert, Baughn & Dao 2005; Webb & Wright 1996; Yu et al. 2005). According to Webb and Wright (1996), international managers should have adequate professional skills to develop favorable relationships with people from different cultures and backgrounds. In particular, these managers should learn to develop productive networks that respect each person’s culture, establish genuine associations with foreign partners, and avoid judging any cultural behavior perceived as different from their own. Javidan, Teagarden and Bowen (2010) also argued that to successfully conduct business in a cross-cultural context, managers need to acquire the ability to engage and connect with people from different cultures, as well as an ability to develop networks with existing partners or potential partners. Networking is considered an essential international management skill by Neupert, Baughn and Dao (2005) – one of the skills that supports high performers.

Yee (2011), emphasized the importance of networking skills to the internationalization of SMEs. Accordingly, when SME managers are able to plan and implement networking activities strategically with important partners, they may gain the influential resources for supporting the development of international business. Therefore, SME owners/managers as well as policy-makers should pay more attention to skills training and incentive measures to improve influential networking behaviors.

Communication skills are also perceived as important professional skills for international managers by Jackson (2010); Neupert, Baughn and Dao (2005), and Yu et al. (2005). Jackson (2010), identified both written and oral communication skills as relevant. Ainsworth (2013) stressed communication skills as one of the most important management skills and people engaged in international business should be equipped with fully understanding of other nations, languages and cultures to develop intercultural communication skills.

In addition, negotiation skills are seen as one of the most essential skills for the success of enterprises (Lewicki, Barry, Saunders, 2009; Mintzberg, 1973). Webb and Wright (1996) argued that negotiation skills are an essential component that managers need if they are going to professionally deal with the many unpredictable and uncomfortable issues that can arise in an international context. Volkema (2012) highlighted that in international context, negotiation becomes more challenging and difficult, and thus, requires better negotiation skills from managers.

Problem-solving skills are also believed to be a core professional skill that international managers need, according to Jackson (2010) and Yu et al. (2005).

2.3. Vietnamese SMEs internationalization

It is undeniable that SMEs play a major role in most economies, especially in developing countries. Formal SMEs contribute up to 60% of total employment and up to 40% of national income (GDP) in emerging economies. When informal SMEs are included, these numbers are extremely higher. In developing countries, most formal jobs are generated by SMEs, which also create 4 out of 5 new positions (The World Bank 2019). With over 600,000 registered SMEs and growing at over 100,000 per annum, SMEs are an important sector of Vietnam economy (Grant Thornton 2017).

Vietnam has a range of products with high export potential, including coffee, rubber, pepper, ceramic products, catfish and cassava, and those with medium export potential such as vegetables and fruit, tea, cashew nuts and textile products. However, the export value of such products is not high as expected. For example, up to 90% of Vietnam's coffee is exported as a cheap raw material. Vietnamese SMEs often find hard to join international business activities when trade support services are not sufficient to help them increase their competitiveness. Because of limited skills to investigate foreign markets and other professional skills, many Vietnamese SMEs show the high need for programs to enhance their capacity, rather than relying only on export agencies which have been seen ineffective. Particularly, Vietnamese government should invest in improving the processing capacity at SMEs to increase the products' added-value (AmCham 2014).

Increasing the export of processed and industrial products while reducing the crude export volume are seen as the effective measures to facilitate the deeper participation of Vietnamese goods in the global supply chain. When the positions of Vietnamese products in the supply chain increase gradually, the number of foreign investors and traders cooperating and supporting Vietnamese SMEs with production capacity enhancement and export promotion will be on the rise (Vietnam Investment Review 2019).

As the importance of export to the Vietnam economy, state agencies need to maintain high and sustainable export growth. Although SMEs make up a considerable portion of the economy, due to their limited resources, the development of Vietnamese SMEs is still insignificant. In such situation, supports with regard to finance, information, mechanism, policies, market and human resources are strongly necessary. When it comes to export activities, supports for SMEs should help them to satisfy a range of difficult conditions such as rules of origin (ROOs), technical standards, Technical Barriers to Trade (TBT) and Sanitary and Phytosanitary (SPS), transparency, connecting distribution systems, and being aware of market variables (Vietnam Investment Review 2019).

3. Research – objectives and methods

Research objectives

This paper focuses on investigating the perceptions of Vietnamese agricultural SMEs with regard to professional skills they need to overcome export difficulties. Based on such investigations, implications relating training programs to enhance their capacity are then provided. Research outputs are expected to be useful for SME managers to merchandise their agricultural products to foreign markets successfully.

The following main research question has been investigated and guides this study:

What are the perception of Vietnamese agricultural SME managers with regard to professional skills needed in internationalization?

Data collection

In this study, to explore the perceptions of Vietnamese agricultural SMEs on professional skills needed in exports, the qualitative interview technique is considered the most appropriate. Semi-structured questions assisted the researcher in gaining deeper understanding on professional skills Vietnamese SME managers need to internationalize their agricultural products. Qualitative data was developed in both breadth and depth with the rich experience shared by Vietnamese SME managers during their interviews (Bryman & Bell 2011; Saunders, Lewis and Thornhill 2009).

Participants in this study are 124 Vietnamese SME managers coming from different provinces in the north of Vietnam, trading in various agricultural business fields. The qualitative data were collected from December 2018 to May 2019.

Based on literature related to professional skills needed in internationalization, an interview protocol was created and used during interviews. Similarities and differences among perceptions of Vietnamese agricultural SME managers were explored for qualitative data analysis.

Data analysis

The step-by-step procedure suggested by Creswell (2014) was utilized to analyze qualitative data in this study. In such process, the researcher organizes the data, conducts a preliminary read-through of the databases, codes and organizes themes, and organizes the data in the format for interpretation. To assist the researcher in analyzing data, the qualitative QSR support software Nvivo was used. The findings of this study's analysis were conveyed by using a narrative passage in which the detailed discussions were based on main themes, sub-themes, specific illustrations, multiple perspectives from individuals, and quotations or a discussion with inter-connecting themes (Creswell 2014)

4. Evidence

4.1. Result analysis

In the following section, the perceptions of Vietnamese agricultural SMEs with regard to professional needed in export are investigated and illustrated.

❖ Networking skills

Networking skill is one of the top skills mentioned by the NQTs in this study. Accordingly, the skill of setting up networks helps SME managers to develop more connections with customers, business partners, and other relevant business parties. Thereby, SME managers may better understand markets and their requirements. One SME manager said:

"Thanks to networking skills, I gain more contacts in business, which helps me get deeper understanding about export requirements such as those of EU markets".

Network establishment skills are seen directly affect the business performance of SMEs, to their profitability. With effective networking skills, SMEs may have more opportunities to introduce their products to foreign markets. As shared by one SME manager:

"I need networking skills to create more opportunities to meet potential partners and customers. Thereby, I can introduce my company's products to them".

Proactively setting up business networks with partners is also considered assist SMEs to gain a deeper understanding of requirements related to products in the markets where their current and potential partners are operating, thereby minimizing risks from export barriers.

*** Networking skills to seek business opportunities**

- Networking skills for entering new markets

For SMEs in the first step to enter foreign markets, network establishment skills may make it easier for them to understand foreign markets, to penetrate new markets, to *"expand export markets"* and to join international integration. Especially, for SMEs that have been proactive in preparing products to meet requirements of international markets, network development skills may facilitate them to expose their products to target markets more effectively. One SME manager said:

"I need network development skills because when all the basic standards are met, developing relationships may help our products step into foreign markets, create business opportunities with partners".

Especially, for SMEs that find difficult to penetrate foreign markets, networking skills may help them to be closer to each other, support each other, and together overcome barriers. As shared by one SME manager.

"For Vietnamese SMEs which lack conditions to penetrate into foreign markets, networking skills may help businesses in the same fields to "shake hands" to find solutions for difficult problems related to export barriers".

- Networking skills with customers, especially great customers

Certainly, networking skills greatly assist SMEs in seeking customers. In particular, with effective networking skills, SME managers also hope to get great customers. Dealing with great customers may be an important premise for SMEs to grow in size and learn a lot about technology. Thereby, overcoming barriers from the more demanding markets will be much easier.

- Networking skills with local business and agencies

SME managers also perceive that establishing a good connection with the local business and agencies will be more advantageous for them, especially in making their export products easily accepted. Therefore, SME managers in this study support for the idea of *"serving the local market by using more local human resources, making more financial investment in local activities to "polish" their reputation in locality, in order to develop networks to expand markets, which is seen strongly needed for new exporters"*.

In the context when Vietnam's agricultural export products often encounter technical export barriers, SME managers believe that establishing good connections with local partners may make SMEs understand and standardize according to the requirements of markets. And in long run, with effective established networks, difficulties from such markets for businesses may be reduced.

*** *Networking skills in international business environment***

SME managers also emphasized that the skill of establishing networks in international business is also different from that in domestic business. In there, conditions are always stricter, thus setting up networks becomes more difficult and requires more effort to satisfy requirements of partners, especially those related to technical barriers. One SME manager said

"Networking skills facilitate SMEs to expand business into new export markets, but then, SMEs are required to constantly change, develop and meet the diverse requirements of newly expanding markets."

One point that SME managers need to keep in mind is that establishing contacts with export partners from different countries may be greatly affected by cultural and territorial practices. As such, understanding diverse cultures is also a requirement for export SMEs.

- Networking Skills for solving problems

Effective networking skills with export partners is also considered to be able to assist SMEs in solving problems arising in the export process. In international business, many unexpected problems can occur because it is very difficult for SMEs to foresee all risks. At this time, with the support of good business partners, especially the local support, it will be easier for SMEs to overcome difficulties. One SME manager said:

"I need skills to develop networks to handle arising issues in order to export agricultural products to international markets".

*** Networking skills for completing business stages**

- Networking skill to reduce intermediaries

In order to export agricultural products in accordance with technical standards, it requires the consistence in all production stages. Therefore, SME managers also believe that good networking skills also support SMEs to have standardized input as well as to conduct all activities in the production line more effectively.

In export, doing business through intermediaries sometimes may increase risks when market requirements are not fully understood. Networking skills may help SMEs to work directly with foreign importers, and thus understand more accurately and fully about the requirements of foreign markets. One SME manager said:

"I need networking skills to reduce intermediaries since using third parties may create lose for profit and reputation".

*** Network maintenance skills**

- Skills to build prestige in business

In addition to establishing new networks, SME managers also want to gain the skills to maintain connections with partners involved in the manufacturing and exporting process, thereby expanding the scale for businesses. In addition, building "trust" in developing networks has also been particularly emphasized by SME managers in this study. Prestige in business not only helps SMEs strengthen existing relationships but also develop relationships with new partners in foreign markets. Ensuring the quality of products, meeting the requirements of foreign markets is the first prerequisite for keeping the trust. Skills of setting up and maintaining networks may also make it easier for SMEs to protect prestige. One SME manager said:

"I need networking skills to earn the trust and readiness form partners, which facilitate SMEs in solving potential issues arising during cooperation".

*** Networking skills with employees**

Besides building connections with customer and business partners, developing networks with employees is also a skill that SME managers in this study stressed. Especially, working in an international business environment, building good relationships with employees not only helps develop the team, retain talents for exporting which is not easy, but also support SMEs to better perform their SCR to employees.

❖ Communication skills

Communication skills are considered as an important tool in establishing relationships with partners, customers and other parties, thereby facilitating SMEs to meet requirements from markets. Certainly, good communication skills also make the messages between the two sides, businesses and partners more clear, and make the implementation of agreements and standards more effective. One SME manager said

"Almost successful firms are built from solid relationships. In order to develop networks with customers and business partners, SME managers need a range of skills such as keeping good personal image, being positive and keeping in touch with customers, and especially improving communication skills to develop prestige and trust".

*** Skill to understand partner's psychology & use Body language**

In order to have good communication skills, SME managers themselves need to practice series of specific skills such as "skills to understand partner's psychology, skills to use body language" or "listening skills, complimenting skills, and skills to show empathy and supports".

❖ **Negotiation skills**

Negotiation skills with business partners, especially with those in an international environment are crucial to the success of businesses. Having good negotiation skills, SME managers may gain more favorable conditions in contract implementation. When the technical standards are more and more complex, especially when the standards are not clearly quantified, negotiation skills may help SME managers more flexible in contract agreement and implementation. One manager said

"In working and dealing with business partners, negotiation skills are needed to help managers come to agreement in a flexible manner, to achieve the best results with beneficial terms".

*** Contract negotiation skills in international business**

SME managers in the study also emphasized that negotiation skills in international markets may have many differences compared to those in the domestic market, which *"requires SME managers to gain good understanding, skills and methods of negotiation"*. Contract negotiation, especially in the international environment, often contains many issues related to laws and regulations. At this time, managers are required to have not only flexible problem-handling skills, but also an understanding of the laws in specific markets.

❖ **Problem solving skills**

*** General business problem solving skills to prevent risks**

In the process of exporting, there will be many problems, hindering business performance of enterprises. This requires SME managers to have good problem-solving skills to maintain operations, relationships, and business credibility. In other words, SME managers must have skills to be able to *"handle quickly, properly and correctly problems"*. However, this is a difficult skill because *"business activities contains many problems, but none of them is the same, which requires SME managers to handle problem flexibly"*. Problems may be related to markets, customers, partners or authorities. Especially, with issues such as technical standards and export barriers which are not easy to overcome, SME managers are required much better problem-solving skills to handle.

Having good problem-solving skills may help SME managers *"not be surprised when incidents occur"*. Especially, when *"export activities always contain many rising problems"*, the problem-solving skills help SME managers to *"respond, handle more effectively, maintain better business relationship with partners, but still ensure mutual benefits"*.

The problem-solving skills are thought to be associated with the risk management skills. In other words, SME managers need *"problem-solving skills to minimize risks encountered and maximize benefits for enterprises"*.

*** Proactive problem-solving skills**

Regarding problem-solving skills, SME managers emphasized skills to assist them in proactively addressing the problem. That is, to reduce the direct consequence of problems, SME managers need to forecast and prevent risks. One SME manager emphasized

"SMEs need to proactively handle problems, or be proactive to avoid problems. For example, my company has always actively invested in technology innovation, building production and processing to ensure food hygiene and safety standards. As such, we can even overcome difficult standards".

- Extensive problem-handling skills

In order to proactively solve the problem, it requires SME managers' skills to extensively understand the problem, thereby judging and forecasting the consequence of problems. In other words, before implementing any business activities, it is necessary to estimate all possible problems first, and plan solutions to solve the problems. For instance, in dealing with difficulties related to export barriers,

SMEs need to predict all barriers encountered, evaluate the ability of SMEs to overcome such barriers, in order to make decisions to enter the market or not. More specifically, in order to proactively handle risks, SME managers need to have *"critical thinking skills", "skills to understand the source of problems, skills to analyze problems, skills to recognize problems from various angles, skills to propose solutions, and skills to evaluate the effectiveness"*.

- Skills to detect errors & solve quickly

In the context of fast changing market and increasingly fierce competition, SME managers must have skills to *"detect errors and solve quickly"*.

- Skills to solve problems professionally, reasonably, and creatively

For difficult issues such as trade barriers limiting export capacity of enterprises, SME managers *"need to be creative and thoughtful to handle problems properly and accurately in the most beneficial approach"*, and need to be *"as professional and quick as possible"*. Not all the barriers in export that SMEs can overcome. There may be too strict standards and SMEs' products cannot satisfy. At this time, instead of "exporting at any cost", SMEs should select the most reasonable solution.

- Proper information processing skills

To proactively solve the problem, SME managers also need skills to collect and process information correctly and accurately. Processing information accurately helps SMEs be aware of the problem properly, thereby handling the problem thoroughly and professionally. One SME manager said

"In international business, the information is often diverse, asking SME managers to gain skills to collect and analyze information quickly to understand the problem, thereby, providing appropriate solutions".

*** Skills to fix problems occurred**

In addition to the ability to handle problems, SME managers in the study also expressed the need for skills to fix problems occurred, especially those in the production process. Although risks would have been carefully predicted and prevented, the probability of occurrence could not be zero. Trying to provide products in accordance with the standards is one issue, meeting the requirements of the partner is another. At this time, offering solutions to solve the problems for already manufactured goods requires a very good handling skill of managers. The process of producing products satisfied market requirements also contains various potential risks, which requires SME managers problem-solving skills to reduce the loss to the lowest.

*** Problem-solving skills in agricultural manufacturing & export**

Particularly for agricultural export, when SMEs have to do business in constantly changing and complicated environment, and also agricultural products are characterized by short-life cycle and have too many rigorous standards, problem-solving skills became even more necessary. Furthermore, international markets always contain difficult factors, *"fluctuations with too many regulations and barriers, requiring SME managers problem-solving skills to overcome consecutive difficulties"*. Many difficulties in agricultural production which are related to limited human resources, limited technology capability require SME manager skills to fix problem happened in agricultural production process. More specifically, SME managers in this study raise the needs for *"problem-solving skills relating technical barriers"*. One manager said

"Agricultural export SMEs need advanced problem-solving skills. Exporting agricultural products to markets such as the EU, Japan, and the US is very difficult, therefore timely problem-solving skill is very important".

Table 1: Professional skills needed in export perceived by Vietnamese agricultural SMEs

Networking skills
Networking skills to seek business opportunities
- <i>Networking skills for entering new markets</i>
- Networking skills with customers, especially great customers
- Networking skills with local business and agencies
Networking skills in international business environment
- <i>Networking Skills for solving problems</i>
Networking skills for completing business stages
- <i>Networking skill to reduce intermediaries</i>
Network maintenance skills
- <i>Skills to build prestige in business</i>
Networking skills with employees
Communication skills
Skill to understand partner's psychology & use Body language
Negotiation skills
Contract negotiation skills in international business
Problem solving skills
General business problem solving skills to prevent risks
Proactive problem-solving skills
- <i>Extensive problem-handling skills</i>
- <i>Skills to detect errors & solve quickly</i>
- <i>Skills to solve problems professionally, reasonably, and creatively</i>
- <i>Proper information processing skills</i>
Skills to fix problems occurred
Problem-solving skills in agricultural manufacturing & export

4.2. Implications

Based on previous investigation, the following section provides implications with regard to training programs to enhance professional skills for Vietnamese agricultural SMEs.

The training course on professional skills, to begin with, should focus on enhancing international networking skills for Vietnamese SMEs. Accordingly, SME managers should perceive the importance of networking and understand different forms of networking, including face-to-face and online networking. These trainees should also be equipped with influencing skills, effective questioning and active listening skills, as well as promoting skills to “polish” their image as well as the company’s reputation. Based on acquired skills, trainees would be more confident and be assured when “working” a room. Not only setting up new networks, SME managers should also be trained to use effective follow-up to maintain active connections, particularly to develop a contact strategy with different types and levels of contacts.

Also, guidance on choosing correct networking groups, clubs and event as well as on creating their own personal network should also be provided to SME managers. Furthermore, the course should guide SME managers in identifying and managing their profiles by using online social networking sites. To Vietnamese SME managers, online network development is new issue but its importance is undeniable. Therefore, they should be provided an overview of different types of networking sites – rather than facebook only, a guidance to create and take advantage of effective profiles on various advanced application such as blogs, twitter, instagrams, etc. Particularly, for Vietnamese agricultural SMEs, training courses on networking skills should guide them to establish and maintain networks to export. Due to their limited experience and knowledge, many Vietnamese SMEs are confused when taking first steps to enter foreign markets, and thus, the introduction about setting initial contacts, making good impression and exposing products to target foreign business partners are important.

Besides, workshop on various export topics for Vietnamese agricultural SMEs should also be organized. In there, the SME managers have opportunities to meet each other, especially to expand connections to foreign partners. SME managers doing business in similar fields should be grouped, which may help them not only get better understanding about export issues such as technical barriers, but also learn from encounters experience to overcome barriers.

The communication skill training course may introduce SME managers with elements of communication, as well as how to use body language and non-verbal cues effectively. With trained communication skills, trainees would be confident to use their strengths to communicate harmoniously. The course should also provide trainees to practice effective communication and communication toolkit to apply in practices. Apart from lectures, SME manager should be encouraged to work in pairs, small group work, games, processes and exercises, all designed to stimulate, challenge and develop their knowledge and skills. For Vietnamese agricultural SMEs, because of the cultural differences, they may hesitate to communicate with foreign partners. Therefore, training course may help them to gain better understanding about psychological characteristics and behaviors of businesspersons from some key markets. The guidance on using appropriate languages, including body languages are considered necessary for Vietnamese agricultural SME managers.

Negotiation skills are seen strongly important to SME managers and business. To gain benefits during negotiations, SME managers should be provided training with various skills. To begin with, trainees should be trained to understand the interests, priorities and goals of all parties in negotiations. Pre-negotiation preparation skill should be offered to help SME manager maximize business opportunities. Managers should know the impact of personal biases and cultural differences to negotiations, as well as know how to deal with irrational people and challenging relationships. Furthermore, to enhance the effectiveness of negotiation, trainees should be equipped with skills to make offers at the right time and in the right way, to transform competition to cooperation, from opponents into partners. Especially, they should also be taught to recognize when to walk away from negotiations. Particularly, skills to get better contract negotiation should be highlighted in the training course for Vietnamese agricultural SMEs. Tips and experience sharing to gain success when dealing about terms in contracts should be provided to them.

The training course on problem solving skills should guide SME managers to complete problem-solving process effectively. Accordingly, the trainees should know to define the problem at hand, to generate possible solutions to the problems, to evaluate and select possible alternative solutions, to effectively implement the solution chosen, and to evaluate solution for effectiveness.

In the first step of identifying and structuring the problem, trainees should be taught to observe, inspect, gather information and analyze it until the full scope of the problem is revealed and fully understood. Then, trainees should be asked to forms groups and debate the pros and cons of various choice to brainstorm possible solutions. Subsequently, trainees should learn to balance innovation with

risk taking when making a decision. When implementing the decision, learning the value of reflection and tenacity may help trainees to broaden their problem-solving skills. Finally, to monitor the outcome, trainees should be guided to step outside their comfort zone and seek feedback and face the toughest critic of all.

Problems that may occur in agricultural export may be chosen for group-discussion in workshop/seminars for Vietnamese agricultural SME managers. In there, such problems may be widely discussed and addressed and solutions may come from experience shared by stakeholders.

5. Conclusion

The paper has provided a discussion on professional skills needed in internationalization. Following to the literature on training needs, the investigation on the professional skills that SME managers need to export their agricultural products were presented. Accordingly, SME managers shared their needs with regard to a range of professional skills such as networking skills, communication skills, negotiation skill and problem solving skills. The implication on relevant training programs were then provided. SME managers and training/consulting institutions may use the findings of this study to develop appropriate training programs for Vietnamese agricultural SME managers.

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FACTORS INFLUENCING THE CUSTOMER PURCHASE ATTITUDE ON THE INTERNET CHANNEL-CASE IN DA NANG

CÁC NHÂN TỐ ẢNH HƯỞNG ĐẾN THÁI ĐỘ MUA HÀNG CỦA KHÁCH HÀNG
TRÊN KÊNH INTERNET - TRƯỜNG HỢP Ở ĐÀ NẴNG

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ABSTRACT

This study discusses the factors affecting the customer purchase attitude on Internet channel in Da Nang. Questionnaires are sent directly to the respondents. After 3 months of collecting the data, 242 valid questionnaires were included in this study. The data is analyzed by the process from factor analysis to reliability testing and regression analysis. The results show that the perceived purchase risk, the convenience of purchase and the service quality of the internet channel will have a positive effect on the consumer purchase attitude of that channel. These findings help us understand more about online shopping behavior today. Managers can use these findings to improve or change the customer purchase attitude toward Internet channel, to increase the purchase on the Internet.

Keywords: *Perceived channel attributes, purchase attitude, online shopping, consumer behavior.*

TÓM TẮT

Nghiên cứu này thảo luận về các nhân tố ảnh hưởng đến thái độ mua hàng của khách hàng trên kênh Internet ở Đà Nẵng. Bản câu hỏi được gửi trực tiếp đến các đáp viên. Sau 3 tháng thu thập dữ liệu, 242 bản câu hỏi đã được thu về và đưa vào phân tích. Dữ liệu được phân tích thông qua tiến trình từ phân tích nhân tố đến kiểm định độ tin cậy thang đo đến phân tích hồi quy. Kết quả chỉ ra rằng, rủi ro mua hàng nhận thức, tính thuận tiện mua hàng, và chất lượng dịch vụ của kênh Internet sẽ có tác động tích cực đến thái độ mua hàng của khách hàng trên kênh Internet. Kết quả này giúp chúng ta hiểu rõ hơn về hành vi mua sắm trực tuyến ngày nay. Các nhà quản trị có thể sử dụng kết quả này để cải thiện hoặc thay đổi thái độ mua của khách hàng hướng đến kênh Internet, để gia tăng hành vi mua trên Internet.

Từ khóa: *Các thuộc tính kênh được nhận thức, thái độ mua hàng, mua sắm trực tuyến, hành vi người tiêu dùng.*

1. Introduction

Information technology has been applied widely in most of the fields around the world. Due to dramatic growth of Internet in the recent years, the Internet has become a worldwide media for communications, services and trade. The Internet has changed the way of traditional purchase. For example, consumers have no longer been under compulsion of time and place to go shopping; instead they can buy the products or services anytime anywhere. Thanks to that strength, domestic consumers have had interacting opportunities and accustomed to purchase through the Internet.

However, the percentage of consumers joining shopping online in Vietnam is still lower than in other countries in region and in the world¹. Catching the buying behavior of consumers through the internet will held the online sale businesses to maintain existing customers attract and entice potential customers. In the addition, the attitude is a key factor leading to the changes of behavior on the Internet and the enterprises need to determine the factors which impact purchase behavior on that channel to take out the policy, approaching strategy, client development on channel. The questions are posed in this study that which factors affect to the purchase attitude of consumers for the Internet channel? How is the impact of these factors to the purchase attitude on the Internet channel? Customers can change channels based on

¹ Website: KPMG Vietnam: Mua sắm trực tuyến bùng nổ tại Việt Nam (18/01/2017) <https://home.kpmg.com/vn/vi/home/anh-pham/2017/01/chi-3-nguoi-tieu-dung-o-viet-nam-mua-hang-truc-tiep-tu-trang-web-cua-nha-san-xuat.html>.

change in demand, and they are influenced by a number of factors such as the perceived risk of the channel, time consuming order, payment problems, and waiting time. Through this study, we will understand well about the core factors influencing the consumer purchase attitude on the internet channel in Da Nang. Once consumers are satisfied with the purchase on a particular channel, they will prefer to use that channel and maintain a purchase on that. Therefore, shopping behavior on the Internet channel is a key factor of channel choice and entrepreneurs will use the suitable marketing programs to attract and retain customers in the shopping process, consumption.

2. Literature review

2.1. Purchase Attitudes

Attitude is a tendency that is learned to react to an entity in a favorable or unfavorable way (Nguyen Xuan Lan et al., 2011). For example, a person can have or do not have a preference for any brands, advertisements or any shops. Attitudes are important because they direct the thinking of people (rational function), affect emotion (emotional function) and affect behavior (action function). Attitudes affect the decision to consume or accept or abandon something - this is the behavior of a person. Attitudes play an important role in consumer decision-making as they are the best predictors of behavior. This is an important basis for marketers to deliver effective marketing strategy that influences decision-making and behavioral changes.

Attitudes toward channels are defined as negative or positive perceptions of consumers for the channel that they purchase (Fishbein et Ajzen, 1975). Hence, the attitudes of the consumers are the consumers' perceptions of the channel to buy in a negative or positive way, which will regulate the channel selection behavior. If a factor have a positive influence on the attitude channel, this will be the basis for the consumers to select the channel to purchase, increase their channel loyalty and limit channel switching (Pookulangara and Natesan 2010, Fishbein et Ajzen, 1975).

Customers can purchase goods in a variety of channels, and with some feelings of the channel, they will lead to be increases their propensity to seek an alternative when they are not satisfied or appropriate for their needs anymore. In this study, the attitude of shopping on the internet is deeply understood when customers have some sense of the factors from the channel when making a purchase. If they are satisfied and feel positive about a channel through a number of the channel's elements, they tend to select that channel for their purchase and vice versa.

2.2. Perceived Channel Attributes

With the research topic, the author clarifies the factors influencing the purchase behavior of the selected-channel in the buying process. In the decision-making process, there are many factors that affect the change of customer's choice of channels, forming two definition of loyalty behavior with channel and switching behavior. The behavior of switching channel is claimed to be complicated because consumers use a variety of channels in the buying process. The problems are that customers do not use distinct channels to buy different products, they interact with each other across channels that means they purchase the same product in two different channels. Customers convert channels based on the changing in demand and they are influenced by a number of factors such as the perceived risk of the channel, reasonable price, efforts in evaluating the choices, and waiting time.

If the usage of a channel for seeking information causes disadvantages, for instance they waste a lot of time comparing the products together, making the suitable choice because of limited information quantity and unconvincing, they will move to other channel. In addition, the purchase of this channel has many obstacles such as time consuming order, payment problems, risk and price of goods are not competitive they will have a tendency to use other channels to get relevant purchases.

The customer perceptions of channel affects channel buying behavior and drive their behavior, the difference between internet channel and store channel (Wang et al, 2015). The questions are posed that

for the Internet channel, which factors affect to the purchase attitude of consumers? And these factors affect positively or negatively; strongly or weakly to the consumer purchase attitude on the Internet channel?

Generally, these factors are put into the following categories: Perceptions of search benefits, Perceptions of the searching costs, Perceptions of shopping benefits, Perceptions of shopping costs.

Table 1: Perceived Channel Attributes affect consumer purchase attitude

Types of perceptions	Factors	Authors
Perceptions of the search benefits	Information availability	Jepsen 2007; Noble et al. 2005; Avery 1996; Duncan and Olshavsky 1982; Wang et al. 2015
Perceptions of the searching costs	Search effort	Hardy 1982; Moorthy et al. 1997; Verhoef et al. 2007, Avery 1996; Punj and Stealin 1983; Wang et al. 2015
Perceptions of the shopping benefits	Purchase convenience, Service quality, Product quality, Competitive price and Promotion.	Forsythe et al. 2006; Schroder and Zaharia 2008, Bhatnagar and Ghose 2004; Johnson et al. 2006; Laukkanen 2007; Szymanski and Hise 2000; Wolfinbarger and Gilly 2001, Chiang and Li 2010; de Ruyter et al. 1997; Stanley and Wisner 2002; Wang et al. 2015
Perceptions of the shopping costs	Purchase effort and Purchase risk	Bhatnagar and Ratchford 2004, Forsythe and Shi 2003; Wang et al. 2015

3. Hypotheses development

3.1. Perceived information availability

The first channel characteristic of search benefits from using a channel is *information availability*. Perhaps, it could be the consumer's perception of the quantity and quality of information availability to evaluate the product or service in the specific channel (Jepsen 2007; Noble et al. 2005). Or another idea from Alba et al., 1997, Hoque and Lohse, 1999, Ratchford et al., 2001 that this factor is showed by the accessibility of information for consumers, and the ability to compare alternatives. If the channel offers useful information, consumers will have positive attitudes of it and tend to increase their search and purchase behaviors in the specific channel (Avery 1996; Duncan and Olshavsky 1982). Thus, this study proposes the following hypotheses:

H1 Perceived information availability from the Internet has a positive effect on consumer attitudes toward purchase on that channel.

3.2. Perceived search effort

Perceived search effort is considered as the perceived required time (time costs) and perceived difficulty for consumers to gather information on the products and services (Baker et al. 2002, Ratchford et al. 2003; Kang, Herr, and Page 2003). For each person, the search effort is different in buying online. According to Avery (1996) and Punj et al. (1983), if consumers perceive the costs of search (including time and effort) as high, they will avoid searching on that channel. Thus, the following hypotheses are proposed:

H2 Perceived search effort from the Internet has a negative effect on consumer attitudes toward purchase on that channel.

3.3. Perceived purchase convenience

Consumers might be confused two benefits from using a channel for purchase: purchase convenience and service quality. Purchase convenience could be understood as the efficiency, ease and

speed at which products can be purchased (Mathwick, Malhotra and Rigdon, 2001, Messinger and Narasimhan, 1997). This concept is shown in three aspects: possession convenience, transaction convenience, and time convenience (Forsythe et al. 2006; Schroder and Zaharia 2008). While service quality refers consumers' perception on the delivered service in the channel during the purchase (Baker et al. 2002; Homburg, Hoyer, and Fassnacht 2002; Montoya-Weiss et al. 2003). In fact, if consumers buy favorably products in a channel, they will tend to buy to choose that channel to make more purchases. Thus, this study proposes the following hypotheses:

H3 Perceived purchase convenience from the Internet has a positive effect on consumer attitudes toward purchase on that channel.

3.4. Perceived service quality

Perceived service quality means that the perception on the delivered service in the channel during the purchase (Baker et al. 2002; Homburg, Hoyer, and Fassnacht 2002). Perceived service quality combines the service received during the purchase process and the outcome; including exchange-refund policy for returns, helpfulness, product warranties, and post-purchase service (Chiang and Li 2010; Stanley and Wisner 2002). Service quality is a key influence and is an antecedent of consumer's positive attitudes (Kim et al. 2005; Parasuraman et al. 1988; Zeithaml et al. 1996), so they hold increasing perceptions of value in the retail context. Thus, the following hypotheses are proposed:

H4 Perceived service quality has a positive effect on consumer attitudes toward purchase on that channel.

3.5. Perceived purchase effort

Perceived purchase effort concerns the perceived difficulty and time costs consumers experience when purchasing a product using a specific channel (Baker et al. 2002; Bhatnagar and Ratchford 2004). A consumer may not buy from the channel if they feel the purchase process hard, it's so important to consider product before buying them, but retailers need to show the advanced method for consumers clearly such as some kind of modern technology way to get useful and quick deal. Besides, when consumers purchase online, they cannot use their senses (e.g., touch) to evaluate a purchase then they spend more time (Gupta et al. 2004). As purchase effort increases, it has a negative effect on customer attitudes toward purchase through a given channel (Forsythe and Shi 2003). Thus, the following hypotheses are proposed:

H5 Perceived purchase effort from the Internet has a negative effect on consumer attitudes toward purchase on that channel.

3.6. Perceived purchase risk

Perceived purchase risk refers the perceived uncertainty in buying products through a specific channel due to things such as payment issues and lack of privacy (Hoffman, Novak, and Peralta 1999; McKnight et al. 2002; Forsythe and Shi 2003). Consumers' risk perceptions significantly influence decisions about whether to purchase online or in a physical store (Burke 2002; Gupta et al. 2004; Reardon and McCorkle 2002; Szymanski and Hise 2000). When they see something related to risks on product such as error items, wrong payment,... what they get directly that not seem like their thought or expectation. Some problems could make consumers disappointed and they tend to move another channel to buy. Thus, the following hypotheses are proposed:

H6 Perceived purchase risk from the Internet has a negative effect on consumer attitudes toward purchase on that channel.

4. Research methodology

4.1. Research model

From the analysis of the factors above and basing on the prior studies such as Wang et al. (2015), Verhoef et al. (2007), Jepsen (2007) that are given common factors used to analyze their influences on the consumer purchase attitudes; the authors conducted a in-depth interview of the available attributes for purchase attitude on Internet. The results show that out of 10 experts, customers who have online shopping behavior were valid and more than 70% of respondents who choose the factors such as the availability of information, search efforts, quality of service, effort and risk of purchase greatly influence the decision. Therefore, the authors choose these characteristics to build a model for the research.

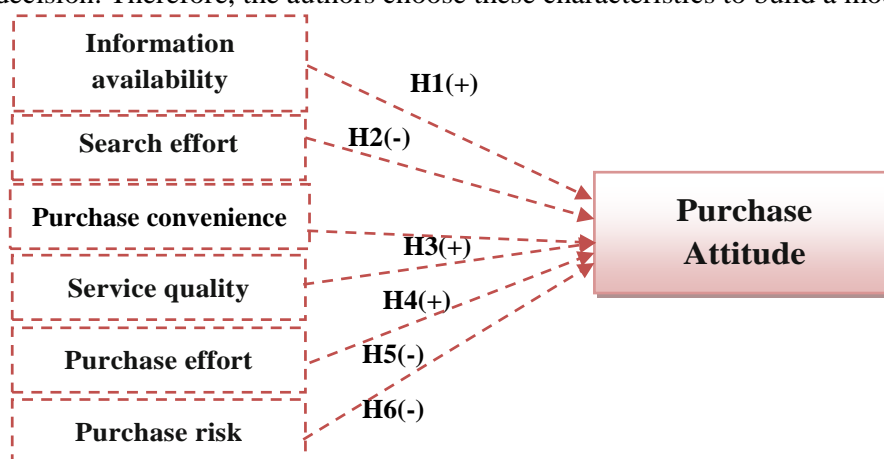


Figure 1: The proposed research model

4.2. Data collection

In this study, 6 independent factors and 21 observed variables, using the exploratory factor analysis according to EFA Gorsuch (1983) (cited by MacClall, 1999) with a minimum sample size of $5 * 21 = 105$ samples. In addition, according to Tabachnick & Fidell (1991) for best regression analysis, the sample size must satisfy the formula (according to Hoàng Trọng, Chu Nguyễn Mộng Ngọc, 2008) $n \geq 50 + 8p$, n is the sample size, p is the independent variable of the model, so the minimum sample size is $50 + 8 * 6 = 98$ samples. To ensure reliable data requiring at least 200 samples, 300 questions will be generated. In fact, the final sample of study is 242 respondents Da Nang city. The direct interview is the key way to collect reliable and useful information.

To ensure that respondents could offer reliable responses to the measurement items, we asked them to develop their answers based on products that they have searched and purchased through the Internet channels in the last 3 months. Respondents may be also someone who haven't yet purchase but they can be in process of information search in the Internet.

4.3. Measurement items

As mentioned above, the study uses a scale for the variables in the model and is used to measure consumer perceptions and attitudes towards online channels. Based on the original scale of the previous studies, we used the method "Back-Translation" in order to transform the scale in the Vietnam context. This means that we asked two English experts to translate the scale into Vietnamese and then two other experts translated the scale back into English. As a result, a few words and some minor modifications of items are changed to fit to the thinking of consumers in Vietnam when they do survey. The measurement items are reported in Table 2. The respondents answered all questions on the Likert scale of 5 by 1 = strongly disagree and 5 = strongly agree.

Table 2: Measure items of key constructs

Constructs and measurement items	References
<p>(IA) Perceived information availability IA1 I can easily compare and select options of product X* in this channel IA2 I can get useful information on product X in this channel IA3 I can quickly get information on product X in this channel IA4 I can easily get information on product X in this channel</p>	<p>Hardy (1982); Jepsen (2007); To et al. (2007); Verhoef et al. (2007)</p>
<p>(SE) Perceived search effort SE1 It costs me some time to search for information on product X in this channel SE2 It costs me some effort to search for information on product X in this channel SE3 I need to follow certain procedures to search for information on product X in this channel</p>	<p>Hardy (1982); Jepsen (2007); Scansaroli and Eng (1997); Verhoef et al. (2007)</p>
<p>(PC) Perceived purchase convenience PC1 I can buy product X at my convenient time in this channel PC2 I can speedily possess product X when buying from this channel PC3 I live a more convenient life by buying product X from this channel</p>	<p>Brown (1990); Forsythe et al. (2006); Johnson et al. (2006); Schroeder and Zaharia (2008)</p>
<p>(SQ) Perceived service quality SQ1 I can have a high level of services for product X from this channel SQ2 I can get helpful assistance when I want to purchase product X from this channel SQ3 I can have flexible delivery options when buying product X from this channel SQ4 I can easily complete my payment for product X in this channel SQ5 I can easily return and exchange or receive refund in this channel.</p>	<p>Baker et al. (2002); Yu et al. (2011)</p>
<p>(PE) Perceived purchase effort PE1 It costs a lot of time to buy product X from this channel PE2 It costs a lot of efforts to buy product X from this channel PE3 It is difficult to buy product X from this channel</p>	<p>Baker et al. (2002); Verhoef et al. (2007)</p>
<p>(PR) Perceived purchase risk PR1 I think there are potential risks of getting the incorrect product X when buying from this channel PR2 I think there are potential risks of incompletely examining the product quality when buying product X from this channel PR3 I think there are potential risks of wrong payments when buying product X from this channel</p>	<p>Forsythe et al. (2006); Forsythe and Shi (2003); Wang (2008)</p>
<p>(PA) Purchase attitude PA1 Overall, purchasing on this channel is satisfactory PA2 Overall, purchasing on this channel is a clever decision PA3 Overall, purchasing on this channel is pleasant</p>	<p>Fishbein and Ajzen (1975); Beatty et al. (1988); Schiffman and Kanuk (2000)</p>

X: We asked consumer to develop their answers based on the product which they have purchased through the Internet in the last 3 months.

5. Results

The survey was conducted in 2018 in Da Nang city. Table 3 reports a sample of 242 respondents representing multi-channel shoppers in Da Nang and provide demographic characteristics of the respondents.

Table 3: Demographic Characteristics of Participants

	Total	Overall Percent		Total	Overall Percent
Gender	N=242	100.0	Career	N=242	100.0
Male	83	34.3	Student	162	66.9
Female	159	65.7	Officer	56	23.1
Age	N=242	100.0	Business	2	0.8
Under 18	7	2.9	Others	16	6.6
18-25	185	76.4	Income	N=242	100.0
26-45	46	19.0	< 5 millions	174	71.9
46-65	3	1.2	5 -<10 millions	49	20.2
More than 65	1	0.4	10-<15 millions	15	6.2
			15-<20 millions	3	1.2
			>20 millions	1	0.4

The above table shows that the number of interviewees was female more than male, accounting for 65.7%, and the age in group from 18-25 accounted for the majority of about 76.4%, mostly officers and students with the income from 5 - 10 millions is common. It can be seen that the trend of online shopping is favored especially among young people, and the average living standard in Da Nang is 5-10 millions. Enterprises need to understand the demographic characteristics in the locality to bring products and services to meet the needs and customers.

5.1. Using Cronbach Alpha for scale reliability

The scale was evaluated through Cronbach Alpha coefficients in order to eliminate unreliable variables before, the variables which have a **Corrected Item- Total Correlation** less than 0.3 will be excluded and will select the scale which its credibility Alpha is more than 0.6, especially for the case that the research concept is new to the respondents in the context of research (Nunnally, 1978; Peterson, 1994; Slater, 1995). The results of Alpha Cronbach reliability are following (items PC2 and PR3 are eliminated):

Table 4: Cronbach Alpha reliability

Var.	Items	Corrected Item- Total Correlation	Cronbach Alpha if Item Deleted
(IA) Perceived information availability. Alpha= .779			
IA1	I can easily compare and select options of product X* in this channel	.589	.730
IA2	I can get useful information on product X in this channel	.647	.665
IA3	I can quickly get information on product X in this channel	.612	.705
(SE) Perceived search effort. Alpha= .709			
SE1	It costs me some time to search for information on product X in this channel	.537	.607
SE2	It costs me some effort to search for information on product X in this channel	.574	.562

SE3	I need to follow certain procedures to search for information on product X in this channel	.474	.686
(PC) Perceived purchase convenience. Alpha=.689			
PC1	I can buy product X at my convenient time in this channel	.545	
PC3	I live a more convenient life by buying product X from this channel	.545	
(PR) Perceived purchase risk Alpha=.791			
PR1	I think there are potential risks of getting the incorrect product X when buying from this channel	.666	
PR2	I think there are potential risks of incompletely examining the product quality when buying product X from this channel	.666	
(PE) Perceived purchase effort. Alpha =.756			
PE1	It costs a lot of time to buy product X from this channel	.613	.641
PE2	It costs a lot of efforts to buy product X from this channel	.622	.633
PE3	It is difficult to buy product X from this channel	.525	.741
(SQ) Perceived service quality. Alpha= .621			
SQ1	I can have a high level of services for product X from this channel	.325	.591
SQ2	I can get helpful assistance when I want to purchase product X from this channel	.520	.493
SQ3	I can have flexible delivery options when buying product X from this channel	.416	.547
SQ4	I can easily complete my payment for product X in this channel	.330	.589
SQ5	I can easily return and exchange or receive refund in this channel.	.305	.610
(PA) Purchase attitude. Alpha=.740			
PA1	Overall, purchasing on this channel is satisfactory	.558	.665
PA2	Overall, purchasing on this channel is a clever decision	.592	.626
PA3	Overall, purchasing on this channel is pleasant	.548	.675

5.2. Exploratoire Factor Analysis (EFA)

Factor analysis is a method of quantitative analysis which simplify a set of interdependent observative variables into a fewer variables (called factors) so that they make more sense, but still contains most significant contents of the original variables (Hair et al, 1998).

The weighted variables (Factor loading) is less than 0.3 in the EFA will be excluded. We use the principal factor components with varimax rotation until criticized elements «Eigenvalue» = 1. The scale is accepted if the total variance extracted $\geq 50\%$ (Gerbing & Anderson, 1988), with provided that the KMO index ≥ 0.5 . KMO is used to consider the appropriateness of the EFA, $KMO \leq 0.5 \leq 1$, means the factor analysis appropriate.

Bartlett's Test: if this test is statistically significant (Sig < 0.005), the observed variables are correlated with each other in the overall.

EFA for independent variable:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.708
Approx. Chi-Square	722.094
Bartlett's Test of Sphericity	df
	66
	Sig.
	.000

KMO value in this case reached $0.708 > 0.5$, this shows the data suitable for factor analysis; and Sig of Bartlett's Test = $0.000 < 0.05$, said that the observed variables are correlated with each other on the whole.

However, at the 1st EFA, the difference between the two loading factor is not be greater than 0.3; so the item SQ3, SQ4 and SQ1 will be disqualified. We continue to analyze the 2nd EFA and 3rd EFA. The items IA1, IA3, PC3 are eliminated.

Rotated Component Matrix^a

	Component			
	1	2	3	4
PR1	.811			
PR2	.771			
PC1	.716			
IA2	.613			
PE1		.866		
PE2		.793		
PE3		.705		
SE3			.801	
SE2			.734	
SE1			.707	
SQ5				.819
SQ2				.745

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 5 iterations.

The results of above table show that the variables of PR1, PR2, PC1, IA2 correlated with component 1; the variables of PE1, PE2, PE3 correlated with component 2; the variables of SE1, SE2, SE3 correlated with component 3; the variables of SQ2, SQ5 correlated with component 4. For the component 1, we can call this group by the name is the perceived purchase risk-taking and purchase convenience (PR_PC). The factor (IA, PC) is called by this name purchase convenience because of its convenience in searching and purchasing. Besides, after doing survey the consumers and analysing data, we realize that PR and PC, IA make a group which impacts positively to purchase attitude. The reasons for this situation that almost consumers are interviewed who are from 18 - 45 ages, especially mostly in 18 - 25 ages, they are young people in Vietnam who want to have some interesting services and up to date things, many benefits from online channel bring them great experiences even though risks or troubles they will stuck in but it's not big problem for them, sometime they feel normal and accept. Therefore,

some risks like wrong items, wrong payment,... don't affect strongly to purchase attitude of consumers or can't impact negatively as some studies said before. Ideally, they think that they need to exchange something to get better things from chanel will gave them. This is the reason why we have that group and name group like this.

EFA for dependent variable:

Component Matrix^a

	Component
	1
I- Overall, purchasing on this channel is satisfactory	.829
I- Overall, purchasing on this channel is a clever decision	.806
I- Overall, purchasing on this channel is pleasant	.800

Extraction Method: Principal Component Analysis.

a.1 components extracted.

Through the results of table above, we can see the variables of PA1, PA2, PA3 correlated with component PA (purchase attitude). These items are retained in the subsequent analysis.

Adjusting the research model

Based on the Cronbach's Alpha Factor Analysis and Factor Analysis and Exploratoire Factor Analysis (EFA), the authors provide a modified research model as below:

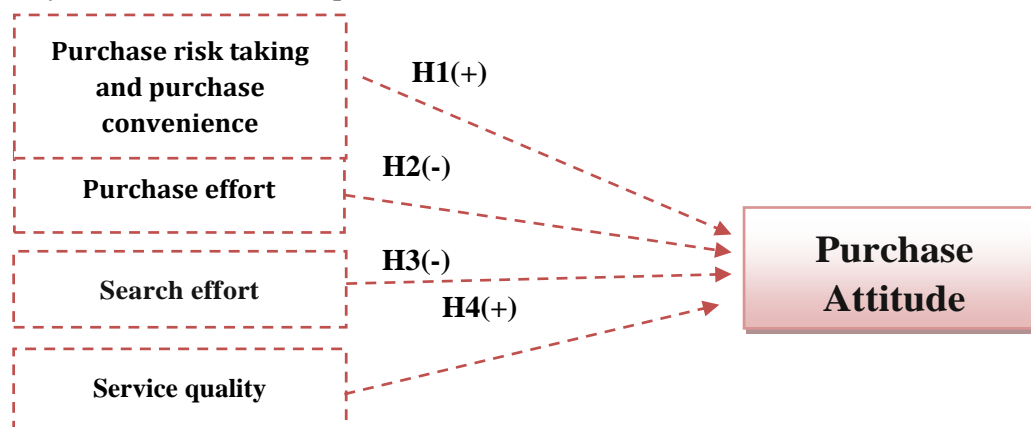


Figure 2: The new proposed model

With the above results, compared with the proposed research model, the model is adjusted to four factors with 13 observation variables which are belong to the measure of factors influencing purchase attitude (this variable consists of 3 observations).

Assumptions are calibrated according to the new proposed model:

Based on the remaining elements after modifying the research model, the authors have assumptions about the factors affecting the purchase attitude on the Internet channel as follows:

H1: Perceived purchase risk taking and purchase convenience from the Internet has a positive effect on consumer attitudes toward purchase on that channel.

H2: Perceived purchase effort from the Internet has a negative effect on consumer attitudes toward purchase on that channel.

H3: Perceived search effort from the Internet has a negative effect on consumer attitudes toward purchase on that channel.

H4: Perceived service quality from the Internet has a positive effect on consumer attitudes toward purchase on that channel.

5.3. Linear regression analysis

The first step in conducting a linear regression analysis is to examine the linear correlation between the dependent variable and each independent variable as well as between the independent variables together. The assumption is that the independent variables are not perfectly correlated with each other (the correlation coefficient isn't equal 1). The results of correlation matrix between the variables show that the independent variables are not perfectly correlated with each other, the correlation coefficient between the independent variables are smaller than 1. Next, all variables are taken into the linear regression analysis in order to examine the influence of the independent variables on the dependent variable.

Linear regression analysis will help us to know the magnitude of the impact of the independent variables on the dependent variable.

Overall model:

$$Y_i = \beta_1 + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + u_i$$

Dependent variable:

$$Y_i : PA_{new}$$

Independent variables:

$$X_{2i} : PR_PC, X_{3i} : PE, X_{4i} : SE, X_{5i} : SQ$$

with β_1 : constant free; $\beta_i, i: 2 - 5$, is the partial regression coefficients

Results of regression analysis is performed by method of Enter:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.522 ^a	.273	.260	.86154669

a. Predictors: (Constant), SQ, SE, PE, PR, PC, IA

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	65.657	4	16.414	22.114	.000 ^b
1 Residual	175.174	236	.742		
Total	240.831	240			

a. Dependent Variable: PA_{new}

b. Predictors: (Constant), SQ, SE, PE, PR_PC

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.002	.055		.031	.976
1 PR_PC	.395	.056	.395	7.108	.000
1 PE	-.029	.056	-.029	-.515	.607
1 SE	.023	.056	.023	.408	.684
1 SQ	.341	.056	.340	6.124	.000

a. Dependent Variable: PA_{new}

The value of Sig. F change is $0.000 < 0.05$; this indicates that variables included are statistically significant at the 5% significance. Thus, the independent variables in the model have a relationship to the dependent variable "PANew".

To assess the relevance of regression models for the data set, we used the coefficient R^2 . Based on the results of the above table, the coefficient of $R^2 = 0.273$; means that 27.3% of the variation in these factors: PR_PC, PE, SE, SQ affects PANew. The results of the multiple regression analysis are summarized thus:

Perceived purchase risk taking and purchase convenience (PR_PC) factor reached a level of significance ($\beta = 0.3950$ and $p = 0.000 < 0.05$), which shows that the risk tolerance and perceived purchase convenience from the Internet will positively influence the consumer purchase attitudes toward purchase on that channel. Therefore, Hypothesis H1 is accepted.

Perceived service quality (SQ) factor reached a level of significance ($\beta = 0.340$ and $p = 0.000 < 0.05$), which means that service quality from the Internet has a positive effect on consumer attitudes toward purchase on that channel. Therefore, Hypothesis 4 is accepted.

These factors have an impact on the consumer purchase attitudes toward purchase on Internet channel in the same dimension, which the variable PR_PC is the most powerful.

A simple regression was used to test hypotheses H2 and H3, the result indicates that the PE and SE factor didn't influence consumers purchase attitude toward purchase on Internet ($\beta > 0.05$ and $p = 1.000$). Therefore, Hypothesis H2 and H3 is rejected.

Table 5: The overall results of research

SN	Hypothesis	Statistical Testing Method	Sig. Value	Results
1	Perceived purchase risk-taking and purchase convenience from the Internet has a positive effect on consumer attitudes toward purchase on that channel.	Regression Analysis	0.000	Accepted
2	Perceived purchase effort from the Internet has a negative effect on consumer attitudes toward purchase on that channel.	Regression Analysis	0.607	Rejected
3	Perceived search effort from the Internet has a negative effect on consumer attitudes toward purchase on that channel	Regression Analysis	0.684	Rejected
4	Perceived service quality from the Internet has a positive effect on consumer attitudes toward purchase on that channel	Regression Analysis	0.000	Accepted

6. Discussion and Conclusion

With the initial model, the authors had six factors: information availability (IA), search effort (SE), purchase convenience (PC), purchase effort (PE) and purchase risk (PR), through a consumer survey at Da Nang and analysis, the authors conclude four factors are PR_PC, SQ, PE, SE. With 3 initial factors are integrated in one group (PR, PC, IA), we can see almost young people prefer purchasing products from internet because of convenience, although they have some troubles in purchasing like potential risk of quality,... but that's not a big problem which makes them move another channel to buy.

The purchase convenience factor of shopping and purchase risk taking is well documented in the section above after analyzing data, which suggests that consumers, particularly young people are more likely to buy in the Internet. Online shopping has become familiar and popular for them. Although some

people are willing to accept risks and to experience great services from different firms in the Internet, they expect that some high technology could bring them better things from new and updated way to buy products at the online channels.

The purchase risk is understood as the subjective assessment of the consumer, which is the feeling of uncertainty and anxiety about the results of behavior (Bauer, 2004). Nowadays, the trend of online shopping is growing rapidly, besides the advantages of it, there are also risks of goods, transportation, payment... This situation happens quite often, and consumers are accustomed to such problems, they are willing to take on those risks and wait for the improvement of the retailer's services. Actually, this is not a big barrier for online channels because the retailers are already offering solutions such as refunds, guarantee,... to satisfy customers and promote online shopping. This is a trend of shopping with more convenience in buying and selling goods for both parties. Young consumers nowadays especially dare to take risks and want to experience the superior services that the Internet brings. This explains why the perception of purchase risk brings a positive impact to the consumer purchase attitude on online channels.

From here, the business can understand that consumers can exchange the problems they encounter in order to still experience this shopping trend because of many advantages, such as convenience of searching, buying, space, promotions, exciting support features. So, retailers need to provide solutions to take care of customers, handle risks timely and effective manner such as return within 48 hours, pay money after receiving and checking the goods directly, free shipping, loyalty programs... There are many ways to increase the purchase on the Internet. In the Internet, the retailer will be more likely to reach out and capture more customers, and then customers can be willingness to make decisions quickly when they check products there. According to Neslin et al. (2006), consumers in the store actually have demand for lower-priced services and can be easily purchased over the Internet.

Moreover, the authors also found that the convenience in the purchase process is a significant factor influencing the purchase behavior of consumers. Consumers' perceived information availability of using a channel is an important channel characteristic. The characteristic will positively influence consumer search attitudes of using a specific channel for both the Internet (Wang et al, 2016). Besides, the purchase convenience is the factors are more interested for consumers in the Vietnam context. This shows that when the consumers' demand increases, they have more choices to meet their desires; they will have more opportunities to access the tools by the quick and convenient way to buy goods. The online shopping is the one of the best way because of the many benefits it offers. Good service quality will also encourage customers to maintain their purchase on this channel as they find good care, fast delivery, quality goods and on time... They will prefer to buy goods online and often less likely to switch other channels. In short, the risk tolerance and purchase convenience and service quality have a positive influence on the attitude of purchase on the internet channel, stimulating the demand for online shopping more.

We found also that some factors such as search effort, purchase effort don't have a significant impact of online shopping in the Da Nang market. It's not so difficult to buy goods and search for information on the Internet, they can now access information and purchase goods easily through various online tools such as social networking, e-commerce, website, app store... So they will not take too much time and effort to find the right item and buy it on the Internet.

In conclusion, the demand for online shopping is increasing. To attract customers effectively, businesses need to understand consumers' attitudes toward buying goods in the new context. This study analyzes the factors that influence consumer purchase attitude on the Internet. The results show that the purchase risk, the convenience of purchase, the service quality have a significant impact toward the purchase attitude of consumers on this channels in Da Nang. More importantly, the authors found the importance of factors influencing the purchase attitude is extremely clear. These findings help us understand more about online shopping behavior today. Managers can use these findings to improve or change the consumer purchase attitude toward Internet channel, such as designing online marketing programs in order to create positive consumer attitudes toward the purchase.

This study still has some limitations that can be addressed in future research. Firstly, we only do the survey in Da Nang. We can expand our sample in many other regions of Vietnam. Secondly, the sample size is still small. In the future, we can add more the different factors to test more causal relationships by using namely the structural equation model (SEM), when the sample size is over 200 (Hair et al. 2006). It is possible to analyze the further differences in the impact of inter-channel factors based on demographic differences, in order to see the differences between the respondents.

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THE IMPACT OF FACTORS ON THE FIRM GROWTH: EMPIRICAL EVIDENCES FROM VIETNAMESE LISTED COMPANIES

TÁC ĐỘNG CỦA CÁC NHÂN TỐ ĐẾN TĂNG TRƯỞNG CỦA DOANH NGHIỆP: BẰNG CHỨNG THỰC NGHIỆM TỪ CÁC CÔNG TY NIÊM YẾT TRÊN THỊ TRƯỜNG CHỨNG KHOÁN VIỆT NAM

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ABSTRACT

The aim of this paper is finding empirical evidences for the existence of factors that influence firm growth of Vietnamese listed companies. Research data is extracted from annual audited financial statements of 288 companies listed on Hochiminh Stock Exchange (HOSE) during the period ranging from 2012 to 2017. In order to achieve the research objective, a set of hypotheses derived from previous studies is tested by applying fixed effect model (FEM) on the balanced panel data of companies listed on Hochiminh City Stock Exchange. Also, generalized least square (GLS) method is employed to avoid heteroskedasticity, autocorrelation and cross-sectional dependence. The ultimate result shows that firm size, measured by natural logarithm of total assets, and profitability, determined by return on assets, have positive impacts on firm growth, while debt to equity ratio as the proxy of financial leverage impacts negatively. The study has not found significant statistical evidence of dividend policy's influence on firm growth. Further researches should be implemented to obtain more specific results and enhance the conclusion for the discussed topic.

Keywords: *Panel data, firm growth, determinant, Vietnamese listed companies.*

TÓM TẮT

Nghiên cứu này đưa ra các bằng chứng thực nghiệm về các nhân tố ảnh hưởng đến tăng trưởng của các công ty niêm yết trên thị trường chứng khoán Việt Nam. Dữ liệu nghiên cứu được chiết xuất từ báo cáo tài chính của 288 công ty niêm yết trên Sở Giao dịch Chứng khoán thành phố Hồ Chí Minh từ năm 2012 - 2017. Dựa trên các nghiên cứu trước đây, các tác giả sử dụng mô hình tác động cố định (FEM) và dữ liệu mảng cân đối của các công ty niêm yết trên sàn HOSE cũng như sử dụng phương pháp bình phương nhỏ nhất tổng quát để tránh các hiện tượng không đồng nhất, tự tương quan và dữ liệu tiêu biểu tại một thời điểm. Kết quả cho thấy rằng, quy mô doanh nghiệp – được đo bằng logarit tự nhiên của tổng tài sản; khả năng sinh lời – đo bằng ROA – có tác động cùng chiều với tăng trưởng của các doanh nghiệp; trong khi đó đòn bẩy tài chính có tác động ngược chiều. Kết quả của nghiên cứu cũng cho thấy không có bằng chứng cho rằng chính sách cổ tức có tác động lên khả năng tăng trưởng của các doanh nghiệp niêm yết. Từ kết quả nghiên cứu, các tác giả đưa ra một số hàm ý chính sách cụ thể.

Từ khóa: *Dữ liệu mảng, tăng trưởng doanh nghiệp, nhân tố tác động, các công ty niêm yết.*

1. Introduction

Firms' activities are inevitable in every economy. Each economy can be considered a living body in which each firm acts as "the cell" that forms and enables its survivorship. Firms are the primary contributors to Gross Domestic Product (GDP) and the main taxpayers. Rising tax revenues from firms enable investments in infrastructure development, public services such as healthcare and education, as well as poverty reduction programs. In addition, firms can take advantages of potential productivity, enhance effective allocation of resources, and strengthen the economic recovery and growth. Apparently, firms are essential to power of an economy or a nation. Firm growth is therefore integral to solid and stable economic growth in each country.

In Vietnam, firm growth is one of the most concerns of the State, reflecting in the fact that legal environment and operating condition of firms are being improved, enabling the firms' effective and sustainable operations in long-term perspective. However, average firm size has not been adequate for the

competitive international integration. According to the Official Result of the General Economic Survey 2017 announced by the General Statistical Office, there were 517.9 thousands of existing firms at the beginning of 2017. Only modest 1.9 per cent of them were considered large firms. The facts result in the needs for discovering reasons and policy implications that enhance firm growth in Vietnam. To achieve that objective, we believe that the determinants of firm growth in Vietnam need to be studied.

Although a variety of determinants of firm growth has been studied in other research contexts so far, we limit the analysis to some specific factors because of their explicit and accessible quantifications. They are the Return on Asset (as studied by Hall and Weiss (1967), and Fiegenbaum and Karnani (1991)), firm size (Ramahan, 2011), leverage ratio (Chen, 2018), and dividend policy (proposed by Miller and Modigliani (1961)).

Accordingly, the authors would like to introduce the research topic “***Determinants of firm growth: Empirical evidences from Vietnamese listed companies***”, aiming at analyzing the impacts of factors on firm growth in Vietnamese listed companies, the sample used as empirical evidence in this research. Deriving from the results, we discussed the statistical evidences for the significance and direction of the determinants of firm growth in Vietnamese listed companies.

2. Literature review

2.1. Firm growth determinants

Firm growth can be considered in different perspectives. According to Rahaman (2011), firm growth was measured by the growth rate of the number of employees or the growth rate of revenue. Similarly, Patel et al (2018) employed revenue growth as the proxy for firm growth. The study of Coad et al (2016) researched firm growth through the growth rate of revenue, productivity and the number of employees. Under the financial viewpoint, Choi et al (2017) considered firm growth as the growth rate of profit and capital accumulation. However, from the innovative perspective, Chen et al (2018) paid attention to R&D expense, the number of patents and citations when evaluating growth at corporate level.

The determinants of firm growth studied in this paper are: 1) ***Dividend policy***, is the earnings distributed to the shareholders periodically; 2) ***Firm size***, as defined in the Degree No. 56/2009/ND-CP dated on 30 June 2009, is the total capital resources or the number of employees; 3) ***Financial leverage***, is measured by the relative level of debt which raises interest expense, and thus reduces profit and creates interest tax shield simultaneously; and 4) ***Earnings***, is the remained profit after excluding all cost. Accumulated earnings finance the expanded operating activities of the firm.

2.2. Key factors affecting firm growth

2.2.1. The impacts of firm size

Gibrat (1931) and Penrose (1959) set the foundation for the later studies on the impacts of firm size on firm growth. The resource-based Theory of the Growth of the Firm, proposed by Penrose (1959), stressing on strategic management and business resources, showed that firm growth mainly depended on the power of the internal sources. According to Gibrat (1931), firm growth did not rely on size or history of the firm. Firms in the same industry would have the same sources for growth, irrelevant to their current size or the previous history. In other words, in Gibrat’s theory, small firms would growth as fast as the large ones.

Nevertheless, most empirical researches found the relationship of firm growth and firm size. Hall (1987), Evans (1987), Cooley and Quadrini (2001), and Becchetti and Trovato (2002) stated that the connection between firm growth and firm size was both strong and negative. That negative relationship implied that small firm would grow faster than their larger rivals. On the other hand, Singh & Whittington (1975) and Hart & Prais (1956) identified positive impacts of firm size on firm growth, inferring that big firms grew faster than the smaller ones. The discoveries of Moscarini and Postel-Vinay (2012), particularly solving the motivation for growth – the increase and decrease of employment – of small and

big firms in business cycle, went in the same direction. They argued that larger firms would grow faster in the low-unemployment period when the business cycle was at the booming stage, and grow slower than the small firms during the high-unemployment time when the economy went into the recession stage. Big firms therefore seemed to operate more smoothly, but smaller ones might response to recession and recovery faster.

The impacts of size on firm growth were also analysed in the study of Nguyen (2012). According to the author, firm size and labour quality are the main determinants of firm growth.

2.2.2. The impacts of financial leverage

The firm's accessibility to finance is essential to the growth of the firm itself as well as of the whole economy. Lorente et al (2018) showed that: a few number of the fastest growing and successful companies in Arabian economies were the issuers of equity capital and bonds to raise their capital. These companies not only managed their capital structures when issuing, but also financed the opportunities of investment and development. They dominated the aggregated investment and made the huge economic impacts which influenced significantly on the remained parts of the economy. The results evidenced that the availability and plenty of external financial resources enabled faster growth in Arabian economies.

Adversely, Rahaman (2011) argued that financially constrained companies which were less accessible to finance, might resolve this problem by accumulating capital internally. Internal capital accumulation could improve the firms' quality in subsequent periods, and then consequently increase the accessibility to external finance. The reliance on internal source would diminish as the firm started to grow and was less financially constrained. Additionally, the study of Rahaman (2011) also found the remarkable influence of firm profit on growth rate though the impact was subject to the firm's access to finance. Large firms might be more competitive in more capital intensive industries because they had more resources, and this advantage enabled higher profitability as a result of less competition in the area where the entry barriers really existed (Bayyurt, 2007).

Theories on finance (Jensen and Meckling, 1976; Myers, 1977; Myers and Majluf, 1984) highlighted the influences of financial decision on business activities. Empirical researches noted that the lack of finance was the key restriction to firm growth (Audretsch and Elston, 2002; Becchetti and Trovato, 2002; Müller and Zimmerman, 2009; Oliveira and Fortunato, 2006). The studies emphasized the role of financial policies, for instance the profitability and financial leverage, to explain the firm growth (Oliveira and Fortunato, 2006). Leverage affected firm growth through external financing, while profit made its influence through internal financing. Huynh and Petrunia (2010) found a positive and non-linear relationship between firm growth and leverage. Whereas, Lang et al (1996) discovered strong negative correlation between leverage and firm growth, the leverage thus slowed the growth in investment. Another evidence of remarkable impact of financial ability on firm growth can be found in the research of Lorenz (2014). That study, conducted with the sample of firms from 9 African countries, discovered significantly negative impact of financial disadvantage on firm growth in all 9 countries within the researched sample. Mahendra, Zuhdi, and Muyanto (2015) detected that the availability of financial resources had significant effect on firm innovation and other relevant activities.

2.2.3. The impacts of profit

Numerous studies on the relationship of firm size and profitability have considered firm size as the proxy for firm growth. This approach has resulted in diverse outcomes. Researches of Hall and Weiss (1967), Fiegenbaum and Karnani (1991), Majumdar (1997), Özgülbaş et al (2006), Jonsson (2007), Serrasqueiro and Nunes (2008), Lee (2009), Stierwald (2009), Karadeniz and İskenderoğlu (2011), Saliha and Abdessatar (2011), Akbaş and Karaduman (2012), Shubita and Alsawalhah (2012) discovered positive correlation of firm size and profitability. On the contrary, Shepherd (1972), Becker-Blease et al (2010) showed that the relationship might be negative. In addition to the mentioned studies, Simon (1962), Whittington (1980), Khatib et al (2011) argued that profitability did not affect firm size. Previous

empirical evidences thus made the determination of profitability's impact on firm size ambiguous and opened to further evidences. Most studies employed total assets, total sales or number of staff to measure firm size, except the researches of Becker-Blease et al (2010), Serrasqueiro and Nunes (2008).

2.2.4. The impacts of dividend policies

According to Miller & Modigliani (1961), in effective markets, dividend policies would not affect firm value. The shareholders themselves were able to make home-made dividend policies by selling stocks and reinvesting the proceeds at risk free rate, getting value that were equivalent to that of alternative policies. The dividend policies therefore were irrelevant. Empirical researches, however, did not agree with the theory. While Black & Scholes (1974) or Miller & Rock (1985) supported the irrelevancy theory, Litzenberger & Ramaswamy (1979), Dyl & Weigand (1998), Ouma (2012), as well as Gul et al (2012) did not.

3. Methodology

3.1. Research model

The research model can be summarized in the Equation (1) below

$$E_{growth_{it}} = \beta_0 + \beta_1 TA_{it} + \beta_2 MC_{it} + \beta_3 ROA_{it} + \beta_4 DOE_{it} + \beta_5 DY_{it} + \varepsilon_{it}$$

In which:

$E_{growth_{it}}$: equity growth of firm i.

TA_{it} : Natural logarit of total asset of firm i.

MC_{it} : Natural logarit of market capitalization of firm i.

ROA_{it} : Return of Asset of firm i.

DOE_{it} : Debt to Equity ratio of firm i.

DY_{it} : Annual dividend payout ratio of firm i.

i : the company i in the panel.

t : the time t in the panel.

ε_{it} : error term.

The meaning of variables is summarized in Table 1 below:

Table 1: Meaning of variables in the model

No	Variable	Type	Name	Formula	Sign of impact	Relevant previous studies
1	Firm growth	Dependent variable	Egrowth	$E_{growth} = \frac{E_{it} - E_{i(t-1)}}{E_{i(t-1)}}$		Bongseok Choi (2017)
2	Firm size	Independent variable	TA	$TA = \ln(\text{Total Asset})$	(-)	Gibrat (1931) & Penrose (1959), Cabral & Mata (2003), Almus & Nerlinger (2000), Calvo (2006)
3		Independent variable	MC	$MC = \ln(\text{Market capitalization})$	(-)	

4	Profitability	Independent variable	ROA	$ROA = \text{Net Income} / \text{Total Asset}$	(+)	Akbaş & Karaduman (2012), Shubita & Alsawalhah (2012)
5	Financial leverage	Independent variable	DOE	$DOE = \text{Debt} / \text{Equity}$	(+)	Oliveira & Fortunato (2006), Huynh & Petrunia (2010)
6	Dividend policy	Independent variable	DY	$DY = \text{Dividend per share} / \text{Stock Price}$	(+)	Litzenberger & Ramaswamy (1979), Dyl & Weigand (1998)

Source: Summarized by the authors

The coefficients from β_1 to β_5 represent the impacts of the determinants on firm growth. Within a specific level of significance, if there are not statistical evidences that these coefficients are different from zero, meaning that they are statistically insignificant, we can conclude that the mentioned factors may not have impact on the growth of listed companies.

3.2. Research question and hypotheses

In this paper, the authors employed the measurement of firm growth based on the research of Choi et al (2017). Accordingly, firm growth is measured by equity accumulation or the equity growth in particular.

To test the impacts of the determinants on firm growth, the authors use regression approach on panel data of 288 companies listed on Hochiminh City Stock Exchange (HOSE) during the period between 2012 and 2017. The dependent variable is Egrowth, representing the annual equity growth of the companies in the sample. Independent variables are financial ratios which measure the factors analyzed in the previous section.

First, *firm size* is one of the primary factors which were considered in previous studies on the same topic, such as Gibrat (1931) and Penrose (1959), Cabral & Mata (2003), Almus & Nerlinger (2000), Calvo (2006), Goddard et al (2002). Following approach in these studies, this paper considers total assets and market capitalization as the proxies for firm size. However, in order to match with other financial ratios such as ROA, natural logarithm of Total assets and Market capitalization should be used instead.

Hypothesis H1: *Firm growth and firm size have negative correlation because bigger firms are growing more slowly and become more stable.*

The hypothesis agrees with Hall (1987), Evans (1987), Cooley & Quadrini (2001), and Becchetti & Trovato (2002).

Second, the next determinant of firm growth is *profitability*. Following the researches of Hall & Weiss (1967), Fiegenbaum & Karnani (1991), Majumdar (1997), Özgülbaş et al (2006), Jonsson (2007), Serrasqueiro & Nunes (2008), Lee (2009), Stierwald (2009), Karadeniz & İskenderoğlu (2011), Saliha & Abdessatar (2011), Akbaş & Karaduman (2012), Shubita & Alsawalhah (2012), the authors consider the Return on Assets (ROA) as the measurement of firm profitability.

Hypothesis H2: *Firm growth and profitability have positive correlation because profitability can measure firm performance, thus being able to predict potential growth of the firm.*

This hypothesis was confirmed by Akbaş & Karaduman (2012), and Shubita & Alsawalhah (2012).

Third, this study considers the impact of financial aspects on firm growth, the *financial leverage* in particular. Based on the researches of Oliveira & Fortunato (2006), Huynh & Petrunia (2010), the authors employed the Debt to Equity ratio (DOE) as the proxy for financial leverage.

Hypothesis H3: *Firm growth and financial leverage have positive correlation, because firms will take as many as possible advantages of rapid growth financed by debt to fund their potential investments.*

The hypothesis agrees with opinions of Myers (1984).

Final, this research is also concerned with the influence of *dividend policy* on firm growth. Theories about dividend policy have yet raised debates because of its theoretical irrelevancy. Accordingly, Miller & Modigliani (1961), Black & Scholes (1974) or Miller & Rock (1985) argued that the investors would not pay attention to dividend policy for the reason that it was irrelevant to firm value. On the other hand, Litzenberger & Ramaswamy (1979), Dyl & Weigand (1998), Ouma (2012), Gul et al (2012) gave the contrary opinions. The annual dividend yield is utilized to represent the dividend policy of companies in this paper.

Hypothesis H4: *Firm growth and dividend policy are positively correlated, because firms with high dividend yield are more likely to attract investors and raise the expectation on firm growth in future.*

This hypothesis aims at contributing to the empirical evidences founded by Litzenberger & Ramaswamy (1979), Ouma (2012), and Gul et al (2012).

Deriving from the above hypotheses, research model in this paper is linear regression model which includes firm growth as the dependent variable, the objective that is affected, and it is measured by the growth rate of equity. Explanatory variables are natural logarithms of total asset and of market capitalization, both are the proxies of firm size, return on asset representing the profitability, debt to equity ratio representing the level of financial leverage, and annual dividend yield representing dividend policy of the firm.

3.3. Data and analysis techniques

Research data is extracted from annual audited financial statements of 288 companies listed on Hochiminh Stock Exchange (HOSE) during the period ranging from 2012 to 2017. Research data is selected to ensure the balance of panel data and through the screening process.

The descriptive statistic of research data is shown in Table 2.

Table 2: The descriptive statistic of research data

Variable	Mean	Minimum	Maximum	Standard Deviation
Egrowth	0.0895	-2.721	5.484	0.362
TA	14.058	11.539	19.185	1.255
MC	13.236	9.852	19.634	1.499
ROA	0.095	-7.836	0.982	0.296
DOE	0.477	0.002	0.977	0.214
DY	0.070	0	0.949	0.089

Source: calculated by the authors

Average equity growth of listed companies on HOSE is 8.95 per cent. In addition, the standard deviation is 36.2 per cent, implying the distinctive growth rates among the companies. The minimum growth is -272 per cent growth of Duong Hieu Trading and Mining Joint Stock Company in 2012, and the maximum is 548 per cent growth achieved by Petro Vietnam Gas Joint Stock Corporation, also in 2012.

Average firm size in term of total asset is relatively high. VinGroup is the biggest companies in term of asset, holding asset valued at 214.8 trillion Vietnam dong, keeping a great distance with other rivals. VinGroup is also the biggest firm in term of market capitalization, achieving 336.5 trillion dong of market capitalization at the end of 2017.

Profitability of listed companies, measured by ROA, is approximately 9.5 per cent on average. The divergence among them, however, exists with the maximum figure at 98.2 per cent, and the minimum - 783.6 per cent. The fact can be explained by the dissimilarity of capital usage in different industries. Service business, for instance, may not need too much asset to operate, while manufacturing industry and constructing industry are quite capital intensive. Therefore, return-on-asset ratio of companies varies among different businesses.

Debt to Equity ratio is 47.7 per cent on average. The standard deviation of 21.4 per cent and the coefficient of variation of 0.449 show the apparent distinction in debt levels across the firms. Real estate and construction industry, in particular, is the most levered business; average debt to equity ratio of this industry is 54.8 per cent. On the contrary, healthcare has the lowest leverage ratio, only 39.3 per cent on average.

Table 3: Correlation matrix of independent variable

	TA	MC	ROA	DOE	DY
TA	1				
MC	0,664	1			
ROA	0,063	0,164	1		
DOE	0,317	-0,062	-0,158		
DY	-0,136	-0,0298	0,195	-0,09	1

Source: calculated by the authors

Table 3 illustrates the low correlation among independent variables in the model, except the correlation between TA and MC, at 0.664 of correlated coefficient. The possible reason of this fact is that both of TA and MC represent firm size. According to Table 3, the problem of multicollinearity may be insignificant in this model because most of correlated coefficients are relatively low, except the correlation of the two variables representing firm size.

Regression methods include POOL regression methods, regression methods according to the approach to factors of fixed effect model (FEM) and regression method according to random effect model (REM). After selecting the appropriate regression method that is suitable for the model, the research team conducted testing and selecting models as well as assessing the defects of the selected model. In the events of defects that violate the hypothesis, the research team will proceed with the generalized least square (GLS).

4. Results

To examine and select the appropriate model among the regression method above, the authors used F-test and Hausman test. Via F test we noticed $\text{Prob} > F = 0.000 < \alpha = 5\%$, therefore, with a statistically significant level of 5%, H_0 was rejected. That meant, with the data collected, it was shown that the method that run the FEM model was appropriate and that OLS was not suitable due to the existence of fixed effects in each business over time. After selecting the FEM model instead of OLS running method, the authors studied in turn estimates of the existing table data based on the method of running FEM and REM models. Based on the results of running the FEM and REM models, the authors verified Hausman to compare and select FEM or REM models. The Hausman test results can be seen that, $\text{Prob} > \chi^2 = 0.000$ i.e, $P_value = 0.000 < \alpha = 5\%$, therefore, it is sufficiently grounded to reject the hypothesis H_0 , then fixed effects (FEM) are more appropriate than random effects (REM). Through tests, the method of running FEM model proved to be the best selected. The regression result with FEM is shown in Table 4:

Table 4: Regression result with Fixed Effect Model

	Estimated Coefficient	Std. Error	t-value	Pr(> t)
ROA	1.176276	0.131229	8.9635	0.000***
DOE	-0.697485	0.119372	-5.8429	0.000***
DY	-0.063558	0.135212	-0.4701	0.6384
MC	-0.042535	0.022127	-1.9223	0.0548
TA	0.323958	0.034961	9.2663	0.000***

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: calculated by the authors

The final model needs to be tested whether it violates classical assumptions of linear regression with panel data. Breusch-Pagan test found the cross dependence among firms in the panel and heteroskedasticity. Breusch-Godfrey/Wooldridge test showed the statistical evidence of autocorrelation.

To correct the violations, we used Generalized Least Square (GLS) method on FEM. The corrected results are shown in Table 5:

Table 5: Estimated results by GLS method

	Estimated coefficient	Std. Error	t-value	Pr(> t)
ROA	1.176276	0.284578	4.1334	0.0000382***
DOE	-0.697485	0.147403	-4.7318	0.000002487***
TA	0.323958	0.101772	3.1832	0.001494**

* p < 0.1, ** p < 0.05, *** p < 0.01

Source: calculated by the authors

Based on the empirical results, the authors discuss on the research hypothesis as in the following paragraphs:

First, firm growth and firm size measured by natural logarithm of total asset are actually positively correlated because their coefficient is statistically significant at 5 per cent of significance level, and estimation for β_1 is 0.323958, a positive value. The growth of total asset will provides more sources of expansion and business capacity development. Hence, it supports firm growth.

Conclusion on hypothesis H1: There is no statistical evidence supporting the negative impact of firm size on firm growth.

Second, firm growth is positively influenced by profitability which is represented by return on asset. According to Table 5, the coefficient of ROA is statistically significant at 1 per cent, and the estimated value of β_3 is 1.176276, suggesting a positive relationship. High ROA indicates the effectiveness of capital employment, financial control as well as the potential growth.

Conclusion on hypothesis H2: there is empirical evidence for positive impact of profitability on firm growth.

Third, firm growth and financial leverage show a negative correlation in this study, and this correlation is statistically significant at 5%. The estimated value of coefficient β_4 is -0.697485, implying a strong negative impact of financial leverage. Debt intensity may raise interest expense. In addition, investment activities of the firm may be passively implemented because of the creditors' perspective.

Conclusion on hypothesis H3: the hypothesis about positive impact of leverage on firm growth is rejected in this study.

Fourth, firm growth has no correlation with either market capitalization or dividend yield. According to Table 5, p-values of these variables are 0.302129 and 0.727006, respectively, and both greater than the significance level at 5 per cent. Therefore, the estimated coefficients are statistically insignificant.

Conclusion on hypothesis H4: There is no statistical evidence for the impact of dividend policy on firm growth in Vietnam.

CONCLUSION

The research has achieved some results while assessing the impact of determinants on firm growth in the context of Vietnam Stock exchange. The authors has tested four hypotheses of factors that affect firm growth, including firm size,, profitability, leverage and dividend policy, by using quantitative method. Employing analysis for panel data and descriptive statistic, based on financial data of 288 Vietnamese companies listed on HOSE during the period between 2012 and 2017, our study can be summarized in some recommendations and implications:

The first implication is that asset development is needed to magnify firm growth because asset volume influences positively on firm growth. However, listed companies should maintain stable growth of asset to control the level of growth, avoiding extensive risk arising from unnecessary growth.

Based on the impact of profitability on firm growth, we give the second recommendation to the managers. They should pay attention to profitability ratio in order to enhance positive changes in listed companies.

The fact that leverage has negative influence on firm growth in listed company raises the third recommendation. Accordingly, firm growth can be achieved if the managers utilize appropriate financial policy, especially the debt policy and risk management. The conclusion also raises the concerns for building models to determine the distance to default in listed firms.

In addition to achievement, our study is limited by some drawbacks in data collecting and handling:

The first drawback lies in the limited scope of data. We performed empirical testing on data of audited financial statements from listed companies. The robustness of empirical results can be improved by the addition of data from unlisted small and medium enterprises (SMEs). We can also deepen the topic by employing qualitative methods such as interviews with companies' representatives and case studies. However, approaching financial data of non-public companies is still a challenge in Vietnam.

Second, the study did not consider sufficiently every factor mentioned in previous papers. Therefore, further works can be implemented hereafter as soon as there are reliable measurements of factors which have not studied in this paper.

Finally, the aim of this research is finding evidences of factors that impact on firm growth. Nevertheless, it fails to discover those impacts in specific industries.

Hence, research results partly meet the initial objectives, as well as provide scientific argument benefiting stakeholders in making decisions. In addition to achieved results, there are some remained flaws in this study with respect to the scope of research sample, time to conduct and factors that are not able to be studied in the research context.

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INTENTION OF MILLENNIALS TOWARDS USING MOBILE PAYMENT SERVICES: AN EMPIRICAL IN HO CHI MINH CITY, VIETNAM

Ý ĐỊNH SỬ DỤNG DỊCH VỤ THANH TOÁN DI ĐỘNG CỦA THẾ HỆ MILLENNIALS: NGHIÊN CỨU TẠI THÀNH PHỐ HỒ CHÍ MINH

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ABSTRACT

The primary objective of this study is to identify factors affecting customer behavior intention toward using mobile payment services of millennials in Ho Chi Minh City, Vietnam. The proposed research model is based on the unified theory of acceptance and use of technology combining the perceived risk and trust. Data collected through field research by structured questionnaire with 369 valuable samples were analyzed with the implementation of Structural Equation Modeling (SEM) in order to indicate the factors that influence the intention of using the mobile payment of millennials in Ho Chi Minh City, Vietnam. The result showed that the revised model had a good fit to the data. The positive influence of 04 factors including Performance expectancy, Effort expectancy, Social influence, and Trust on millennials behavior intention towards using mobile payment services was confirmed. Besides, the indirect impact Effort expectancy and trust on customers' behavior intention through Performance expectancy also indicated. However, the influence of Hedonic motivation on behavior intention and Perceived risk on behavior intention was not supported. These findings of the research are expected to be beneficial for both theoretical and managerial implications related to the intention to use mobile payment services.

Keywords: *Customer behavior intention, financial technology, millennials, mobile payment.*

TÓM TẮT

Nghiên cứu này với mục tiêu chính là xác định các yếu tố và mức độ ảnh hưởng của các yếu tố đó đến ý định sử dụng dịch vụ thanh toán di động của thế hệ millennials tại thành phố Hồ Chí Minh. Mô hình nghiên cứu đề xuất được xây dựng dựa trên lý thuyết thống nhất về chấp nhận và sử dụng công nghệ mở rộng (UTAUT2) kết hợp biến cảm nhận về rủi ro và sự tin nhiệm. Dữ liệu được thu thập thông qua khảo sát bằng bảng hỏi khảo sát với 369 mẫu có giá trị được đưa vào phân tích theo mô hình cấu trúc tuyến tính (SEM). Kết quả chỉ ra rằng, mô hình phù hợp với dữ liệu thị trường. Có 04 yếu tố tác động thuận chiều lên ý định sử dụng dịch vụ thanh toán di động bao gồm: hiệu quả mong đợi, nỗ lực kỳ vọng, ảnh hưởng của xã hội, sự tin nhiệm. Trong đó, yếu tố sự tin nhiệm, hiệu quả mong đợi có mức tác động thuận chiều cao nhất. Bên cạnh đó, tác động gián tiếp nỗ lực kỳ vọng và sự tin nhiệm đối với ý định sử dụng dịch vụ thanh toán di động thông qua hiệu quả mong đợi cũng được chỉ ra. Tuy nhiên, ảnh hưởng của động lực hưởng thụ đối với ý định hành vi và sự cảm nhận rủi ro đối với ý định sử dụng không được khẳng định. Nghiên cứu đóng góp ý nghĩa về lý thuyết và ý nghĩa thực tiễn cho cả tổ chức và cá nhân liên quan đến ý định sử dụng các dịch vụ thanh toán di động nhằm làm tác động đến định sử dụng dịch vụ thanh toán di động của khách hàng.

Từ khóa: *Ý định sử dụng, công nghệ tài chính, millennials, thanh toán di động.*

1. Introduction

In recent years, the Fourth Industrial Revolution (Industry 4.0) is growing at a strong pace, especially with the development of Financial Technology (Fintech). This trend is bringing a lot of positive changes to Vietnamese economy in recent years and it strongly influence development strategies and business practices of traditional financial service providers. In this field, mobile payment service witnessed the largest number of startups with more than 20 companies (Vietnam Fintech Startups 2016, 2017). The above data and the government direction "Towards a cashless society" by the Deputy Governor of the State Bank of Vietnam have proven the importance and potential of mobile payment service development. However, it is evitable to see that deploying mobile payment in Vietnam still encounters

great difficulties and that the number of customers accepting this service is very limited. One of the reasons is that the Vietnamese's cash payment habit is still popular among the majority of people. Moreover, the lack of understanding towards this new technology also leads to concerns about risks (Dao My Hang et al, 2018). Therefore, Fintech startups must acknowledge the concerns of customers when using mobile payment services and factors affecting their intention to adopt this kind of service. Especially, the target customers of mobile payment services in particular and fintech services in general mostly are the youngsters, tech-savvy millennials and wealthier customers. This group of target customer need to be explored and understood clearly. Therefore, this study will facilitate the business managers to understand the key factors affecting millennial customers' intention to use mobile payment services. First and foremost, the study will briefly introduce the theoretical basis of behavioral intention, thereby proposing the research model and hypotheses regarding the relationship between these factors. Secondly, the factors influencing the millennial customers' intention to use mobile payment services will be examined with the data collected from target respondents in Ho Chi Minh City, Vietnam. Finally, based on the analyzed results, the discussion and implications will be discussed. Besides, further research directions to overcome the limitations of this study will also be mentioned.

2. Literature background and methodology

2.1. Literature background

2.1.1. Mobile payment service (MPS)

Mobile payment service is defined as “*a type of payment transaction processing, in which the payee uses mobile communication techniques in conjunction with mobile devices for initiation, authorization, or completion of payment*” (Pousttchi & G Wiedemann, 2019). Similarly, according to Dahlberg, Guo, and Ondrus (2015), mobile payment is a modern payment service which is based on wireless communication technology of the mobile phone. Specifically, customers can purchase goods, enjoy services and pay bills via a mobile device.

2.1.2. Millennial generation

The term Millennials often refers to individuals reaching adulthood around the beginning of the 21st century. The first generation to grow up and integrate intimately with digital devices and the Internet (Thompson & Gregory, 2012). In this study, researchers have used different birth-year boundaries to determine Millennial generation. In general, the earliest to be identified as Millennials are those born in 1976 and the latest being born in 2004. This generation contains youngsters, tech-savvy customers. Vietnam has approximately 58% young population born and live in the internet era, 44% of total population is Internet User, and 69% people penetrating mobile phone and smartphone. Vietnam is a promising market online businesses, digital agencies and application developers. Besides, with only 31% of 15 years old and older had an account at a financial institution in 2014 (World Bank, 2015) and most of consumers experienced their first online services via mobile instead of other devices, clearly, it brings a lot of opportunities for mobile payment services.

2.1.3. Conceptual model

An individual's behavioral intention is defined as the magnitude of one's intention to use the product or service in the future. In the self-service technology, behavioral intention is considered as the extent to which the customer tend to use this kind of services. Behavioral intention has been studied continuously and was identified to be the strongest factor affecting technology adoption behavior (Ajzen, 1985; Venkatesh, G Morris, B Davis, & Davis, 2003; Venkatesh, Thong, & Xu, 2012). Numerous models have been used to investigate customer behavior intention towards technology acceptance and adoption. This study used the extended Unified Theory of Acceptance and Use of Technology (UTAUT2) as the model is proposed a theoretical foundation for proposing a conceptual model. The UTAUT2 is developed to explain technology acceptance from the customer perspective (Venkatesh et al., 2012). This is an

extended version of the Unified Acceptance and Technology Utilization Theory (UTAUT), where three new constructs (hedonic motivation, price value, habit) were added to the original model (including performance expectancy, effort expectancy, social influence, facilitating conditions). The UTAUT2 model has been proven to be a better model compared to others as it includes a full range of factors that explain customer's behavioral intention, as well as provide a more accurate prediction (C.-Y. Huang & Kao, 2015). Moreover, the UTAUT model is theorized to study the usage behavior from an organization's perspective, whereas the UTAUT2 model is applied in customer-focused contexts. As the purpose of the study is to identify factors affecting the customer's intention to use mobile payment services, the UTAUT2 model might provide more insights.

However, the UTAUT2 model doesn't include two factors: perceived risk and trust, which are both important factors affecting customer's behavior intention to use mobile payment services. Specifically, perceived risk and trust have been studied extensively in the field of mobile payments. The relationship between perceived risk has been proven by many studies (Koenig-Lewis, Palmer, & Moll, 2010; Lu, Yang, Y. K. Chau, & Cao, 2011; Luo, Li, Zhang, & Shim, 2010, Shin, 2010). In addition, the effect of trust has been shown to have a profound impact on customers' intention in several studies (Y. Huang & Liu, 2012; Lu et al., 2011; Shin, 2010; Zhou, 2011). For reasons above, in this study perceived risk and trust have been included as an extension to the UTAUT2 model to broaden the theoretical horizon of UTAUT2. Because this study is expected to investigate the intention of millennials toward mobile payment services. Thus, the authors decided to not include two factors, habit and price value, in the research model, because these factor reflect the evaluation of customer adaptations that is used for the customer after using the services.

2.1.3.1. Performance expectancy (PE)

Performance expectancy is defined as the benefits and utilities that could be attained from using such innovative channels (Venkatesh et al., 2003). Performance expectancy has been discovered to be one of the most influential factors driving behavior intention to adopt and use information systems and information technology (Dwivedi & Lal, 2007). Venkatesh et al. (2012) argued that customers have a tendency to compare the benefits and utilities attained in relation to the money cost paid to use technology. Thus, further benefits and utilities perceived when using technology in general and mobile payment service in particular could contribute to the value of the technology. Therefore, this study proposes the following hypothesis:

H1: Performance expectancy has a positive influence on customer's behavior intention to adopt mobile payment services.

2.1.3.2. Effort expectancy (EE)

Effort expectation can be conceptualized as the "extent of ease connected with the use of system" (Venkatesh et al., 2003). There have been several empirical studies which have proven the important role of effort expectancy (Martins, Oliveira, & Popovič, 2014; Riffai, Grant, & Edgar, 2012) or captured the factors such as perceived ease of use (Alalwan, Dwivedi, Rana, & Simintiras, 2016; Kesharwani & Bisht, 2012; Rodrigues, Oliveira, & Costa, 2016) in shaping customers' behavior intention toward mobile payment services. According to (Davis et al., 1989), individuals could be involved in the cognitive trade-off process between the efforts required to successfully apply the technology in front of the benefits and advantages attained by using technology. Thus, the research proposed that perceived ease of use could contribute to the behavioral intention to use technology directly or indirectly by facilitating the role of perceived usefulness. Therefore, this study formulates the following hypotheses:

H2: Effort expectancy has a positive influence on customer's behavior intention to adopt mobile payment services.

H3: Effort expectancy has a positive influence on Performance expectancy.

2.1.3.3. Social influence (SI)

The definition of Social influence can be described as the “extent to which an individual perceives that important others believe he or she should apply the new system” (Venkatesh et al., 2003). The role of Social influence in enhancing behavior intention toward technology has been emphasized in previous studies (Abu-Shanab, Pearson, & Setterstrom, 2010; Martins et al., 2014). Most prominently, according to (Nysveen, E. Pedersen, & Thorbjørnsen, 2005), Social influence has a positive impact on customers’ intention to use mobile services such as messaging, communication and payment. Thus, the study postulates the next hypothesis:

H4: Social influence has a positive influence on customer’s behavior intention to adopt mobile payment services.

2.1.3.4. Facilitating conditions (FC)

Facilitating conditions is defined as “the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of the system” (Venkatesh et al., 2003). Several studies on factors that affect behavior intention toward using mobile payment services have pointed out that Facilitating conditions have a positive effect on customers’ behavior intention (Ming Lang Yeh & Yin Li Tseng, 2017; Titus Tossy, 2016; Lo Ka Foon, 2014). This can be attributed to the fact that using such technology usually require a particular set of skill, resources and technical infrastructure (Alalwan, Dwivedi, Rana, Lal, & Williams, 2015; Alalwan, Dwivedi, & Williams, 2016; Zhou, Lu, & Wang, 2010). Thus, the more favorable the conditions are, the safer and easier it is for customers to use the service. Consequently, the study proposes that:

H5: Facilitating conditions has a positive influence on customer’s behavior intention to adopt mobile payment services.

2.1.3.5. Hedonic motivation (HM)

According to (Venkatesh et al., 2012), Hedonic motivation is conceptualized as the feeling of cheerfulness, joy or enjoyment, which is stimulated by applying technology. They also pointed out that humans are not only concerned about the performance of the technology, but also the feeling brought about by the technology. It has been discovered that Hedonic motivation is among the strongest factors affecting behavior intention toward the use of technology. The study by (Nguyen, Khanh Cao, Linh Dang, & Anh Nguyen, 2016) mentioned perceived enjoyment is among the predictors of customers’ behavior intention toward the use of mobile payment services in Vietnam. Therefore, it can be seen that the greater the enjoyment of using mobile payment services, the higher the behavior intention toward the use of mobile payment services. Thus, the study articulates the following hypothesis:

H6: Hedonic motivation has a positive influence on customer’s behavior intention to adopt mobile payment services.

2.1.3.6. Trust (TR)

The definition of Trust can be described as the faith that the other party will act following the proper behavior of generosity, integrity, and ability (Gefen, 2000; Zhou, 2011). Customers with a high level of confidence in mobile payment services will feel the integrity and accountability of the service provider, and at the same time, increase their intention to use the service (Gefen, Karahanna, & Straub, 2003). Despite not included in the UTAUT2 model, Trust plays an important role to the behavior intention toward the use of mobile payment services because transactions made through mobile networks are vulnerable and less reliable compared to traditional methods. In the context of Vietnam, Trust has been proven to pose a positive impact on customers’ behavior intention (Nguyen et al., 2016). Besides, Trust was empirically proven to significantly influence not only customers’ intention but also on Performance expectancy (Luo et al., 2010). In the study by (Gefen et al., 2003), Trust is argued to have a

direct effect on behavior intention to use mobile payment services or indirectly influence behavior intention by facilitating the role of Performance expectancy. Consequently, the study proposes that:

H7: Trust has a positive influence on customer's behavior intention to adopt mobile payment services.

H8: Trust has a positive influence on Performance expectancy.

2.1.3.7. Perceived risk (PR)

Perceived risk can be defined as the likelihood of a customer suffering a loss in pursuit of the favored consequences of using a service (Featherman & Pavlou, 2003). Perceived risk is an important factor, affecting negatively customers' behavior intention toward the use of technology (Baabdullah, Nasseef, & Alalwan, 2016; Gan, Clemes, Limsombunchai, & Weng, 2006; Gerrard, Cunningham, & Devlin, 2006). The particular interest in this factor can be attributed to the high uncertainty, intangibility, heterogeneity, vagueness characteristics as well as the lack of human interaction in the field of online payment (Al-Gahtani, 2011; Featherman & Pavlou, 2003; Kesharwani & Bisht, 2012; M. Curran & L. Meuter, 2005; Martins et al., 2014). Thus, the following hypothesis is formulated:

H9: Perceived risk has a negative influence on customer's behavior intention to adopt mobile payment services.

The proposed research model is shown in the below Figure.

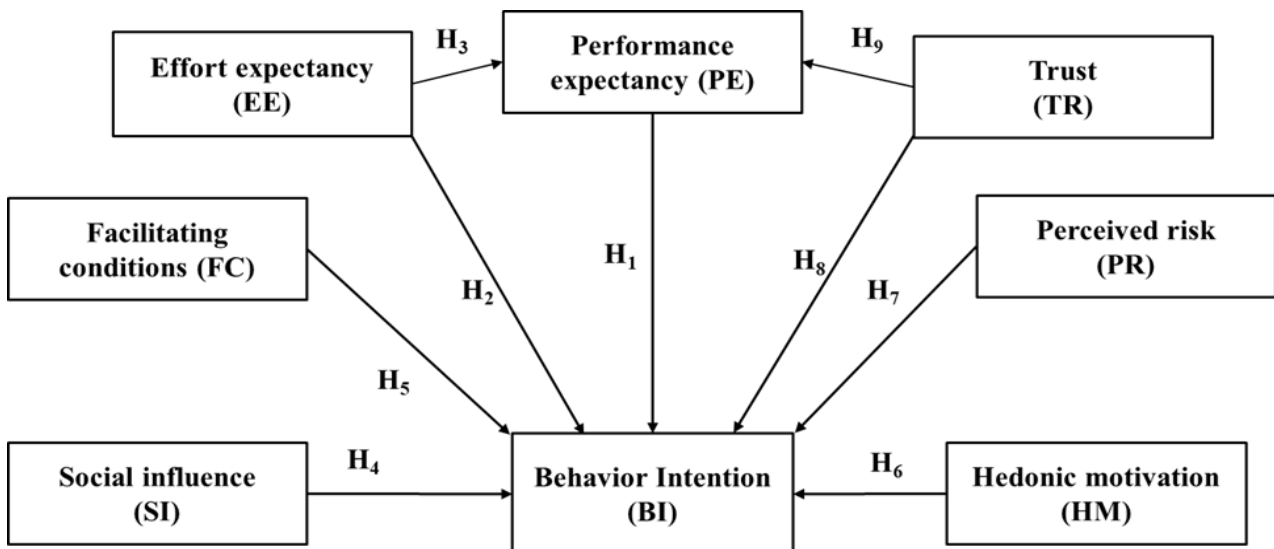


Figure 1: The proposed research model

Source: Venkatesh et al. (2012), Featherman & Pavlou (2003) and Gefen et al. (2003)

2.2. Methodology

To achieve the research objectives, a quantitative research approach will be employed. Because the quantitative research approach is most widely employed in an empirical study, in which connections between variables is explored and examined (Bell, Bryman, & Harley, 2018). The population of this research contains millennials in Ho Chi Minh city. The researcher will attempt to select a set of samples that could have the presence of respondents with difference in experience of using smartphones and the familiarity with mobile payment service. Besides, the respondents' characteristics are expected various in terms of gender, age, income. Under the constraints of time and budget, a sample will be selected from the target population by non-probability sampling technique which does not allow the population with the same probability to be selected.

This study will be conducted in two main phases including preliminary research and formal research. In the preliminary research phase, from research objectives, theoretical background, previous relevant studies, a research framework will be proposed. In addition, a draft of structured-questionnaire

will be prepared in English with measurement scales of the elements in UTAUT2 model and behavioral intention from the adoption from previous relevant studies (Venkatesh et al. 2012, Featherman & Pavlou 2003, Gefen et al.,2003). The questionnaire will be translated into Vietnamese by two lecturers who have professional knowledge of marketing domain. To ensure the accuracy and clarity of the used terminologies in the questionnaire, 15 people including 5 officers, 5 lectures and 5 students were invited to review the questionnaire before releasing the final version that will be used in the formal survey. In the second phase, formal research and data analysis process are implemented. A mass survey will be conducted with a final questionnaire that has been adjusted after the pretest step in order to obtain the empirical data. The final questionnaire is presented in the appendix 1.

2.2.1. Sample

A sample of 369 millennials in Ho Chi Minh City was surveyed and included in this study. This sample size is satisfied the requirement of Regression analysis is $n \geq 8m + 50$ (in which: n is the sample size; and m is the number of independent variable) according to Tabachnick and Fidell (2001). In this study, with $m = 7$, the minimum sample size of the study is 106. Besides, according to Bollen (1989), in order to confirm the reliability of the sample size as well as EFA analysis, at least 5 samples are needed for each observed variable. Here in the proposed model and scale development, with the total of 29 independent variables, the sample size must be at least $29 \times 5 = 145$. The data were collected by two forms of the survey including hardcopy and online surveys. In particular, the hardcopy forms of the questionnaire were distributed to the target respondents in some classes at universities in Ho Chi Minh City and in some few convenience stores such as Circle K, B's Mart, where attracts a lot of young people. Besides, the link of online survey was sent to email of target respondents to collect data.

2.2.2. Measurement

The questionnaire was designed based on the previous measurement, translated into Vietnamese, and pretested. The observed variables were measured by the Likert scale with anchors ranging from 1- totally disagree to 5- totally agree to measure the observed variables. Besides, there are some close-ended questions to collect the respondent's information in terms of the experience in using smart phone, the similarity of mobile payment service, respondents' demographic elements. The measurement of the research factors adopted from the research of Venkatesh et al. (2012), Featherman & Pavlou (2003) and Gefen et al. (2003). In which, there are 33 items measured 8 variables included in the final questionnaire including Behavior intention (BI) - 4 items (ex. I plan to use mobile payment services in future), Performance expectancy (PE) – 4 items, Effort expectancy (EE) – 4 items, Social influence (SI) – 3 items, Facilitating conditions (FC) – 4 items, Hedonic motivation – 3 items, Trust (TR) – 4 items, Perceived risk (PR) – 7 items.

2.2.3. Data analysis

In order to analyze the statistical data after cleaning, the study will apply the following process. Firstly, descriptive statistics analysis of demographic variables will be deployed in order to demonstrate reliability and ability to represent for the target population of the sample. The results of descriptive statistics analysis will provide general information of respondents. The validity and reliability of the research constructs and the measurement items will be demonstrated through a preliminary scale testing (Cronbach' Alpha testing, Exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) analysis with the support of SPSS software packages and AMOS software with the whole collected samples. To test the reliability and internal consistency of measurement scales, the value of Cronbach' alpha reliability of all items must be more than 0.70 and the Corrected Item-Total Correlation must be equal or lager than 0.5. Concerning EFA, in order to demonstrate the suitability of factor analysis with this set of data, the result of EFA analysis must satisfy these elements: (1) Sig value. Bartlett's test <0.05 ; (2) $0.5 < \text{KMO coefficient} < 1$; and Extraction Sum of squared loading = $63,996\% > 50\%$. Convergent validity and discriminant validity will be deployed with the set of retaining items after eliminating the

items that are not satisfied with the reliability requirement. In particular, the convergent validity assessment needs to satisfy two requirements, in which each construct must have the standardized regression loading value of each construct greater than 0.5 and the average variance extracted (AVE) over 0.5. The discriminant validity assessment is required to show the greater value in the comparison between the AVE of each pair of the research constructs and the corresponding squared inter-constructs correlation. In addition, the Confirmatory factor analysis (CFA) in order to examine the fitness of the model with the set of data need the have the indexes satisfied these criteria: $1 < \chi^2 / df < 3$; Tucker Lewis index-TLI > 0.9; GFI-Goodness of Fit Index > 0.8; CFI-Comparative Fit Index > 0.9; RMSEA-Root Mean Square Error of Approximation < 0.08 (Hair, Black, Babin, Anderson, & Tatham, 2006b). Finally, the model fitness and the relationships among the independent variables and behavior intention will be examined with the implementation of Structural Equation Modeling (SEM) analysis with the support of AMOS software.

3. Results and Discussion

3.1. Result

3.1.1. Respondents' profile and characteristics

Of the 369 valid samples after having been screened, respondents' characteristics such as experience of using smartphones and the familiarity with mobile payment service. Besides, the respondents' characteristics are expected various in terms of gender, age, income were aggregated. There were 71.3% of the respondents were female compared to 28.7% of the total respondents were male. Regarding the age of respondents, it was noticed that the majority felt into the group of 18 to 25, accounting for 78.3%. The age group of 25 to 30 constituted 12.2%. Only 9.5% of respondents were above 35 years old. Concerning the income, most of the respondents have income less than 10 million VND per month and this group captured 76.5%. There were 13.5% of respondents having monthly income more than 10 million VND. This result is accordant with the age of respondent in Vietnam context where the GDP per capita was around 2,500 USD (equal to 60 million VND) per year. Notably, 63.5% of respondents have been using smart phone more than 5 years, 25.2% of them having 3 to 5 years of using smart phone, whereas only 9.5% of samples using smart phone less than 3 years. To answer for the similarity of mobile payment service, 87.8% of surveyed people chose options of knowing and knowing but not using. Only 12.8% of respondents haven't heard about this service.

3.1.2. Constructs reliability testing by Cronbach's Alpha

The Cronbach's Alpha coefficient testing result showed that most of the measurement scales had Cronbach's Alpha coefficient ≥ 0.7 . Particularly, among independent variables, there were 06 out of 08 independent variables having Cronbach's Alpha greater than 0.8 naming Performance expectancy (PE, $\alpha=0.856$), Effort expectancy (EE, $\alpha=0.896$), Social influence (SI, $\alpha=0.883$), Hedonic motivation (HM, $\alpha=0.847$), Price value (PV, $\alpha=0.818$), and Perceived risk (PR, $\alpha=0.891$). The variables Facilitating conditions (FC) and Trust (TR) achieved an alpha reliability of 0.784 and 0.795 respectively. However, in order to improve the value of Cronbach's Alpha, two observed variables were eliminated including FC4 (I can get help from others when I have difficulties using mobile payment and PR5 (Using mobile payment will not fit well with my self-image.). Because these items have the Corrected Item-Total Correlation less than 0.4 the and after eliminating these items, the Cronbach's alpha values of Facilitating conditions and Perceived risk have been improved The dependent variable, Behavioral intention (BI) had the Cronbach's Alpha coefficient of 0.867. This result is a consequence of a well-designed, clear questionnaire, well-grouped, and satisfied samples (Hair, Black, Babin, Anderson, & Tatham, 1998).

3.1.3. Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) was conducted to test the validity of the measurement of independent variables that met the requirements of Cronbach's Alpha reliability testing. By using SPSS version 22.0, the exploratory factor analysis produced the results as presented in Table 1 below. The results of EFA satisfied these elements: (1) Sig value. Bartlett's test = 0.000 < 0.05; (2) 0.5 < KMO

coefficient = 0.884 <1; Extraction Sum of squared loading = 63,996% > 50%. This result demonstrated for the suitability of factor analysis with this set of data. At the same time, the factorization results in seven factors. There were there items eliminated including FC3, FC1, and TR4 because they have the factor loading less than 0.5. Furthermore, the observation of the scale of Effort expectancy (EE) and FC2 (I have the knowledge necessary to use mobile payment) converge into a new factor of 5 items. This result is reasonable because this observed variable also mention the extent of ease connected with the use of mobile payment from the academic background of respondents.

Table 1: Factor rotation matrix result

Variable	Component						
	1	2	3	4	5		
PR2							
PR7	.760						
PR3	.757						
PR6	.749						
PR4	.745						
PR1	.739						
EE4		.862					
EE3		.849					
EE2		.809					
EE1		.806					
FC2		.599					
BI3			.889				
BI4			.865				
BI1			.781				
BI2			.528				
PE2				.902			
PE3				.789			
PE1				.693			
PE4				.646			
SI2					.868		
SI1					.864		
SI3					.772		
HM2						.880	
HM1						.844	
HM3						.704	
TR2							.912
TR3							.685
TR1							.674

Source: The result of data analysis by SPSS, 2019

The model after revision is presented in the figure 2 below.

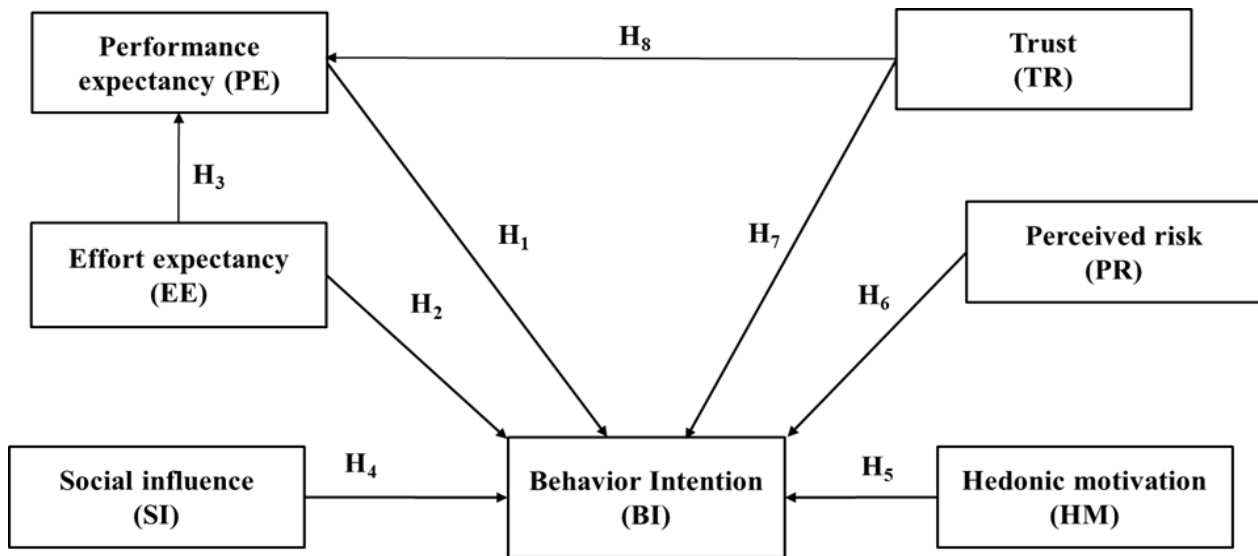


Figure 2: The revised research model

3.1.4. Confirmatory factor analysis (CFA)

After modifying the model, the Confirmatory factor analysis (CFA) was deployed to analyze the measurement scale, testing the fitness of the model with the set of data (Hair, Black, Babin, Anderson, & Tatham, 2006a). CFA by AMOS 22.0 showed that model's indexes have results as follows: CMIN = 654.856; $1 < \text{CMIN}/\text{df} = 1.990 < 3$; $\text{TLI} = 0.936 > 0.9$; $\text{GFI} = 0.814 > 0.8$; $\text{CFI} = 0.944 > 0.9$; $\text{RMSEA} = 0.052 < 0.08$. All of these indexes are significant at 99% (p-value = 0,000). Therefore, it can be concluded that this model is fit with research data. Composite reliability (CR) of all variables is greater than 0.6; variance extracted (VE) of all variables is greater than 0.5. Thus the convergent validity of measurement scale is still being ensured.

3.1.5. Result of SEM analysis

The result of SEM analysis showed that the model fit to the set of data. In particular, $\text{CMIN} = 728.8124$; $1 < \text{CMIN}/\text{df} = 2.193 < 3$; $\text{TLI} = 0.936 > 0.9$; $\text{GFI} = 0.877 > 0.8$; $\text{CFI} = 0.932 > 0.9$; $\text{RMSEA} = 0.057 < 0.08$; $p = 0.000$. Besides, 06 out of 08 hypotheses were supported at the significant level of 5%. Two hypotheses were not supported including H5: Hedonic motivation has a positive influence on customer's behavior intention to adopt mobile payment services and H8: Perceived risk has a negative influence on customer's behavior intention to adopt mobile payment services. The result of testing hypotheses is presented in the table 2 below.

Table 2: The result of testing hypotheses

Hypothesis		Estimate	S.E.	C.R.	P
H1: Performance expectancy has a positive influence on customer's behavior intention to adopt mobile payment services.	BI <--- PE	.251	.076	3.302	***
H2: Effort expectancy has a positive influence on customer's behavior intention to adopt mobile payment services.	BI <--- EE	.151	.065	2.322	.020
H3: Effort expectancy has a positive influence on Performance expectancy	PE <--- EE	.390	.055	7.095	***

<i>H4: Social influence has a positive influence on customer's behavior intention to adopt mobile payment services.</i>	BI <--- SI	.123	.055	2.240	.025
<i>H5: Hedonic motivation has a positive influence on customer's behavior intention to adopt mobile payment services.</i>	BI <--- HM	.100	.065	1.551	.121
<i>H7: Trust has a positive influence on Performance expectancy.</i>	BI <--- TR	.263	.077	3.408	***
<i>H7: Trust has a positive influence on Performance expectancy.</i>	PE <--- TR	.293	.063	4.672	***
<i>H8: Perceived risk has a negative influence on customer's behavior intention to adopt mobile payment services.</i>	BI <--- PR	-.046	.047	-.966	.334

Source: The result of data analysis by SPSS, 2019

3.2. Discussion

As presented, 06 hypotheses received empirical supported. The findings revealed that 06 key factors such as performance expectancy (PE), effort expectancy (EE), social influence (SI), facilitating conditions (FC), price value (PV) and trust (TR) affect customer behavior intention to adopt mobile payment service. These results are consistent with existing literature in the information system area (e.g. Venkatesh et al., 2003, 2012), in the mobile payment context (e.g. A.A.Alalwan et al., 2018) and in Vietnam as well (e.g. Dao My Hang et al., 2018). Moreover, the empirical results have supported the two significant relationships of effort expectancy versus performance expectancy (EE) and trust (TR) versus performance expectancy. These are in line with prior studies (Davis et al., 1989; Luo et al. 2010).

However, as seen in Table 3, the path coefficient between hedonic motivation and behavior intention is found to be non-significant, which means the respondents are not concerned about the aspects associated with hedonic factors informing their intention to adopt mobile payment. Arguably, the important and natural role of hedonic motivation in shaping behavior intention to use mobile payment has been observed varying over the prior literature of online banking technologies. For instance, the findings from 79 UTAUT2 empirical studies revealed that only 46 studies (58%) utilized *hedonic motivation* while the remaining 33 studies (42%) omitted the construct. Unlike UTAUT2, moderator's association of hedonic motivation were non-significant in determining consumer intention to use technology (Kuttamani Tamilman et al., 2019). Finally, it can be explained that Millennials focus on convenience, not the feeling of cheerfulness, joy or enjoyment, which is stimulated by applying technology.

The empirical results of this study also indicated that perceived risk did not have a negative influence on behavior intention. In this context, the abandonment value of Millennials is not high and Vietnamese mobile payment service provider is confident that they can find a way to manage the money flowing through the mobile network in order to ensure the interests of both consumers and regulators.

Results of the current study have profoundly contributed to the area of the information system and mobile payment by extending the current understanding regarding such important phenomena of interest as well as providing valuable insights for academic perspective. Firstly, this study reviews and evaluates the most updated models and theories conducted in the technology field. Significantly, this study creates concern regarding the applicability of these theories over customer contexts. Thus, the UTAUT2 was extended by including the trust and perceived risk. Indeed, trust is one of the most frequently used and predictive factors that was proposed along with UTAUT2 factors in the same conceptual model which demonstrates a significant contribution to the expansion of the theoretical horizon of the UTAUT2. Besides, this study provides new trends via examining the impact of effort expectancy on performance

expectancy and the impact of trust on performance expectancy. As discussed above, the current study will facilitate understanding of customers' behavior intention towards using mobile payment.

4. Conclusion

This study was conducted with the aim to clarify and identify the main factors influencing Millennials customers' intention to use mobile payment services. In order to explain the behavioral intention of using such technology from the customer's perspective, the proposed conceptual model was built based on the UTAUT2, which was also extended by including the factors perceived risk and trust. Data for the study was collected from 369 Millennials living in Ho Chi Minh City and some other provinces. The factors namely performance expectancy, effort expectancy, social influence, and trust were able to significantly predict the customer behavioral intention. By doing so, this study was able to provide both academics and practitioners with significant contributions.

Firstly, in academic terms, the study helped to introduce the system of scales for measuring the factors shaping behavioral intention towards the use of mobile payment services in Vietnam, a concept which has earned much attention in the world as well as Vietnam. The study has also tested the use of UTAUT2 in the context of studying about mobile payment services and proposed a new approach in integrating new factors into the model. This can be considered as a reference model in developing future research directions. Secondly, the study result provided researchers in the field of behavioral science with a better overview of the factors affecting the behavioral intention towards the use of mobile payment services in Vietnam. Thirdly, the study also helped companies, businesses, and organizations operating in the field of mobile payment services to exploit the factors directly influencing the intention to use mobile payment services so that they can devise suitable strategies to enhance the behavioral intention towards using mobile payment services of the Vietnamese, thus boost their business.

A number of research directions could enrich the study stream. The data in the study was mainly collected from Ho Chi Minh City and surrounding provinces, with research subjects mostly belonging to the 18-34 age group. The penetration of mobile payment services may vary among countries due to their different economic, cultural, social, technological, and demographic features, so it is necessary to expand the scope of data collection and sampling.

The study was conducted under the quantitative approach, without focused group interviews. This, in turn, could have constrained the ability of the current study to have a closer look by clarifying more of the issues related to customers' intention towards mobile payment services. Therefore, conducting a mixed-method approach (quantitative and qualitative) could provide a more detailed explanation of the current study's results particularly regarding those non-significant relationships.

The study only showed a number of factors affecting the intention to use mobile payment services, but not the actual adoption of customers towards this type of service. Therefore, studying the relationship between the intention to use and the actual adoption behavior of customers might reveal more details into the usage behavior of customers for mobile payment services. In addition, it is necessary to analyze in-depth the influence of demographic factors such as gender, age, income, and technology experience to understand the different levels of impact on the behavior of different target groups. Furthermore, moderator variables could be included in the model to show the factors that can increase or decrease the relationship between the factors and customer intention to use mobile payment services.

Further, the study has not looked at the problem from the service providers' perspective, but fully on the customers' perspective. Therefore, this could be a limitation for not providing a full picture of clarifying the main aspects related to the successful implementation and adoption of mobile payment services from both sides i.e., customers and service providers.

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APPENDIX 1.

BẢNG KHẢO SÁT

Ý định sử dụng dịch vụ Thanh toán di động (Mobile Payment)

Thân gửi Quý anh/chị,

Chúng tôi đang tiến hành nghiên cứu về ý định sử dụng dịch vụ Thanh toán di động (Mobile Payment). Rất mong các anh/chị dành khoảng 05 đến 07 phút trả lời bảng khảo sát này. Tất cả các câu trả lời trung thực của anh chị sẽ giúp ích rất nhiều cho nghiên cứu.

Các thông tin anh/chị cung cấp để khảo sát và nhận quà sẽ được cam kết bảo mật.

Xin chân thành cảm ơn anh/chị!

I. CÂU HỎI THÔNG TIN CHUNG

1. Kinh nghiệm sử dụng điện thoại thông minh của anh/chị:

- Dưới 1 năm
- Từ 1 năm – dưới 3 năm
- Từ 3 năm – dưới 5 năm
- Trên 5 năm

2. Về Thanh toán di động (Mobile Payment):

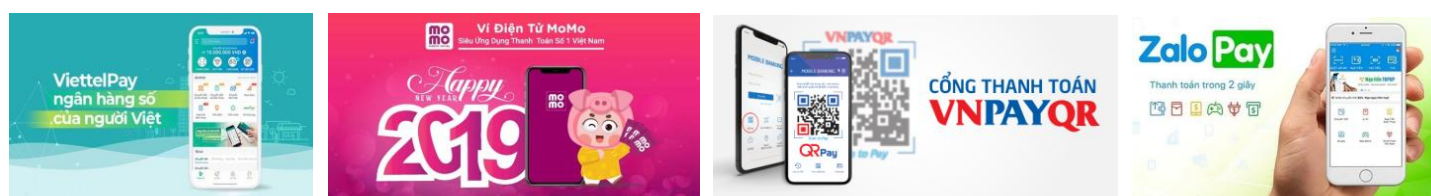
- Hiện tại tôi đang sử dụng Ứng dụng Thanh toán di động
- Tôi có biết đến Thanh toán di động nhưng hiện tại không sử dụng
- Tôi không biết về Thanh toán di động

II. VỀ THANH TOÁN DI ĐỘNG

Dịch vụ thanh toán di động là một dịch vụ thanh toán hiện đại được dựa trên nền tảng công nghệ viễn thông không dây của mạng điện thoại di động. Dịch vụ này cho phép người dùng thực hiện các giao dịch thanh toán, chuyển tiền thông qua các thiết bị di động như điện thoại di động, máy tính bảng hay các thiết bị di động cá nhân khác tại bất cứ đâu, bất cứ khi nào một cách nhanh chóng, an toàn mà không cần thông qua các kênh thanh toán truyền thống qua ngân hàng như tiền mặt, séc hay thẻ.

Khi cần thanh toán, chỉ cần chạm điện thoại vào máy POS hoặc quét mã QR code, quá trình thanh toán sẽ được hoàn tất với Thanh toán di động. Bạn chỉ cần xác thực bằng mống mắt, dấu vân tay hoặc mã PIN, các thao tác còn lại khi thanh toán sẽ được ứng dụng hoàn tất.

Hiện nay, ở Việt Nam đã xuất hiện nhiều nền tảng ứng dụng Thanh toán di động cho điện thoại thông minh tiêu biểu có thể kể đến:



III. CÂU HỎI CHÍNH

Xin anh/chị vui lòng cho biết mức độ đồng ý hoặc không đồng ý cho các phát biểu sau đây về những nhận định liên quan đến dịch vụ Thanh toán Di động (Mobile Payment) bằng cách khoanh tròn vào MỘT con số ở mỗi phát biểu.

Từ trái sang phải, mức độ đồng ý của anh/chị sẽ tăng dần theo quy ước:

1: Hoàn toàn không đồng ý; 2: Không đồng ý; 3: Trung lập; 4: Đồng ý; 5: Hoàn toàn đồng ý.

STT	Phát biểu	Mức độ đánh giá				
1	Tôi thấy việc sử dụng Thanh toán di động có ích cho cuộc sống hàng ngày của tôi	1	2	3	4	5
2	Tôi thấy việc sử dụng Thanh toán di động làm tăng khả năng hoàn thành những công việc quan trọng của tôi	1	2	3	4	5
3	Tôi thấy việc sử dụng Thanh toán di động giúp tôi làm việc nhanh chóng hơn	1	2	3	4	5
4	Tôi thấy việc sử dụng Thanh toán di động giúp tôi làm việc năng suất hơn	1	2	3	4	5

5	Tôi thấy mình có thể dễ dàng học cách sử dụng Thanh toán di động	1	2	3	4	5
6	Tôi thấy các tương tác khi sử dụng ứng dụng Thanh toán di động rất dễ hiểu	1	2	3	4	5
7	Tôi thấy ứng dụng Thanh toán di động dễ sử dụng	1	2	3	4	5
8	Tôi thấy dễ dàng để sử dụng ứng dụng Thanh toán di động một cách thành thực	1	2	3	4	5
9	Những người quan trọng với tôi nghĩ rằng tôi nên sử dụng Thanh toán di động	1	2	3	4	5
10	Những người có khả năng tác động đến tôi nghĩ rằng tôi nên sử dụng Thanh toán di động	1	2	3	4	5
11	Những người mà tôi tôn trọng ý kiến nghĩ tôi nên sử dụng Thanh toán di động	1	2	3	4	5
12	Tôi thấy tôi có đủ nguồn lực cần thiết để sử dụng Thanh toán di động	1	2	3	4	5
13	Tôi thấy tôi có đủ kiến thức để sử dụng Thanh toán di động	1	2	3	4	5
14	Tôi thấy ứng dụng Thanh toán di động tương thích với những công nghệ khác mà tôi sử dụng	1	2	3	4	5
15	Tôi thấy tôi có khả năng được giúp đỡ khi gặp khó khăn trong việc sử dụng Thanh toán di động	1	2	3	4	5

16	Tôi thấy việc sử dụng Thanh toán di động vui	1	2	3	4	5
17	Tôi thấy việc sử dụng Thanh toán di động thú vị	1	2	3	4	5
18	Tôi thấy việc sử dụng Thanh toán di động giải trí	1	2	3	4	5

19	Tôi thấy việc sử dụng Thanh toán di động tiềm ẩn khả năng khiến tài khoản ngân hàng của tôi bị lừa đảo	1	2	3	4	5
20	Tôi thấy việc sử dụng Thanh toán di động khiến tài khoản ngân hàng của tôi gặp rủi ro về tài chính	1	2	3	4	5
21	Tôi thấy việc sử dụng Thanh toán di động khiến sự riêng tư của tôi gặp rủi ro	1	2	3	4	5
22	Tôi thấy hackers có thể kiểm soát tài khoản ngân hàng của tôi thông qua Thanh toán di động	1	2	3	4	5
23	Tôi thấy việc sử dụng Thanh toán di động không phù hợp với thương hiệu cá nhân của tôi	1	2	3	4	5
24	Tôi thấy Thanh toán di động có thể trục trặc và khiến tài khoản ngân hàng của tôi gặp rắc rối	1	2	3	4	5
25	Nhìn chung, tôi thấy việc sử dụng Thanh toán di động khiến tôi có thể gặp rủi ro	1	2	3	4	5

26	Tôi tin rằng tài khoản cá nhân của tôi sẽ được bảo mật khi sử dụng Thanh toán di động	1	2	3	4	5
27	Tôi hoàn toàn an tâm khi thực hiện giao dịch thông qua Thanh toán di động	1	2	3	4	5
28	Tôi tin rằng các giao dịch thông qua Thanh toán di động sẽ được thực hiện một cách chính xác	1	2	3	4	5
29	Tôi tin rằng các giao dịch thông qua Thanh toán di động sẽ được thực hiện một cách dễ dàng	1	2	3	4	5

30	Tôi định sử dụng Thanh toán di động trong tương lai.	1	2	3	4	5
31	Tôi sẽ luôn thử sử dụng Thanh toán di động trong cuộc sống hàng ngày của mình	1	2	3	4	5
32	Tôi có kế hoạch sử dụng Thanh toán di động trong tương lai	1	2	3	4	5
33	Tôi đoán là tôi sẽ sử dụng Thanh toán di động trong tương lai	1	2	3	4	5

IV. THÔNG TIN CÁ NHÂN

1. Giới tính của anh/chị:

- Nam
 Nữ
 Khác

2. Tuổi của anh/chị

- Dưới 18
 Từ 18 – dưới 25
 Từ 25 – dưới 30
 Từ 30 - dưới 35
 Từ 35 - dưới 40
 Từ 40 - dưới 45
 Từ 45 tuổi trở lên

3. Thu nhập 1 tháng

- Dưới 5.000.000 VND
 Từ 5.000.000 đến dưới 10.000.000 VND
 Từ 10.000.000 đến dưới 15.000.000 VND
 Từ 15.000.000 đến dưới 20.000.000 VND
 Từ 20.000.000 VND trở lên

4. Trình độ học vấn của anh/chị

- THPT
 Đại học/Cao đẳng
 Thạc sĩ
 Tiến sĩ
 Khác.

V. KẾT THÚC KHẢO SÁT

Anh/chị còn muốn chia sẻ, đóng góp, đưa ý kiến gì khác cho chúng tôi không?

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XIN CHÂN THÀNH CẢM ƠN!

**EXAMINING THE ROLE OF SELF-IMAGE CONGRUENCE AND
VOLUNTEER MOTIVATION IN VOLUNTEER INTENTION OF STUDENTS IN
TOURISM EVENTS AND FESTIVALS: THE CASE OF DANANG, VIETNAM**
KIỂM ĐỊNH VAI TRÒ CỦA SỰ TƯƠNG ĐỒNG HÌNH ẢNH CÁ NHÂN VÀ ĐỘNG CƠ
TÌNH NGUYỆN ĐỐI VỚI Ý ĐỊNH LÀM TÌNH NGUYỆN CỦA SINH VIÊN
TRONG CÁC SỰ KIỆN VÀ LỄ HỘI DU LỊCH: TRƯỜNG HỢP TẠI ĐÀ NẴNG, VIỆT NAM

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ABSTRACT

Volunteers play an integral role in operating events effectively and successfully. Furthermore, students are becoming more proactive in volunteering and constituting a vast major of volunteer workforce in events. Although there is the growth of studies investigating volunteer intention, little research has been done for this particular source of volunteer labor. The current study measures the influences of self-image congruence and distinct components of volunteer motivation on students' intention of volunteering in tourism events and festivals. By using Partial Least Square – Structural Equation Modelling, the proposed structural model was examined with a sample of 302 students who are both experienced volunteers and potential volunteers. The results indicated that students' self-image congruence and volunteer motivation factors including Career experience and leisure, Event concerns had a positive significant impact on their intention of volunteering for future tourism events and festivals. These findings contribute to a better understanding of determinants of youth volunteer behavior and help event managers create effective volunteer recruitment and retention strategies. Several directions for further research are also suggested.

Keywords: *Human resources, volunteer motivation, volunteer intention, volunteerism, tourism events.*

TÓM TẮT

Tình nguyện viên đóng vai trò quan trọng trong việc vận hành sự kiện một cách hiệu quả. Ngày nay, sinh viên ngày càng năng động hơn trong việc làm tình nguyện, chiếm đông đảo lực lượng tình nguyện viên trong các sự kiện. Mặc dù việc điều tra ý định làm tình nguyện đã được thực hiện ở các nghiên cứu trước đây, rất ít nghiên cứu quan tâm đến nguồn lao động tình nguyện này. Nghiên cứu này đo lường mức độ ảnh hưởng của sự tương đồng hình ảnh và các thành phần của động lực tình nguyện của sinh viên đối với ý định tình nguyện tại các sự kiện du lịch. Bằng cách sử dụng Mô hình Phương trình cấu trúc bình phương tối thiểu riêng phần (PLS-SEM), mô hình nghiên cứu đề xuất đã được kiểm định với 302 sinh viên là các tình nguyện viên có kinh nghiệm hoặc tiềm năng. Kết quả chỉ ra rằng sự tương đồng về hình ảnh cá nhân và các động cơ tình nguyện bao gồm Kinh nghiệm nghề nghiệp và giải trí, Sự quan tâm về sự kiện (Career experience and leisure, Event concerns) có tác động tích cực đến ý định tình nguyện của sinh viên cho các sự kiện và lễ hội du lịch. Những phát hiện này góp phần hiểu rõ hơn về các yếu tố quyết định hành vi tình nguyện của lực lượng tình nguyện viên trẻ, từ đó giúp các nhà quản lý sự kiện tạo ra các chiến lược tuyển dụng và duy trì nguồn nhân lực tình nguyện hiệu quả. Các hướng nghiên cứu trong tương lai cũng được đề xuất.

Từ khóa: *Quản trị nguồn nhân lực, tình nguyện viên, động cơ tình nguyện, ý định tình nguyện, sự kiện và lễ hội du lịch.*

1. Introduction

Events require high-quality management not only in terms of their scale, scope and timeline but also in terms of human resource management. Van der Wagen (2007) emphasized that the event business was the most challenging environment for human resource management. Unlike other fields in economy, in events and festivals, the quality of service essentially depends on the quality as well as the quantity of staffs. The event sector is usually viewed as being 'labor intensive' (as opposed to capital intensive)

which means relying heavily on human resources rather than operational resources (i.e. computers) in delivering products to customers (Evans, 2015).

Salem, Jones, and Morgan (2012) described the event product as a unique mixture of activities which were the tools for gaining the overall event purposes and satisfying customers' demands. In order to achieve its aims, an event must meet human needs at all levels. Therefore, human resources management, with the purpose of providing an optimal experience for the audience, is a vital part of product planning. In the event environment, there are many different arrangements with a multitude of staffs working traditional jobs as full time or permanent employees. However, it is undeniable that the success of every event is attributed by the devotions of volunteers to certain extent.

One of the most fundamental tasks in assuring success of a volunteer program is to understand volunteers' preferences and design volunteer activities accordingly. Due to their roles, volunteers should be treated as an important customer group (Wymer, 2003). For many individuals, volunteering utilizes a significant percentage of nonworking time, which represents a willingness to dedicate one's discretionary time, for which many other activity choices compete (Gibson, 2006; Stebbins & Graham, 2004). Students with their enthusiasm and youth constitute a vast major for volunteer force. They become more and more proactive in volunteer work in events because their characteristics are suitable to this sector requiring flexibility and freshness. Although it was anticipated that opportunities involved with volunteer programs would be popular and that experience was rewarding and met student expectations, little is known about youth volunteer behavior (Auld, 2004). The literature of event also demonstrates the growth of investigating volunteer intention (e.g. Dickson, Darcy, Edwards, & Terwiel, 2015; Love, Hardin, Koo, & Morse, 2011; MacLean & Hamm, 2007), however, there is the lack of studies concerning this particular source of volunteer labor – students. So as to further understand the insight of this important labor, students' self-image concept towards volunteering was examined to explore the inter-relationships between self-image congruency, students' motivations and their intention of volunteering in tourism events and festivals.

By filling this identified research gap, the research contributes to the literature of event management by evaluating the significance level of each motivation from students' perspective. Furthermore, this study also strengthens the importance of self-image congruence as an antecedent of volunteer motivation and intention. Findings also allows event managers to create marketing campaigns which can effectively target, recruit, select and retain this valued source of volunteer labor, resulting in a more successful volunteer program administration.

2. Literature Review

2.1. Volunteering in Events

Volunteering is defined as “any activities in which time is given freely to benefit another person, group, or organization” (Wilson, 2000, p. 215). Volunteering is a service without salary (Cnaan, Handy & Wadsworth, 1996) demanding a sense of duty on the part of volunteers regarding to time, effort, and skill development (Holmes, Smith, Lockstone-Binney & Baum, 2010).

Stebbins (1982) conceptualizes volunteering as ‘a skill and knowledge-based activity in which people can have a career in a special social world’. This activity provides volunteers with the opportunity for socializing, improving professional competencies and interpersonal skills, as well as contributing to learning and personal development. Volunteers devote their leisure time to the public or client interests (Stebbins, 1992) and performs an unpaid and planned activity, within a formal structure (public, private, or non-profit), involving some type of time commitment (Gallarza, Arteaga & Gil-Saura, 2013).

In order to guarantee the consistency throughout this study, volunteering is defined as ‘an unpaid activity where someone gives their time to help an organization or individual to whom they are not

related' (VolunteeringEngland, 2008, p. 1). In general, volunteers generally give a shorter commitment, and there is a lack of negative consequence if they resign before their work is completely finished (unlike paid staffs).

2.2. Theoretical Background of Research

2.2.1. Volunteer Intention

According to Blau and Holladay (2006) and Mohamed, Taylor, and Hassan (2006), *volunteer intention* can be defined as planning to continue serving as a volunteering member and the strength of one's conscious plans to be involved in subsequent volunteering activities. Moreover, an intention to volunteer for an event is a function of the perceived contribution of volunteering and the rewards an individual expects to receive as a result of volunteer experience (Bang, Won & Kim, 2009). Among various genres of outcomes in volunteerism, volunteer intention to continue volunteering should be primarily considered as a dependent factor of striking antecedents in volunteer studies (Clary et al., 1998) in comparison with other factors, such as volunteer satisfaction (Coghlan & Pearce, 2010) and volunteer experience (Pajo & Lee, 2011).

Therefore, as one type of volunteer outcomes, identifying the intention to continue volunteering has been regarded as an vital issue in many organizational studies (Blau & Holladay, 2006; Mohamed et al., 2006). Organizational studies seemed inclined to focus on intention to leave as a consequence of a job in which turnover rates (intention to leave a job) for full-time employees is of concern. However, there is few research that has investigated the factors affecting individual's intention to continue volunteering (Karl, Peluchette & Hall, 2008; Kim, Chelladurai & Trail, 2007), especially within tourism contexts (e.g., events and festivals). An effective way to steadily increase volunteers' levels of intention is to match activities and responsibilities with individuals' motivation to volunteer. Individuals whose motivations were met during a volunteering experience are more likely to state positive intention (Clary et al., 1998).

2.2.2. Volunteer Motivation

In the literature on volunteering, various definitions of volunteer motivations have been proposed (Clary et al., 1998; Khoo & Engelhorn, 2011; Lai, Ren, Wu, & Hung, 2013; Pearce, 1983; Warner, Newland, & Green, 2011). Volunteer motivation can be defined as a drive of individuals to seek out volunteer opportunities, to commit themselves to voluntary helping, and to sustain their involvement in volunteerism over extended periods of time (Clary et al., 1998; Pearce, 1983).

Regarding to the rational recognition of motivation, a number of studies within event management have strived to develop various types of measurement scales for volunteer motivation within in a special event context (Monga, 2006). The increasing interest of measurement issue for volunteer motivation have yielded the prominent measurement scales such as VFI (Volunteer Functions Inventory) suggested by Clary et al. (1998) and the SEVMS (Special Event Volunteer Motivation Scale) with the initiative of Farrell, Johnston, and Twynam (1998) in the domain of special events.

In particular, Clary et al. (1998) identified six underlying motivations for volunteering. The *values* motive denotes the expression of personal values like altruism and humanitarianism. The *understanding* function refers to the seeking out of learning opportunities and the acquisition of knowledge and skills. The *self-enhancement* motive focuses on promoting a positive outlook through taking opportunities for personal growth. The *career* motive is associated with volunteering to help one's career. The *social* motive reflects a response to the normative influences of one's social network, and the *protective* motive functions as an approach to tackling personal problems or negative affect. For the smaller scale events, the analysis of the SEVMS items highlighted a strong sense of "purposiveness," altruism, or a giving back to the community (Farrell et al., 1998; Giannoulakis, Stotlar, & Chatziefsthathiou, 2008; Khoo & Engelhorn, 2011).

Furthermore, Warner et al. (2011) suggest dimensions of volunteer motivation, such as contribution to society, contribution to the nation, tangible rewards, and challenging tasks. Other dimensions of motivations are also identified, including *personal development* (Lee et al., 2013), *career orientation* (Bang et al., 2009), *leisure* (Kwok, Chui, & Wong, 2013), *interpersonal contacts* (Bang et al., 2009), *community concern* (MacLean & Hamm, 2007), *material/ extrinsic rewards* (Bang et al., 2009; Lee et al., 2013; MacLean and Hamm, 2007).

Due to the diversity of Da Nang tourism events and festivals in terms of both the scales and fields, in this study, it is suggested that there are the five major constructs that conceptualize volunteer motivation for participating: the self-development, career experiences, leisure, material rewards and community concern dimensions of motivation.

2.2.3. Self-Image Congruence

Self-image congruence research originated in the 1960s (e.g., Birdwell, 1968; Grubb & Grathwohl, 1967; Hamm & Cundiff, 1969). It is important to note that self-congruence, self-image congruence, self-congruity, and self-concept are used interchangeably describe this phenomenon. In early studies, the self-congruency's operationalization was a one-dimensional construct (Bellenger, Steinberg, & Stanton, 1976; Birdwell, 1968; Green, Maheshwari, & Rao, 1969). Scholars challenge the traditional approach and posit a person might have multiple 'selves' (Markus & Nurius, 1986; Onkvisit & Shaw, 1987). Recent conceptualizations construe self-concept as a multi-dimensional construct (Sirgy, Grewal, & Mangleburg, 2000; Todd, 2001). The marketing literature identifies four dimensions of self-concept to explain and predict behavior: (1) actual self-concept ("me as I am"), how a person sees himself or herself; (2) ideal-self-concept ("the good me"), how a person would like to see himself or herself; (3) social self-concept, how consumers think others see them; (4) ideal social self-concept, how a person would like to be perceived by other people (Belch & Landon, 1977; Dolich, 1969; Hughes & Guerrero, 1971; Sirgy, 1982).

According to Sirgy (1982), consumer researchers have generally used four aspects of self-image such as actual self-concept, social self-concept, ideal self-concept, and ideal social self-concept in explaining and predicting consumer behavior. However, the application of self-congruency in tourism research focuses mostly on actual self-concept. More empirical study is needed to examine the application of all the four dimensions of self-concept in the context of tourism (Sirgy & Su, 2000; Todd, 2001). Following the tourism literature (e.g., Beerli, Meneses, & Gil, 2007), this study uses the term self-image congruence to denote the match between volunteers' self-concept (actual and ideal) and the image of other volunteers. With the recent inclusion of self-image congruency in consumer behavior of attendees in festivals and events (Gration, Raciti, & Arcodia, 2011), the need to explore this concept in the context of festival and event volunteers has been underlined, specifically concerning volunteers in large scale ones. Examining self-concept provides a deeper, more improved knowledge of the relationship between events and festivals and volunteers beyond motivation, and behavioral intention.

2.3. Theoretical Framework and Hypotheses

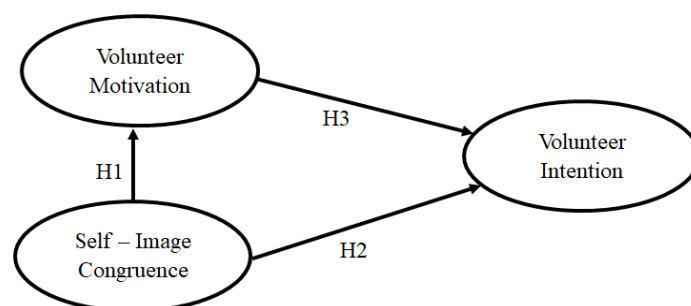


Figure 1: Conceptual framework of study

As Friese (2000) explains, "It can be inferred that the self-concept is a multi-dimensional, diverse, complex and dynamic structure, which is active, forceful, capable of change, and has motivational

consequences” (p. 57). The self-image congruence of volunteers in festivals is important in terms of marketing toward and recruiting volunteers, volunteer satisfaction, and retaining volunteers. All contribute to overall festival success. In marketing, self-image congruence theory is an important part of attitude research and has widespread implications to consumer behavior. Self-image congruence plays a crucial role in influencing consumer behaviors (Kressmann et al., 2006; Sirgy, Johar, Samli, & Claiborne, 1991; Sirgy & Samli, 1985). For instance, researches find the affection of self-image congruence on advertising effectiveness (Bjerke & Polegato, 2006; Hong & Zinkhan, 1995), facilitating positive attitudes toward products/brands (Ekinci & Riley, 2003) as well as a multitude of other aspects such as consumers' choice (Quester et al., 2000), attitudes (Ibrahim & Najjar, 2008), perceived quality (Hee Kwak & Kang, 2009), brand preferences (Jamal & Goode, 2001), and brand loyalty (Kressmann et al., 2006). Similarly, the tourism literature recognizes self-concept's influence in modeling visitor behaviors. Chon (1992) examines the relationship between tourists' self-concept/destination image congruity and satisfaction and concludes self-image congruence affects satisfaction with destinations. Regarding event volunteering in particular, as a new emerging sector in tourism, there are few studies investigating the relationship between self-image congruence and motivation as well as behavioral intentions. Self-image congruency has recently found its way into the festival and event literature concerning the consumer behavior of attendees (Gration et al., 2011). Bachman, Norman, Hopkins, and Brookover (2016) confirmed the positive coefficient existed in the relationship between self-image congruency and motivation as well as continuance commitment in the context of a music festival.

The above discussions frame the following hypotheses applied for students' volunteer in events:

Hypothesis 1 (H1): Self – image congruence has a positive influence on volunteer motivation.

Hypothesis 2 (H2): Self – image congruence has a positive influence on volunteer intention

Previous research by Knoke and Wright-Isak (1982) highlighted the need to understand volunteer motivation, commitment, and the influence of the experience on the intent to remain a volunteer (behavioral intention). A correlation between two of these factors, volunteer motivation and behavioral intention, has been found in the context of a large-scale women's professional golf tournament in Canada (MacLean & Hamm, 2007). In sport events literature, there were initiatives looking at the idea of volunteer motivation and continuance commitment within volunteer administrators (Cuskelly, Harrington, & Stebbins, 2002). Pearce (1983) reports that the greater volunteer intrinsic, social, and service motivation, the greater job satisfaction and less intent to leave. In addition, Love et al. (2011) find a strong positive correlation between volunteer motivation (e.g., altruism, personal enrichment) and behavioral intentions with the context of sport events. Although motivation is divided into different dimensions depending on the event context, the relationship between volunteer motivation and intention is proved to be significant in a wide range of researches. Based on the literature above, this study proposes the following hypothesis:

Hypothesis 3 (H3): Volunteer motivation has a positive influence on the volunteer intention.

3. Methodology

3.1. Research Instrument

The survey instrument used in this research was adapted from existing scales have been found and validated extensively in prior research, included questions about self-image congruence (SIC), volunteer motivation (MOT), volunteer intention (VIN) as well as demographics such as gender, education (year of study and major), and detailed information about the possibility to become volunteers at tourism events in Da Nang in 2019 (see Appendix). Moreover, all respondents were asked about their previous volunteer experiences.

In particular, self-image congruence was measured by four items: actual self-image, ideal self-image, social self-image, ideal social self-image (Sirgy, 1982). Volunteer motivation consists of 23-item scale, and all items adapted from the studies about motivation in the volunteer context, including: Bang et

al. (2009), Dickson et al. (2015), Kwok et al. (2013), Lee et al. (2013), MacLean and Hamm (2007). Volunteer intention included two items cited from the study by Elstad (2003): “I am likely to be a volunteer at tourism events and festivals in Da Nang next year”, “I am likely to be a volunteer at tourism events and festivals in Da Nang in five years”. Respondents were asked to evaluate the level of agreement on all 29 measurement items using a seven-point Likert scale (1 = strongly disagree, 7 = strongly agree).

Adapting from the research by Alexander (2013), previous volunteer experience was measured on a yes (1) or no (2) response in which the two related questions were asked, including: “Have you done any volunteer work before?” and “Did you volunteer in tourism events and festivals in Da Nang in the past two years?”. In addition, respondents were also asked to provide their social-demographic information as well as previous volunteer intention. The content validity of measures was reviewed by an academic expert in tourism to assess the applicability and representativeness of each measurement item. After that, a pilot study with a sample of 10 students was conducted to identify the weakness and refine the wording of measurement instrument.

3.2. Data Collection and Analysis

A self-administered survey was carried out to collect data by non-probability sampling from students studying the universities in Da Nang. The questionnaire was divided into the following sections: (1) Previous volunteer experience, (2) Reasons to volunteer, (3) Volunteer intention, (4) Demographic. It was first developed in English and translated into Vietnamese. In order to ensure the consistency of meaning between two versions, the questionnaire was double-translated. In particular, the questionnaire was translated into Vietnam by an English-Vietnamese bilingual and then translated back to English by another. Data collection procedure was conducted through both forms: online and pen-and-paper. Online questionnaires were facilitated by Google Forms and delivered through Facebook – the most popular social network platform in Vietnam. The groups of students were selected based on the description provided on their profile. In terms of paper survey, students were approached and directly asked to fill in the questionnaires. According to Hair, Black, Babin, Anderson, and Tatham (2006), the sample size should be at least five times larger than the number of variables for factor analysis. Due to the fact that the number of measurement items was 29, sample size was recommended to be at least 145 for this study. The survey was conducted within two months from February 2019 to March 2019. A total of 312 valid questionnaires were collected, including 195 online responses and 117 offline ones.

Each question of the survey in Google platform was set as a required question. The respondents could not submit the survey if they did not answer any required questions. Therefore, all the questions must be filled in before being submitted. Regarding to pen-and-paper survey, respondents are carefully required to pay attention that fill in all the questions. After they finished the survey, the collector re-checked to guarantee that all questions were finished. As a result, no missing value was recorded for the data set of 312 cases in this study. After being collected, the data was analyzed through the procedure including four steps as illustrated in Figure 2 below.

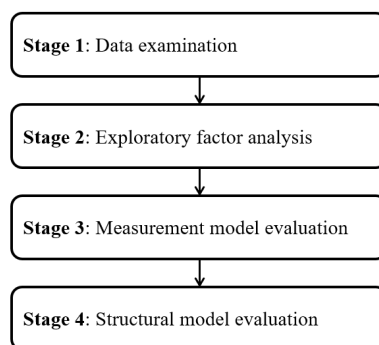


Figure 2: Data analysis procedure

In particular, the collected data was put to Excel file before exported into IBM SPSS (Statistical Package for the Social Sciences) 22.0. In the following step, unengaged responses and extreme multivariate outliers were deleted, and eventually 302 cases were retained. An exploratory factor analysis (EFA) was conducted to identify the structure of potential latent variables and reduce a data set of variables to manageable size. Afterwards, by the software of SmartPLS 3.0, the Partial Least Square - Structural Equation Modeling (PLS-SEM) was applied to examine the measurement model and structural model in this study. Criteria for these assessments were carefully considered to ensure the reliability and validity of both measurement and structural model.

4. Findings

4.1. Profile of Respondents

The sample of 302 respondents, who are studying at the universities in the area of Da Nang illustrates the abundance of demographic information in term of gender, year of study, university and major. As shown in Table 1, the female participants outnumbered the male participants (68.2% compared to 31.8%). Regarding to the educational level, there were quite similar proportions of respondents being second year, third year and fourth year students, which were 29.8%, 29.5% and 28.1% of the total respondents, respectively. By contrast, only three respondents were studying fifth year at the universities. This is reasonable because most of the universities in Da Nang require four-year training system in their educational standard. The remaining figure is freshmen, which constituted a minority (11.6%).

The proportion of people who was studying at University of Economics made up the highest percentage of the total (83.4%). Students from other universities just occupied totally nearly one-fifth of the respondents. There were less respondents majoring in Tourism and Hospitality (22.5%) than those pursuing other careers (77.5%).

Table 1: Background Profile of Respondents for the Main Study

Group	n	%	Group	n	%
<i>Gender</i>			<i>University</i>		
Male	96	31.8	University of Economics	252	83.4
Female	206	68.2	Duy Tan University	7	2.3
<i>Year of study</i>			University of Foreign Language Studies	29	9.6
First year	35	11.6	University of Science and Technology	8	2.6
Second year	90	29.8	University of Education	3	1
Third year	89	29.5	Others	3	1
Fourth year	85	28.1	<i>Volunteer works</i>		
Fifth year	3	1	Experienced	277	91.7
<i>Tourism majoring</i>			Non-experienced	25	8.3
Yes	68	22.5	<i>Volunteer in tourism events</i>		
No	234	77.5	Experienced	151	50
			Non-experienced	151	50

In terms of volunteering profile of respondents, a yes or no response was required, with the majority reporting that they had volunteered previously (91.7%). In addition, the results demonstrated the equal division between the number of respondents who used to volunteer in tourism events and that of those who did not (50% for each group). This implies that there was a fair division of groups of experienced and non-experienced tourism events volunteers in this study.

4.2. Factor Analysis

4.2.1. Exploratory factor analysis

Exploratory factor analysis was carried out on twenty-nine measurement items with the extraction method of maximum likelihood factoring and varimax rotation used. Initially, eight dimensions were

extracted with eigenvalues >1. Nevertheless, one items of “Volunteer motivation” construct (Volunteering is to explore my own strengths (MOT4)), which loaded on two factors, were deleted because of the criteria about cross loadings. A second EFA analysis was then conducted on the remaining twenty-eight items. At this time, another item of “Volunteer motivation” construct, which is “Volunteering provides an opportunity to work with people from different age groups and/or backgrounds” (MOT9), had the factor loading lower than 0.4, and thereby being eliminated. As a result, EFA analysis procedure indicates that six of all factors with twenty-seven items should be retained.

The conditions applied for conducting EFA were verified carefully for the analysis. Firstly, the Kaisere–Meyere–Olkin Measure of Sampling Adequacy (KMO) value was 0.891 exceeding the recommended value of 0.6 (Kaiser and Rice, 1974), and Bartlett’s Test of Sphericity with $\chi^2 = 4327.651$ achieved statistical significance ($p = 0.000$) (Bartlett, 1954). The communalities of all items satisfied the minimum requirement, with all the values above 0.3 (Kaiser, 1974). As a result, the sample size was sufficient for factor analysis. The twenty-seven measurement items with greater than 0.4 factor loadings (ranging from 0.412 to 0.873) were extracted into six factors (Table 2). Out of them, two factors were labeled as ‘self-image congruence’ and ‘volunteer intention’ as proposed single-dimension constructs. Other four factors were considered as four components of ‘volunteer motivation’ which were named as ‘Material rewards’, ‘Career experience and leisure motivation’, ‘Event concerns’ and ‘Self-development’. All the extracted factors had eigenvalues greater than 1 explaining approximately 56% of total variance (Table 2). The changes of numbers of factors after an EFA leads to the modification of proposed conceptual framework and corresponding hypotheses discussed above in section 2.3. Figure 3 presents a modified framework of the study with nine hypotheses.

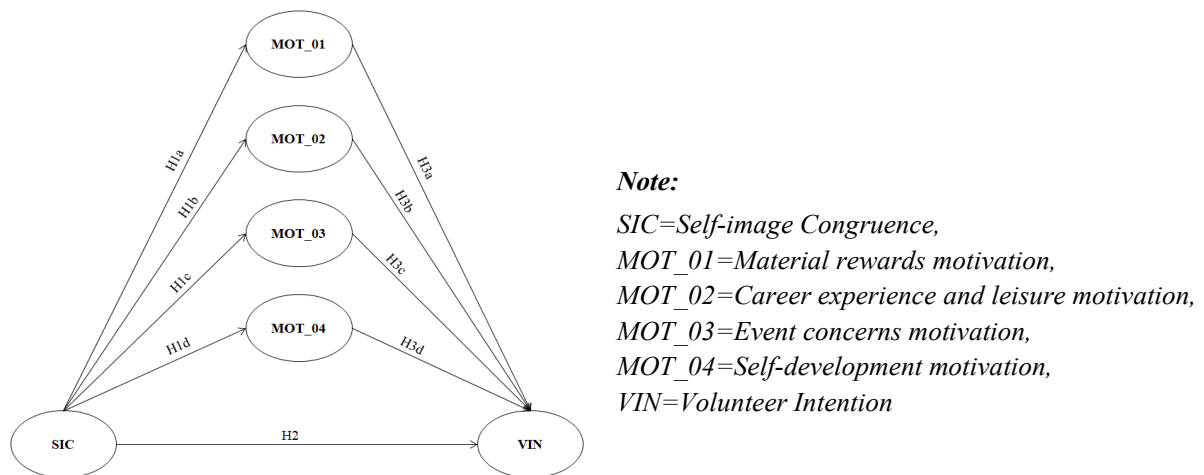


Figure 3: Modified conceptual framework after EFA

Cronbach’s alpha was computed to examine the internal consistency of five factors in the model. All of the factors had the Cronbach’s alpha value of higher than 0.7, indicating the acceptable reliability as suggested by (Nunnally, 1978).

Table 2: EFA and measurement evaluation of factors

Components/ Items	EFA			CFA			
	Factor Loadings	Eigen-values	Explained variance	Cronbach's Alpha	Outer loadings	CR	AVE
Self-image congruence		1.549	4.565	0.814		0.877	0.642
<i>The way I saw volunteers at Da Nang tourism events and festivals is consistent with how I...</i>							
SIC1_ ...see myself (Actual self-image)	0.654				0.825		
SIC2_ ...want to see of myself (Ideal self-image)	0.682				0.787		
SIC3_ ...believe others see me (Social self-image)	0.710				0.822		
SIC4_ ...would like others to see me (Ideal social self-image)	0.716				0.769		
Volunteer motivation's dimension 1: Material rewards		9.499	32.655	0.858		0.897	0.595
MOT13_ Certificate of volunteering experience will look good on my resume	0.598				0.729		
MOT14_ Volunteering at Da Nang tourism events is considered prestigious	0.588				0.818		
MOT15_ Volunteering is to make new contacts that might help my future career	0.585				0.770		
MOT16_ My university will give me an extra bonus/credit for volunteering in tourism events	0.611				0.643		
MOT17_ Complimentary items are offered to volunteers after the events	0.751				0.841		
MOT 18_ Volunteers are offered free tickets to the festivals and events	0.632				0.809		
Volunteer motivation's dimension 2: Career experience and leisure		2.249	5.423	0.824		0.869	0.487
MOT5_ Volunteering helps me work through my own personal problems	0.534				0.658		
MOT6_ Volunteering allows me to explore different career options	0.575				0.731		
MOT7_ Volunteering allows me to gain a new perspective on knowledge that I learned from school	0.477				0.696		
MOT8_ Volunteering is a way to relieve the stress of my study	0.552				0.759		
MOT10_ Volunteering provides me the excitement	0.496				0.772		
MOT11_ Volunteering is a good escape from the boring daily life	0.595				0.657		
MOT12_ Volunteering makes me less lonely	0.586				0.597		
Volunteer motivation's dimension 3: Event concerns		1.835	6.078	0.870		0.907	0.662
MOT19_ I want to make valuable contribution to Da Nang tourism events and festival	0.807				0.844		
MOT20_ I want to contribute to the success of Da Nang tourism event or festival	0.873				0.854		
MOT21_ I consider myself to be a person get involved in tourism events and festivals	0.480				0.817		
MOT22_ I am genuinely concerned about the events I will volunteer	0.412				0.776		
MOT23_ I believe hospitality student's volunteering to be good for Da Nang tourism events	0.476				0.772		
Volunteer motivation's dimension 4: Self-development		1.280	4.056	0.826		0.900	0.751
MOT1_ Volunteering is gain skills	0.764				0.908		
MOT2_ Volunteering is to gain practical experiences	0.801				0.900		
MOT3_ Volunteering is to broaden my horizons	0.583				0.786		
Volunteer intention		1.222	3.177	0.836		0.924	0.859
VIN1_ I am likely to be a volunteer at tourism events and festivals in Da Nang next year	0.762				0.922		
VIN2_ I am likely to be a volunteer at tourism events and festivals in Da Nang in five years	0.748				0.932		

KMO = 0.891, $\chi^2 = 4327.651$, $p < 0.001$

Note: EFA = Exploratory factor analysis; KMO = Kaiser-Meyer-Olkin measure; χ^2 = Bartlett's test of sphericity; CFA = Confirmatory factor analysis; CR = Composite reliability, AVE = Average variance extracted.

4.2.2. Measurement Model Evaluation

A procedure for measurement model evaluation using Smart PLS 3.0 was carried out for six components which were extracted from twenty-seven items after an EFA. The results were concluded based on the criteria set for reflective measurement model evaluation suggested by (J. Hair, Hult, Ringle, & Sarstedt, 2016). Firstly, composite reliability (CR) – the criterion for assessing the instrument’s internal consistency reliability, was examined. As can be seen from Table 2, all CR values of six constructs, including self-image congruence, material rewards motivation, career experience and leisure motivation, self-development motivation, and event concerns motivation were above the recommended value 0.7 (Nunnally & Bernstein, 1994), indicating the high internal consistency reliability. In other words, it could be evident that all six constructs were well measured by their items.

Secondly, convergent validity was assessed depending on two criteria: outer loadings and average variance extracted (AVE). For the first criteria, the outer loadings of all indicators are also depicted in Table 2. As can be seen obviously, almost factor loadings of measurement items were greater than the threshold value of 0.7 (Hulland, 1999). The factor loading of the MOT12 was 0.597, which was much lower than the minimum requirement value of 0.7. The deletion of this item can enhance AVE index of its associated construct (MOT_02), from 0.487 to 0.513. Other items consisting of MOT5, MOT7, MOT10, and MOT16, which had outer loadings ranging from 0.643 to 0.696, were retained in the measurement scale because the deletion of these items did not make any significant increasing to both of the CR and AVE values of their constructs. After removing MOT12, all of the indicators for the six constructs had the acceptable level of outer loadings that met the first criterion of convergent validity. The other criterion – average variance extracted (AVE) – should exceed the threshold of 0.5, demonstrating that constructs explained the majority of the variances as suggested by Fornell and Larcker (1981). After elimination of MOT12, results showed that the AVE values of all of the constructs were higher than 0.5, ranging from 0.513 to 0.859. To sum up, the measures of all six constructs with 26 items demonstrated convergent validity in high levels.

Finally, in order to examine the discriminant validity, the square root of AVE for each construct was compared to its correlation values with other factors (Fornell & Larcker, 1981). Results shown in Table 3 indicated the adequate discriminant validity of all six constructs in the model. In summary, all evaluation of criteria for the measurement model was completed, which satisfied the reliability, convergent and discriminant validity of all measures.

Table 3: Fornell- Larcker Criterion

Constructs	SIC	MOT_01	MOT_02	MOT_03	MOT_04	VIN
SIC	0.771					
MOT_01	0.556	0.716				
MOT_02	0.612	0.593	0.813			
MOT_03	0.422	0.587	0.442	0.866		
MOT_04	0.423	0.316	0.347	0.308	0.801	
VIN	0.442	0.434	0.485	0.271	0.404	0.927

Note: SIC=Self-image Congruence, MOT_01=Material rewards motivation, MOT_02=Career experience and leisure motivation, MOT_03=Event concerns motivation, MOT_04=Self-development motivation, VIN=Volunteer Intention

The bold diagonal elements are calculated by the square root of the AVEs and non-bold off-diagonal elements are latent variable correlations

4.3. Structural Model Evaluation

4.3.1. Evaluation of Structural Model Path Coefficients

Table 4 demonstrates the results of coefficients, the corresponding t-values, p-values in the conceptual framework. Each path relationship was examined through regression coefficients (β). The estimation of significance of β values is based on t-value, which was obtained using the Bootstrap procedure with 302 cases and 5000 resamples.

After this stage, it is concluded that seven out of nine hypotheses of direct relationships between constructs were supported. The path coefficient is considered significant if the empirical t-value is greater than 1.65 at significant level of 10%, 1.96 at a significant level of 5% and 2.57 at a significant level of 1% (J. Hair et al., 2016). Accordingly, the causal links from two dimensions of volunteer motivation to volunteer intention were insignificant with the t-values lower than 1.65. Particularly, the direct relationship between material rewards motivation and volunteer intention was insignificant with $\beta_{MOT_{Material\ rewards} \rightarrow VIN} = 0.113$, $t = 1.433$, $p > 0.1$. Similarly, self-development motivation was not recognized to be a predictor of volunteer intention with the corresponding $\beta_{MOT_{Self-development\ motivation} \rightarrow VIN} = -0.071$, $t = 1.088$, $p > 0.1$. These findings indicated that two hypotheses H3a, H3d were not supported with empirical evidence.

On the other hand, the results proved the hypothesized relationships between self-image congruence and two other constructs: volunteer motivation and volunteer intention. Firstly, in terms of four dimensions of volunteer motivation (material rewards, career experience and leisure, event concerns, and self-development motivation), the empirical t-values of the relationship between SIC and MOT_01, SIC and MOT_02, SIC and MOT_03, and SIC and MOT_04 were respectively 7.164, 4.969, 5.884 and 5.277, which were all greater than 2.57 at the significant value of 1%. Regarding direct effects between self-image congruence and volunteer intention, self-image congruence served as an antecedent in anticipating volunteer intention ($\beta_{SIC \rightarrow VIN} = 0.229$, $t = 4.039$, $p < 0.01$).

In addition, the effect of career experience and leisure motivation and event concerns motivation on volunteer intention was confirmed. In particular, career experience and leisure motivation was found as a forecaster of volunteer intention ($\beta_{MOT_{Career\ experience\ and\ leisure} \rightarrow VIN} = 0.188$, $t = 2.663$, $p < 0.01$). On top of that, it is explored that event concerns motivation positively affected students' intention to participate volunteer works with t-values 3.389 at significant level of 1%.

Out of three determinants of volunteer intention explored in this study (self-image congruence and two dimensions of volunteer motivation), event concerns motivation had the largest impact on volunteer intention with the highest β value of 0.256. In summary, the hypotheses H1a, H1b, H1c, H1d, H2, H3b, and H3c were supported in this study.

Table 4: Structural Model Evaluation

Path relation (Hypothesis)	Path coefficient	t-value	p-value	Result
H1a: Self-image congruence → Material rewards motivation	0.050	1.013 ^{ns}	0.311	Rejected
H1b: Self-image congruence → Career experience and leisure motivation	0.338	5.521 ^{***}	0.000	Supported
H1c: Self-image congruence → Event concerns motivation	0.440	7.958 ^{***}	0.000	Supported
H1d: Self-image congruence → Self-development motivation	0.151	2.701 ^{***}	0.007	Supported
H2: Self-image congruence → Volunteer intention	0.174	3.212 ^{***}	0.001	Supported
H3a: Material rewards motivation → Volunteer intention	-0.010	0.226 ^{ns}	0.822	Rejected

H3b: Career experience and leisure motivation → Volunteer intention	-0.106	2.607***	0.009	Supported
H3c: Event concerns motivation → Volunteer intention	0.597	12.469***	0.000	Supported
H3d: Self-development motivation → Volunteer intention	0.394	6.310***	0.000	Supported

Note: ^{ns} non-significant, *** $p < 0.01$

4.3.2. Coefficient of Determination (R^2 value)

The coefficient of determination (R^2 value), a measurement of the predictive accuracy of the model (J. Hair et al., 2016), is the next criteria needing verifying. This coefficient represents the amount of explained variance of each endogenous latent variable. The R^2 values – 0.67, 0.33, 0.19 – demonstrate a substantial, moderate or weak level of predictive accuracy, respectively (Chin, 1998).

There were five endogenous constructs in this study. However, according to the purpose of this research, the coefficient of determination (R^2) of one endogenous latent variable (volunteer intention) in the proposed model was examined. The results indicate that three variables including self-image congruence, career experience and leisure motivation, and event concerns motivation explained 31.8% of the total variance associated with the dependent variable – volunteer intention. Because this is a study related to behavior/intention, this R^2 value is considered to be in a moderate level of predictive accuracy (Byrne, 2001).

5. Implications and Conclusions

5.1. Theoretical Implications

Adapting from the volunteer motivation framework, volunteer motivation was confirmed as the multi-dimensional construct with four factors including *material rewards*, *career experience & leisure*, *event concerns*, and *self-development*. These motivational factors, therefore, consolidate the foundation for future empirical studies into volunteer motivation toward events related to tourism. In addition, the findings also provide the understanding the interrelationship between self-image congruence – volunteer motivation – volunteer intentions in the context of tourism events. This result is consistent with previous studies into these three constructs in the similar context by Bachman et al. (2016).

Specifically, within four motivational dimensions explored, the research findings indicated that only two factors of *career experience & leisure*, *event concerns* are found to create positive influences on volunteer intention to continue or start volunteering for tourism events festivals in the future within a community. This is inconsistent with the theoretical indicators in past researches which illustrate that volunteer intention alters depending on *personal development* motivation (Wang, 2006) or *extrinsic rewards* (Bang et al., 2009). This can be explained by two main reasons: (i) the features of respondents and (ii) the genres of events considered. In more details, while previous studies attempted to analyze experienced volunteers from all ages as the sample groups at a particular type of event (e.g. sport events), this study focuses on potential volunteers or non-experienced students in volunteering as sample populations in diverse areas of events. The students who are strongly motivated by *event concerns* are more likely to have intention of volunteering in tourism events in the future. This is the factor considered to be the most important motivation encouraging students to taking part in volunteer activities. Following that, students whose volunteer motivations rely on *career experience & leisure* also declare a high intention of volunteering. These results supported the previous studies by MacLean and Hamm (2007) and Lee et al. (2013). Both suggested that volunteer intention would be connected to the involvements in events themselves and the leisure volunteers can get. However, the current research indicates a new aspect of motivation which is career-related experience can be the antecedent of volunteer intention. Although this was identified as a dimension of volunteer motivation by Kwok et al. (2013), it was only seen as a predictor of satisfaction instead of volunteer intention in this study.

5.2. Practical Implications

Within the limited budgets of local areas, volunteering workforce is a crucial contributor to the success of tourism events and festivals. Regarding practical and managerial implications, the empirical results of this study provide valuable information for event organizers as well as host communities to plan strategies which are suitable to student volunteers' demands and motivation.

First, determining volunteer applicant self-image congruency through the measure used in this study provide insight and predictive capabilities into a volunteer's motivation and intent to take part in volunteering in the future. The existence of self-image congruency in the model demonstrates that when events' image is congruent with self-image of volunteers/potential volunteers, programs are likely to attract more good volunteers as well as enhancing their return rate, which increase the likelihood to provide great improvements in the efficient and effectiveness of events. This implies that in every event/festival, managers as well as event organizers should invest more in volunteer training in order to make volunteers become authentic ambassadors of events and deliver the soul and characteristics of events for their friends, who can be potential volunteers in the future. To sum up, this emphasizes that the ability of events to deliver their images to the volunteers is one of the most vital factors contributing to the success of events.

Second, the note-worthy paths were the direct relationships between dimensions of motivation and volunteer intention (H3). Although self-image congruence directly encourages students' motivation leading to behavioral intention, there are only two of them (career experience & leisure motivation and event concerns motivation) which positively impact on volunteer intention. Moreover, motivation related to self-development and material rewards are found to be decisive factors in whether students volunteer in tourism events or not. This reveals that much time and resources should be used in the volunteer recruitment campaigns. In these projects, event organizers should offer benefits such as contacts and external relationship which volunteers can gain when they become a part of events. Career opportunities should also be provided for volunteers who had outstanding performance. This not only helps excellent individuals to embark their occupation in event industry but also attract young generations to volunteer. Hospitable atmosphere should also be provided as a plus point in volunteering instead of extinctive advantages related to materials.

5.3. Limitations and suggestions for future research

Though the study makes a contribution to both theoretical and managerial perspectives, limitations should be acknowledged, and thereby providing recommendations for future research. The most prominent limitation lies in the sampling and data administration method. This means that there was not the balance between the quantities of participants learning tourism major and others. Students majoring tourism and event just accounted for the minority of the total respondents. In light of this limitation, future researches should collect a larger sample for the student group majoring event management. In other words, students studying the event management major should be more focused in exploring their intention of event volunteering because they are potential employees in event companies in the future. Second, this study mainly concentrates on volunteer motivation in terms of instinctive or personal factors without mentioning objective ones. Therefore, apart from self-image congruence and internal motivations (e.g. career experience and leisure, self-development), further researches should analyze external factors enhancing the likelihood of volunteering in students such as event-related factors. They could be the perceived event image in the community, event promotion campaigns, etc. Except for suggestions based on mentioned limitations, the results of this study also imply the other idea for researches in the future. Specifically, the further research is recommended to apply the tested model of this study to investigate the behavioral intention towards a specific event such as music, sport or environmental events.

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APPENDIX A

Da Nang Tourism Events' Volunteer Survey – English Version



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FACULTY OF TOURISM

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DA NANG TOURISM EVENTS' VOLUNTEER SURVEY

Dear Students,

I am Nguyen Ngoc An Nguyen - a bachelor student from Faculty of Tourism, University of Economics, The University of Da Nang. I would like to invite you to participate in my research project about your volunteer intention in tourism events and festivals. This survey will take up approximately 10 minutes to complete. Your responses will be kept confidential.

We appreciate your willingness to spend some time to participate in this study.

Please tick the box or write-in the information which best corresponds to your answer.

PART 1: INFORMATION ON YOUR VOLUNTEER EXPERIENCE

1. Have you done any volunteer work before:

- 1.1 Yes 1.2 No

2. Did you volunteer in tourism events and festivals in Da Nang in the past two years:

- 2.1 Yes 2.2 No

If yes, please specify which tourism events or festivals you did volunteer?

- DIFF (Da Nang International Firework Festival) Da Nang International Culture-Cuisine Festival
 Sport events (Color Me Run, Ironman, etc.) Music events (Coco fest Music event, etc.)
 Beach events (Fun Beach festival, etc.) Others: _____

3. Take a moment to think about the volunteers who you met when you visited a tourism event or festival in Da Nang, then indicate the level of agreement of the following statements:

The image of volunteers at Da Nang tourism events and festivals is similar to how I..

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
3.1. ...see myself							
3.2. ...would like to see myself							
3.3. ...believe others see me							
3.4. ...would like others to see me							

PART 2: REASONS TO VOLUNTEER AT TOURISM EVENTS AND FESTIVALS

4. On a scale of 1 to 7, with 1 being "Strongly disagree" and 7 being "Strongly agree", please indicate the level of agreement of the following possible reasons for volunteering at tourism events and festivals in Da Nang.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
4.1. Volunteering is gain skills							
4.2. Volunteering is to gain practical experiences							
4.3. Volunteering is to broaden my horizons							
4.4. Volunteering is to explore my own strengths							
4.5. Volunteering helps me work through my own personal problems							
4.6. Volunteering allows me to explore different career options							
4.7. Volunteering allows me to gain a new perspective on knowledge that I learned from school							
4.8. Volunteering is a way to relieve the stress of my study							
4.9. Volunteering provides an opportunity to work with people from different age groups and/or backgrounds							
4.10. Volunteering provides me the excitement							
4.11. Volunteering is a good escape from the boring daily life							
4.12. Volunteering makes me less lonely							
4.13. Certificate of volunteering experience will look good on my resume							
4.14. Volunteering at Da Nang tourism events is considered prestigious							
4.15. Volunteering is to make new contacts that might help my future career							
4.16. My university will give me an extra credit for volunteering in tourism events							
4.17. Complimentary items are offered to volunteers after the events							
4.18. Volunteers are offered free tickets to the festivals and events							
4.19. I want to make valuable contribution to Da Nang tourism events and festival							
4.20. I want to contribute to the success of Da Nang tourism event or festival							
4.21. I consider myself to be a person who gets involved in tourism events and festivals							
4.22. I am genuinely concerned about the events I will volunteer							
4.23. I believe student's volunteering to be good for Da Nang tourism events							

PART3: YOUR FUTURE VOLUNTEER IN TOURISM EVENTS AND FESTIVALS

1. On a scale of 1 to 7, with 1 being “*Strongly disagree*” and 7 being “*Strongly agree*”, please indicate the **level of agreement** of the following possible statements related to **your commitment to volunteer** at tourism events and festivals in Da Nang.

	Strongly disagree (1)	Disagree (2)	Somewhat disagree (3)	Neutral (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)
5.1. I am likely to be a volunteer at tourism events and festivals in Da Nang next year							
5.2. I am likely to be a volunteer at tourism events and festivals in Da Nang in five years							

2. On a scale of 1 to 5, with 1 being “*Not likely*” and 5 being “*extremely likely*”, **how likely** is it that you would volunteer at each of the following tourism events in Da Nang in 2019.

	Unlike ly (1)	Some what like ly (2)	Mo de ra te ly like ly (3)	Like ly (4)	Extre me ly like ly (5)
6.1. DIFF 2019					
6.2. Sport events					
6.3. Music events					
6.4. Beach events					

PART 4: PERSONAL INFORMATION

Finally, please kindly provide us your basic personal information.

- | | |
|--|-------------------|
| <p>3. Your gender:</p> <p>7.1 Male</p> | <p>7.2 Female</p> |
| <p>4. What year of study are you in?</p> <p>8.1 First year</p> <p>8.3 Third year</p> <p>8.5 Fifth year</p> | |
| <p>5. Are you studying in tourism major?</p> <p>9.1 Yes</p> | |
| <p>6. What is your university?</p> <p>10.1 University of Economics</p> <p>10.3 University of Foreign Language Studies</p> <p>10.5 University of Education</p> | |
| <p>8.2 Second year</p> <p>8.4 Fourth year</p> <p>9.2 No</p> <p>10.2 Duy Tan University</p> <p>10.4 University of Science and Technology</p> <p>10.6 Others</p> | |

Thank you for your corporation. Have a nice day!

APPENDIX B

Da Nang Tourism Events' Volunteer Survey – Vietnamese Version

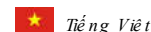


TRƯỜNG ĐẠI HỌC KINH TẾ – ĐẠI HỌC ĐÀ NẴNG

KHOA DU LỊCH

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**BẢNG KHẢO SÁT TÌNH NGUYỆN VIÊN CÁC SỰ KIỆN DU LỊCH
TẠI ĐÀ NẴNG**

Chào Bạn,

Tôi là Nguyễn Ngọc An Nguyễn, hiện là sinh viên Khoa Du lịch, Trường Đại học Kinh tế - Đại học Đà Nẵng. Tôi đang thực hiện một đề tài nghiên cứu về việc tham gia làm tình nguyện viên của sinh viên trong các lễ hội và sự kiện du lịch tại Đà Nẵng. Thân mời Bạn dành khoảng 10 phút để tham gia vào bảng câu hỏi khảo sát. Thông tin từ Bạn là rất cần thiết để nghiên cứu được thành công, và câu trả lời của Bạn được đảm bảo chi phục vụ cho mục đích nghiên cứu.

Xin chân thành cảm ơn Bạn đã dành thời gian tham gia vào nghiên cứu này.

Vui lòng đánh dấu vào ô đúng nhất hoặc ghi thông tin phù hợp nhất với câu trả lời của Bạn.

PHẦN 1: THÔNG TIN VỀ KINH NGHIỆM LÀM TÌNH NGUYỆN VIÊN CỦA BẠN

1. Bạn đã làm bất kỳ công việc tình nguyện nào từ trước đến nay chưa ?

- 1.1 Có 1.2 Chưa

2. Bạn có làm tình nguyện viên cho những lễ hội và sự kiện du lịch tại Đà Nẵng trong vòng 2 năm qua không ?

- 2.1 Có 2.2 Không

Nếu có, vui lòng chọn những sự kiện du lịch hoặc lễ hội mà bạn đã làm tình nguyện viên?

- DIFF (Da nang International Firework Festival)
 Da nang International Culture-Cuisine Festival
 Các sự kiện/lễ hội thể thao (Color Me Run, Ironman,...)
 Các sự kiện/lễ hội âm nhạc (Cocofest Music event,...)
 Các sự kiện/lễ hội biển (Fun Beach festival, Da Nang Beach Clean Up,...)
 Khác: _____

3. Hãy dừng lại giây lát suy nghĩ về những tình nguyện viên mà bạn đã gặp khi bạn đến một sự kiện du lịch hoặc lễ hội tại Đà Nẵng, sau đó lựa chọn một mức độ đồng ý với những nhận định sau:

Hình ảnh mà tôi nhìn thấy ở tình nguyện viên tại các lễ hội và sự kiện du lịch tại Đà Nẵng là giống với hình ảnh mà tôi...

Hoàn toàn không đồng ý	Không đồng ý	Khá không đồng ý	Trung lập	Khá đồng ý	Đồng ý	Hoàn toàn đồng ý
(1)	(2)	(3)	(4)	(5)	(6)	(7)

3.1. ...nhìn thấy ở bản thân mình	
3.2. ...thích nhìn thấy ở bản thân mình	
3.3. ...tin là những người khác đang nhìn thấy ở tôi	
3.4. ...thích người khác nhìn thấy ở tôi	

PHẦN 2: CÁC LÝ DO ĐỂ LÀM TÌNH NGUYỆN VIÊN TẠI NHỮNG SỰ KIỆN DU LỊCH VÀ LỄ HỘI

1. Trên thang đo từ 1 đến 7, với 1 là “Hoàn toàn không đồng ý” và 7 là “Hoàn toàn đồng ý”, vui lòng chọn mức độ đồng ý cho những lý do sau đối với việc làm tình nguyện viên tại các sự kiện du lịch và lễ hội tại Đà Nẵng.

	Hoàn toàn không đồng ý (1)	Không đồng ý (2)	Khá không đồng ý (3)	Trung lập (4)	Khá đồng ý (5)	Đồng ý (6)	Hoàn toàn đồng ý (7)
4.1. Việc làm tình nguyện viên giúp đạt được một số kỹ năng							
4.2. Việc làm tình nguyện viên giúp đạt được những kinh nghiệm thực tế							
4.3. Việc làm tình nguyện viên giúp mở rộng tầm nhìn của tôi							
4.4. Việc làm tình nguyện viên giúp khám phá những điểm mạnh của tôi							
4.5. Việc làm tình nguyện viên giúp tôi dần dần giải quyết được những vấn đề cá nhân							
4.6. Việc làm tình nguyện viên giúp tôi khám phá những lựa chọn nghề nghiệp khác nhau							
4.7. Việc làm tình nguyện viên mang đến cho tôi cái nhìn mới về những kiến thức mà tôi đã học ở trường							
4.8. Việc làm tình nguyện viên là cách để tôi giải tỏa căng thẳng trong việc học							
4.9. Việc làm tình nguyện viên mang lại cơ hội làm việc cùng những người từ các độ tuổi và nền tảng khác nhau							
4.10. Việc làm tình nguyện viên mang lại cho tôi sự thích thú							
4.11. Việc làm tình nguyện viên là lối thoát tốt khỏi cuộc sống nhàm chán hằng ngày							
4.12. Việc làm tình nguyện viên giúp tôi đỡ cô đơn							
4.13. Chứng nhận về việc làm tình nguyện viên có thể giúp hồ sơ xin việc của tôi tốt hơn							
4.14. Việc làm tình nguyện viên tại các sự kiện du lịch Đà Nẵng được xem là có uy tín							
4.15. Việc làm tình nguyện viên mang lại cho tôi những liên lạc mới giúp ích cho công việc tương lai							
4.16. Nhà trường sẽ trao tiền thưởng/giấy chứng nhận khi tôi làm tình nguyện viên cho các sự kiện du lịch							
4.17. Các phần thưởng được trao cho tình nguyện viên cuối mỗi sự kiện							
4.18. Các tình nguyện viên được tặng các vé miễn phí vào các sự kiện và lễ hội							
4.19. Tôi muốn có những đóng góp có giá trị vào các sự kiện du lịch và lễ hội tại Đà Nẵng							
4.20. Tôi muốn đóng góp vào thành công của các sự kiện du lịch và lễ hội tại Đà Nẵng							
4.21. Tôi xem bản thân mình là một người có liên quan đến các sự kiện du lịch và lễ hội							

4.22. Tôi thành thật quan tâm về các sự kiện mà tôi sẽ làm tình nguyện viên

4.23. Tôi tin rằng việc làm tình nguyện viên của các sinh viên là mang đến ảnh hưởng tích cực cho các sự kiện du lịch của Đà Nẵng

PHẦN 3: VIỆC LÀM TÌNH NGUYỆN VIÊN TRONG TƯƠNG LAI CỦA BẠN TẠI CÁC LỄ HỘI VÀ SỰ KIỆN DU LỊCH

1. Trên thang đo từ 1 đến 7, với 1 là “Hoàn toàn không đồng ý” và 7 là “Hoàn toàn đồng ý”, vui lòng chọn **mức độ đồng ý** đối với những phát biểu sau liên quan đến **mức độ cam kết** đối với việc làm tình nguyện viên của bạn tại các lễ hội và sự kiện du lịch tại Đà Nẵng.

Hoàn toàn không đồng ý (1)	Không đồng ý (2)	Khá không đồng ý (3)	Trung lập (4)	Khá đồng ý (5)	Đồng ý (6)	Hoàn toàn đồng ý (7)
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5.1. Tôi có thể sẽ trở thành tình nguyện viên tại các lễ hội và sự kiện du lịch tại Đà Nẵng và o năm tới

5.2. Tôi có thể sẽ trở thành tình nguyện viên của các lễ hội và sự kiện du lịch tại Đà Nẵng trong 5 năm đến

2. Trên thang đo từ 1 đến 5, với 1 là “Không có khả năng” và 5 là “Rất có khả năng”, vui lòng chia **khả năng** bạn sẽ làm tình nguyện viên của mỗi sự kiện du lịch sau tại Đà Nẵng trong năm 2019.

Không có khả năng (1)	Hơi có khả năng (2)	Có khả năng vừa phải (3)	Có khả năng (4)	Rất có khả năng (5)
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6.1. DIFF 2019

6.2. Các sự kiện/lễ hội thể thao

6.3. Các sự kiện/lễ hội âm nhạc

6.4. Các sự kiện/lễ hội biển

PHẦN 4: THÔNG TIN CÁ NHÂN

Cuối cùng, xin bạn vui lòng cung cấp cho chúng tôi một số thông tin cá nhân cơ bản sau.

3. **Giới tính:** 7.1 Nam 7.2 Nữ

4. **Bạn là sinh viên năm mấy?**

- 8.1 Năm 1 8.2 Năm 2
8.3 Năm 3 8.4 Năm 4
8.5 Năm 5

5. **Bạn có đang học chuyên ngành về Du lịch không?**

- 10.1 Có 10.2 Không

6. **Bạn đang học trường đại học nào?**

- 10.1 Đại học Kinh tế 10.2 Đại học Duy Tân
10.3 Đại học Ngoại ngữ 10.4 Đại học Bách khoa
10.5 Đại học Sư phạm 10.6 Khác

Chân thành cảm ơn sự hợp tác của Bạn

**DO GOVERNANCE CHARACTERISTICS MATTER FOR FIRM
PERFORMANCE? EVIDENCE FROM VIETNAM BASED ON SGMM
DYNAMIC PANEL ESTIMATION**

**ẢNH HƯỞNG CỦA ĐẶC ĐIỂM QUẢN TRỊ ĐỐI VỚI THÀNH QUẢ CÔNG TY:
BẰNG CHỨNG TỪ VIỆT NAM DỰA TRÊN KỸ THUẬT ƯỚC LƯỢNG SGMM**

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ABSTRACT

This paper investigates the impact of governance characteristics on financial performance of companies listed on Ho Chi Minh City Stock Exchange. By employing system generalized method of moments (SGMM) estimator and a panel dataset covering 152 firms over a period from 2011 to 2016, our results confirm that corporate governance characteristics, viz. the size of board and block-holder ownership, do affect firms' financial performance in Vietnam. Aside from that no evidence was found for other characteristics such as board gender diversity, CEO duality and non-executive director representation, that have an impact on firm performance.

Keywords: *Corporate governance, firm performance, board of directors, system GMM, Vietnam.*

TÓM TẮT

Bài viết này xem xét tác động của đặc điểm quản trị đến thành quả tài chính của các công ty niêm yết trên Sở giao dịch chứng khoán Tp. Hồ Chí Minh. Áp dụng phương pháp ước lượng moment tổng quát hệ thống (SGMM) và bộ dữ liệu bảng gồm 152 công ty trong giai đoạn 2011 - 2016, kết quả nghiên cứu cho thấy các đặc điểm quản trị gồm quy mô hội đồng quản trị và tỷ lệ sở hữu bởi cổ đông lớn có tác động đến thành quả công ty tại Việt Nam. Ngoài ra, bài viết không tìm thấy bằng chứng nào cho thấy các đặc điểm quản trị khác như sự đa dạng giới trong hội đồng quản trị, việc hợp nhất chức danh giám đốc điều hành - chủ tịch hội đồng quản trị và tỷ lệ thành viên không điều hành trong hội đồng quản trị có ảnh hưởng đến thành quả hoạt động công ty.

Từ khóa: *Quản trị doanh nghiệp, thành quả công ty, hội đồng quản trị, GMM hệ thống, Việt Nam.*

1. Introduction

Corporate governance has been an issue of interest to an enormous number of economic researchers, particularly after the collapse of major global corporations and international banks, such as WorldCom and Commerce Bank due to their weaknesses in corporate governance. The question arises as to whether, and by what means corporate governance structures affect firm performance. Among the typical measures of corporate governance, board characteristics and ownership structure could be considered of the highest importance.

So far, studies on the impact of board characteristics and ownership structure on firms' financial performance might take into account factors including board size, CEO duality, female representation on board, the presence of independent directors, or block-holder ownership. For instance, Campbell and Minguez-Vera (2008) and Pham and Hoang (2019) found a significantly positive correlation between the number of female directors on board and firm performance, while others came up with a negative relationship (e.g., Adams and Ferreira, 2009) or found no evidence for such relationship. Likewise, empirical works associated with other aspects yield mixed results.

This study seeks to investigate the role of governance characteristics in the business performance of firms listed on the Ho Chi Minh City Stock Exchange (HOSE) over the 2011-2016 period. Unlike most previous studies for the case of Vietnam with the employment of traditional performance measures based on book values, for example, return on total assets (ROA) as per Vo and Phan (2013), or return on equity

(ROE) as per Doan and Le (2014), our paper presents new perspectives on the governance - performance nexus through the use of the market-based indicator - Tobin's Q as a proxy for performance. An important advantage of Tobin's Q is that it helps predict the future performance of a firm, since this indicator is reflected by the market value of firm's share, thus implying a market assessment of the potential profitability of the firm.

2. Literature review

2.1. Theoretical background

2.1.1. Agency theory

Agency theory is the grounding theoretical perspective in corporate governance studies. As indicated by Daily et al. (2003), the dominance of agency theory in governance research could be explained by two reasons. First, it is an extremely simple theory, in which large corporations are reduced to two participants - managers and shareholders - and the interests of each are assumed to be both clear and consistent. Second, agency theory holds that both groups of participants tend to be self-interested instead of sacrifice individual interests for the interests of others. While shareholders expect managers to act in the best interests of the business, managers might not necessarily make decisions for the goal of shareholder wealth maximization, instead, they can act in their own self-interest. This may lead to the reality that managers would take self-interest, not for the sake of the owner. As the issue of conflicts of interest is highly likely to occur in joint stock companies, it might create "agency costs". Thus, a key problem posed by agency theory is how to guarantee the interests of company's owners while reducing agency costs. Hillman and Dalziel (2003) argue that the board of directors is the key to reconciliation of benefits between shareholders and managers. Accordingly, among the most urgent measures in today's corporate governance is to devise an effective board structure.

2.1.2. Resource dependence theory

Different from agency theory concerning issues between ownership and management, the focus of resource dependence theory is on the association of enterprises with external environment. Encompassing various different resources such as labour, equipment, raw materials and information, external environment plays an important role in decision-making process in an organization. Therefore, the board of directors acts as a bridge between the enterprise and the external environment, thus reducing the uncertainty in operations from external and non-controllable factors. According to Gabrielsson and Huse (2004), resource dependence theory appears useful in analyzing board functions and actions.

Eisenhardt (1989) proposed that agency theory only explains part of the "big picture" of a business. In addition, this theory seems insufficient to mirror the reality of corporate governance in all contexts analyzed by differences in corporate characteristics in each country (Young et al., 2008). Based on similar arguments, Hillman and Dalziel (2003) and Nicholson and Kiel (2007) suggest that agency theory should be supplemented by resource dependence theory in corporate governance studies.

2.2. Empirical evidence

2.2.1. Impact of board diversity on firm performance

Until the present time, there have been numerous studies on the role of women in strengthening firm performance. Empirical results seem inconsistent as regards the relationship between board gender diversity and business performance. Some studies found a positive association between board diversity and performance of firms, while others reached the conclusion that there is a negative link, or even no link.

Erhardt et al. (2003) conducted a study on the relationship between gender diversity in the boardroom and the performance of 127 major corporations in the US over the period of 1993-1998. By employing two dependent variables, namely return on total assets (ROA) and return on investment (ROI), to measure the performance of firms; the percentage of female directors on board to represent board

diversity variable, research results reveal that the proportion of female directors on board appears positively correlated with both financial performance indicators, viz. ROA and ROI. This proves that the board diversity has a positive impact on the firms' financial performance.

Campbell and Minguez-Vera (2008) studied the relationship between gender diversity on board and the performance of 68 Spanish companies between 1995 and 2000 employing the fixed effect model and two-stage least squares (2SLS) approach to control endogenous problems. Board diversity variable is measured by the percentage of female directors on board, Shannon index and Blau index, while business performance is proxied by Tobin's Q ratio. Research findings confirm that the board diversity positively affects firm performance and the causal effects seem negligible.

Most recently, in a study conducted on 170 non-financial listed companies in Vietnam over the period from 2010 to 2015, Pham and Hoang (2019) also confirmed gender diversity measured by the proportion and the number of female directors on board exerts a significantly positive influence on firm performance. Such effects primarily derive from women directors' executive power and management skills rather than their independence status.

On the opposite direction, based on the dataset of major corporations in the US between 1996 and 2003, Adams and Ferreira (2009) found that gender diversity on board tends to strengthen monitoring functions, yet, empirical results pointed to a negative correlation between the percentage of female directors on board and Tobin's Q index.

Likewise, in a study on 248 enterprises in Norway over the period of 2001-2009, Ahern and Dittmar (2012) concluded that, as the proportion of female directors on board rises by 10%, firms' financial performance, which is characterized by the Tobin's Q index, would be reduced by 12.4%.

Though there exists both positive and negative dimensions, Rose (2007) found no evidence of the impact of board gender diversity on the performance (measured by Tobin's Q) of Danish companies.

In addition, Farrell and Herch (2005) suggest that women tend to be appointed to work for firms with higher performance. Specifically, based on a sample of 300 Fortune-500 companies from 1990 to 1999, they reveal that businesses with high level of ROA tend to appoint female directors to the board. If that is the case, board diversity should be treated as an endogenous variable in studies of the relationship between gender diversity and firm performance. There has been much debate in recent research such as Adams and Ferreira (2009) that gender diversity might only be an endogenous problem, implying that ignorance of the endogenous nature of such relationship may lead to unreliable estimates.

2.2.2. Impact of board size on firm performance

The positive impact of board size on firm performance has been indicated in numerous studies. For example, Beiner et al. (2006) investigated the impact of corporate governance on firm value based on a dataset of 109 businesses in Switzerland, and found a positive relationship between board size and firm value (measured by Tobin's Q index). This study also confirms that a large board would be beneficial to the management activities due to the complexity of the business environment as well as the diversity of corporate culture.

Meanwhile, other researchers found a negative relationship between board size and business performance. Based on a large sample of 452 major industrial enterprises in the US between 1984 to 1991 and Tobin's Q index as a measure of firm value, Yermack (1996) indicates that the size of board negatively correlates with the performance of firms, since the increase in the size of boards would create much more agency costs and difficulties in reaching uniform decisions. In addition, on investigating the effect of board size on firm value (measured by Tobin's Q) in Singapore and Malaysia, Mak and Kusnadi (2005) found an inverse relationship between the number of directors on board and business value. These findings seem in line with those in some other markets, such as the US market as per Yermack (1996). Such inverse correlation between the size of board and the performance of firms can be generalized for different corporate governance systems.

Besides the positive and negative relationship, Schultz et al (2010), when examining the relationship between governance characteristics and business performance of firms (measured by ASX 200 index) during the period from 2000 to 2007, found a statistically insignificant correlation between board size and firm performance after correcting for endogeneity issues.

For the case of Vietnam, the study of Vo and Phan (2013) on 77 enterprises listed on the Ho Chi Minh City Stock Exchange over the 2006-2011 period admits that there exists an inverse correlation between the size of board and firm value, or in other words, the more directors sitting in the boardroom, the worse the firm value would become.

2.2.3. Impact of non-executive directors on firm performance

According to the agency theory, a perfect board should have a higher proportion of non-executive members who are believed to produce outstanding performance thanks to their independence of supervisory activities. Fama and Jensen's (1983) study showed that non-executive directors have more motivation to protect the interests of shareholders, because of the importance of protecting reputation as well as their reputation on the external labor market. Nicholson and Kiel (2007) argue that if the supervisory functions of the board are implemented with performance, especially in the financial statements, it would minimize the opportunity for managers to make a profit for themselves at shareholders' costs, therefore shareholders' benefits could be guaranteed. Therefore, the agency theory suggests that a higher proportion of non-executive directors would lead to better monitoring by the board.

Besides, the above consideration is consistent with the view of resource dependence theory. Daily et al. (2003) argue that non-executive directors provide access to important resources in accordance with business requirements, and therefore, a higher proportion of non-executive directors could contribute positively to business performance improvement.

Bhagat and Bolton (2008) conducted study on the relationship between corporate governance and business performance using two different measures. Correlation between non-executive directors and firm performance are found negative in case of performance measured by ROA, yet insignificant in case of Tobin's Q.

In addition, Kiel and Nicholson (2003) investigate the relationship between board structure and the performance of 348 listed companies in Australia and demonstrate that the number of non-executive directors on board shows no correlation in case business performance measured by return on total assets (ROA). However, the study found a positive correlation in case firm performance is measured using Tobin's Q index. Meanwhile, Hermalin and Weisbach (1998) argued that board structure has no impact on the business performance; however, during the research process, these authors recognized that firm performance is mainly driven by managerial experience, but not by the proportion of non-executive board directors.

2.2.4. Impact of CEO duality on firm performance

Empirical research on the relationship between CEO duality and business performance yields conflicting results.

Some have pointed out that the relationship tend to be positive. Specifically, Donaldson and Davis (1991) observed 321 companies in the US and confirmed that CEO duality helps improve business performance, accordingly, the benefits for shareholders would increase compared to the separation of board chair and CEO (average increase of 14.5% as measured by ROE). Meanwhile, in the East Asian context, Haniffa and Hudaib (2006) have shown a significant negative relationship between duality and business performance (measured by ROA), implying that the separation of positions of board chair and CEO could lead to better performance for firms. However, the shortcoming of the research done by Haniffa and Hudaib (2006) lies in not considering the endogeneity problems linked with corporate

governance characteristics, thus leading to a less reliable estimates. However, the shortcoming of the study of Haniffa and Hudaib (2006) is that it does not take into consideration the endogeneity of corporate governance variables, thus leading to spurious correlations. It is argued that a high concentration of managerial function and monitoring function in a group of major shareholders (including members who are both board directors and senior executive managers) may pose serious challenges in terms of protecting the interests of other minority shareholders and maintaining an effective monitoring function. In other words, such a board leadership structure may facilitate self-interest behaviour among majority shareholders which in turn may reduce firm performance, as predicted by agency theory.

Despite conflicting results regarding the relationship between duality and business performance, there still remains consensus of policy makers, investors and shareholders that managerial duties should separate from control decisions, or in other words, a board chair should not act as the CEO of the company (non-CEO duality). In European countries, more than 84% of companies distinguish between chairman of the board and the CEO (Heidrick and Struggles, 2009). In Vietnam, in accordance with Clause 3, Article 10 of Circular No. 121/2012/TT-BTC regulating corporate governance applicable to Vietnamese public companies: “The chairman of the board of management must not concurrently hold the position of chief executive officer (or general director), unless it is annually approved at the annual general meeting of shareholders”.

2.2.5. Impact of block-holder ownership on firm performance

Agency theory suggests that concentration of ownership is one of the important mechanisms for monitoring managerial behaviour. The concentrated ownership by shareholders (such as, institutional and individual investors, and block-holders) helps to mitigate agency problems arising from the separation of ownership and control (Shleifer and Vishny, 1986). Hence, it is argued that the larger the proportion of shares held by block-holders, the stronger the power they will have to make management work for their benefits. Furthermore, holding a large proportion of the company assets provides institutional investors and/or block holders with incentives to monitor managerial behaviour (Haniffa and Hudaib, 2006). Although block-holder ownership is regarded as a mechanism to reduce the conflict between shareholders and management, it may be a potential source of conflict of interest between minority and majority shareholders.

However, the empirical evidence regarding the relationship between concentrated ownership (block-holder ownership is used as a proxy) and firm financial performance is unclear and inconclusive across different markets and also within the same market. For example, some studies have found no statistically significant relationship between ownership concentration and firm performance. The study of Demsetz and Lehn (1985) empirically tested 511 large enterprises in the US, with the observation of different forms in the firms’ ownership structure, including ownership by individual investors, ownership by institutional investors and ownership by top five shareholders. Research results indicate that there is no link between ownership structure and business performance. In addition, some others found a positive relationship – one example, Xu and Wang (1999) conducted a study of 300 Chinese listed enterprises during the period from 1993 to 1995, and found a positive correlation between centralized ownership structure and profitability of enterprise.

3. Research methodology

3.1. Sample and data

Based on previous studies, financial companies and banks were excluded from our sample since their liquidity and governance could be affected by different regulatory factors (see, e.g., Mak and Kusnadi, 2005; Schultz et al., 2010; Nguyen et al., 2014). Therefore, our final sample only consists of 152 enterprises listed on Ho Chi Minh City Stock Exchange (HOSE). The study period spans from 2011 to 2016. All data were collected from annual reports, management reports and board of directors’ resolutions of sampled companies published on *finance.vietstock.vn*. Data on market capitalization

(market value of firm's equity) and stock held by the 10 largest shareholders (*blocktop10*) were provided exclusively by Tai Viet Corporation.

3.2. Description of variables

Dependent variable: Firm performance

In line with previous studies (e.g., Coles et al., 2012), this study employs Tobin's Q as a dependent variable to measure the business performance. Tobin's Q could be worked out as follows.

$$\text{Tobin's } Q = (\text{Market value of firm's stock} + \text{Book value of debt}) / \text{Book value of total assets}$$

Explanatory variables: Governance characteristics

Explanatory variables in this study encompass:

- The percentage of female directors on board (Female), representing board diversity.
- The percentage of non-executive directors on board¹ (Nonexe).
- The percentage of independent directors on board (Indep).
- CEO duality (Dual), a dummy variable, taking the value of 1 if the board chair is also CEO, and 0 otherwise.
- Board size (Bsize), indicating the total number of directors on board.
- The percentage of ordinary shares held by shareholders with at least 5% holding to the total number of ordinary shares of a company (Block).
- The percentage of ordinary shares held by ten largest shareholders to the total number of ordinary shares of a company (Blocktop10).

Besides, as suggested by Wintoki et al. (2012), the one-year lagged Tobin's Q is used as an independent variable to control for the dynamic nature of the governance characteristics - business performance nexus.

Control variables

Control variables used for the regression model include: (1) firm size (Fsize), measured by taking the natural logarithm of the book value of total assets; (2) firm age (Fage), indicating the number of years from the time the company first appears on the HOSE; (3) leverage (Lev), calculated as the ratio of the company's debt divided to its total assets

3.3. Model specification

Based on Wintoki et al.'s (2012) research, the baseline model which demonstrates the impact of governance characteristics on the performance of firms could be written as follows.

$$\ln Q_{it} = \alpha + \gamma \ln Q_{it-1} + \beta_1 \text{Governance} + \delta_2 \text{Control} + \eta_i + \varepsilon_{it} \quad (1)$$

where:

- **Q**: Tobin's Q, representing firm performance (dependent variable).
- **Governance**: Corporate governance variables, including the percentage of female directors on board (Female), the percentage of non-executive directors on board (Nonexe), CEO duality (Dual), board size (Bsize), the percentage of shares held by block-holders (Block).
- **Control**: Control variables, including firm age (Fage), firm size (Fsize) and leverage (Lev).

Theoretically, for estimation of dynamic longitudinal data, either pooled ordinary least squares (OLS), fixed effect or random effect approach could be a viable solution. However, as pointed out by

¹ According to Clause 2, Article 2 of Circular No. 121/2012/TT-BTC, non-executive director of the board of management is defined as a member of the board who is not the director (general director), deputy director (deputy general director), chief accountant or any other manager appointed by the board of management.

Wintoki et al. (2012), endogeneity concerns might exist when examining corporate governance characteristics. So far, endogeneity issues arise from two main sources: unobservable characteristics across enterprises and simultaneity. To cope with endogeneity problems, Arellano and Bond (1991) proposed the two-step generalised method of moments (GMM) approach. By and large, the GMM estimation method consists of two main types, viz. difference generalized method of moments (DGMM) and system generalized method of moments (SGMM). According to Hermalin and Weisbach (1998), since firm's current performance and governance characteristics are influenced by their previous financial performance, the relationship between corporate governance and firm performance appears dynamic in nature. As recommended by Blundell and Bond (1998), in case there exists a correlation between the current and previous value of the dependent variable, and simultaneously, the number of years is relatively small, then the DGMM model is no longer effective in estimation. Therefore, the SGMM estimator is chosen for this study.

SGMM model approach is briefly defined as a system of two simultaneous equations: one in levels and the other in first differences. While lagged levels of explanatory variables are treated as instruments in the first-differenced equation, their lagged first differences could be employed as instrumental variables for the levels equation (Nguyen et al., 2015). As highlighted by Roodman (2009), the SGMM estimator allows harnessing internal instruments available within the panel and addressing the combination of a short panel, a dynamic dependent variable, fixed effects and a shortage of good external instruments.

4. Results

4.1. Descriptive statistics

Table 1: Descriptive statistics (total observations: 912)

Variable	Mean	Median	Std. Dev.	Min	Max
Tobin's Q	1.04	0.94	0.45	0.34	5.83
The percentage of female directors (Female)	15.98	16.67	16.39	0.00	80.00
The percentage of non-executive directors (Nonexe)	62.24	60.00	16.71	0.00	100.00
The percentage of independent directors (Indep)	15.25	16.67	16.40	0.00	80.00
CEO duality (Dual)	0.31	0.00	0.46	0.00	1.00
Board size (Bsize)	5.75	5.00	1.21	4.00	11.00
Block-holder ownership (Block)	50.70	51.53	17.70	10.49	97.07
Block-holder ownership top 10 (Blocktop10)	56.84	58.50	16.89	20.00	98.00
Firm age (Fage)	5.84	6.00	2.76	1.00	15.00
Firm size (Fsize)	27.82	27.68	1.23	25.57	32.61
Leverage (Lev)	46.79	49.54	20.41	0.26	87.41

Source: The authors

Table 1 reports summary statistics for the key variables used in this study. As can be seen, the mean of Tobin's Q is 1.04, which is higher than that of studies in other countries, such as Nguyen et al. (2014) studying for Singaporean market at 0.82. This proves that sampled companies have relatively high

performance, as the mean of Tobin's Q ratio exceeding one would probably generate profits for shareholders, and thus businesses should promote investment. In terms of board diversity, the mean percentage of female directors on board stands at an approximate 16%, which is far higher than that of the Asian region (6%), as per Sussmuth-Dyckerhoff et al., (2012), Singapore (6.9%) and China (8.5%), according to Catalyst statistics (2012). Subsequently, on considering the independence of the board, on average, about 62.24% of board directors are non-executive, and 15.25% are independent directors. Aside from that, as regards duality, about 31% of the chairpersons concurrently hold the CEO positions.

As regards board size, the mean number of directors on board is about five. Finally, as for the concentration of ownership, the mean value of the percentage of stock held by shareholders owning at least 5% of the common stock (Block) is about 50.7%, while 56.84% is the percentage of shares held by ten largest shareholders. Hence, it can be concluded that the concentration of share ownership in Vietnamese firms appears rather high.

4.2. Results and discussion

Table 2 presents the SGMM estimation results based on Eq. (1). To decompose the role of the governance aspects in shaping firm performance, the baseline specification is split into two sub-models:

- Model (1a) tests the effects of governance characteristics through the percentage of female directors on board (Female), the percentage of non-executive directors (Nonexe), CEO duality (Dual), board size (Bsize), the block-holder ownership (Block) to the performance of the business;

- Model (1b) re-estimates Eq. (1) by replacing 'Nonexe' with 'Indep' (representing the independence of the board), 'Block' with 'Blocktop10' (a proxy for concentrated ownership structure) to check robustness of our results to alternative proxies for corporate governance structures.

It is evident from Table 2 that our findings remain robust after replacing the variable of block-holder ownership with block-holder ownership top-10. While no evidence was found related to the role of non-executive directors (Nonexe) in business performance (see model 1a), the presence of an independent directors (Indep) appears significantly positively correlated with Tobin's Q (see model 1b). In general, the coefficients of the other corporate governance characteristics remain unchanged, except for duality - although there is a reversal of the sign of the coefficient, yet statistically insignificant. Therefore, our regression results are robust to alternative proxies for corporate governance structures. Besides, statistical test results in Table 2 reveal that Hansen's over-identification and AR(2) testing conditions are met. This means our estimation results with SGMM approach are reliable.

Table 2: SGMM estimation results of the relationship between governance characteristics and firm performance

Regressant: lnQ	Model (1a)	Model (1b)
lnQ(-1)	0.377*** (0.001)	0.362*** (0.001)
Female	0.079 (0.767)	0.085 (0.716)
Indep	-	0.736*** (0.002)
Nonexe	-0.293 (0.380)	-
Dual	-0.023 (0.798)	0.099 (0.202)

lnBsize	0.743*** (0.001)	0.517** (0.010)
Blocktop10	-	0.493* (0.084)
Block	0.708** (0.017)	-
Fage	0.089*** (0.001)	0.062** (0.018)
Fsize	0.066* (0.081)	0.043 (0.308)
Lev	0.379 (0.135)	0.413 (0.188)
Intercept	-3.660*** (0.001)	-2.873** (0.016)
Observations	760	760
AR(1) (p-value)	0.110	0.113
AR(2) (p-value)	0.169	0.168
Sargan test (p-value)	0.418	0.887
Hansen test (p-value)	0.482	0.529

Notes: *p*-values in brackets; ***, **, * indicate significance at 1%, 5% and 10%, respectively.

Source: The authors

Research results in Table 2 show that the coefficient of one-year lagged Tobin's Q has a positive correlation at 1% significance level (coefficient $\beta = 0.377$). This suggests that, as for businesses in the research sample, past performance results have a positive impact on their current performance. This finding appears consistent with recent studies such as Wintoki et al. (2012), suggesting that past performance should be recognized as an important variable to control for the relationship between corporate governance and business performance of firms.

The study found no evidence that the gender diversity in the boardroom exerts a positive influence on the performance of firms. This result supports Rose's (2007) view that high levels of gender diversity in the boardroom does not guarantee that companies could achieve better performance. Despite a positive correlation between board diversity and firm performance, this appears insignificant after fully controlling for the contemporaneous causality.

The size of board was found to be positively correlated with firm performance (coefficient $\beta = 0.743$) at a 1% significance level. This result is in line with resource dependence theory, proving that a scale expansion of a board would help fortify company's linkages with external resources, as well as bringing extra benefits for the company based on advantage of the capabilities, knowledge and experience of the board directors. In addition, this result is consistent with the research of Beiner et al. (2006), contending that a large board would benefit management of business performance a great deal through improved quality of support and counsel, complexity of the business climate and diversity of corporate culture.

Our results also found that the presence of non-executive directors on board has no impact on the performance of firms. According to Bhagat and Black (2002), there is no evidence that enterprises with numerous non-executive directors on board have better performance than the others. Besides, they argued that the performance of the enterprise does not depend on the number of non-executive directors on board, but each business has a distinct non-executive board structure, which largely depends on the size and growth of their business.

We found no evidence that CEO duality has an impact on business performance. This finding is consistent with the research of Mak and Kusnadi (2005) for Singaporean market.

The concentration of ownership of block-holders (measured by 'block' variables) shows a positive correlation with firm performance (coefficient $\beta = 0.708$) at a 5% significance level. According to agency theory, ownership concentration is among the most important mechanisms for monitoring management behavior, helping reduce agency concerns arising from the separation between ownership and control decisions. Therefore, the higher proportion of stock held by block-holders, the greater the motivation for them to monitor the manager's performance in serving their interests (Shleifer and Vishny, 1986). This result is coincident with the research of Xu and Wang (1999), suggesting that the higher the ownership proportion of block-holders, the more likely it is to enhance firm performance.

As regards control variables, financial leverage (Lev) has no significant impact on business performance. Meanwhile, both firm size (Fsize) and firm age (Fage) have a positive correlation with firms' business performance.

5. Conclusion

The paper empirically evaluates the relationship between governance characteristics (measured by Female, Nonexe, Dual, lnBsize, Block) and corporate performance (measured by Tobin's Q) on a sample consisting of 152 non-financial enterprises listed on HOSE over the period of 2011-2016. By employing SGMM estimation approach in order to control for endogeneity problems, then replacing necessary variables, namely, 'Nonexe' and 'Block', with 'Indep' and 'Blocktop10', respectively to check the robustness of the estimation model, research results reveals that the impact of governance characteristics on business performance is statistically significant, specifically, board size and block-holder ownership exert a positive influence on firm performance. Accordingly, the study supports the views that: (i) a large board would be favourable to business performance management through improved quality of support and counsel, complexity of the business climate and diversity of corporate culture; (ii) The concentration of block-holder ownership could help alleviate agency concerns arising from the separation between ownership and control decisions, and thus, an increase in the proportion of stock held by block-holders would bring greater motivation for them to monitor managers' performance towards their best interests. It is recommended from our findings that enterprises attach great importance to corporate governance characteristics as a fundamental requirement, thereby reinforcing the achieved financial results as well as the sustainable development goals of the businesses.

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RELATIONSHIP BETWEEN BRAND ASSOCIATION AND CUSTOMER LOYALTY: A CASE STUDY OF SHOPEE

MỐI QUAN HỆ GIỮA LIÊN KẾT THƯƠNG HIỆU VÀ SỰ TRUNG THÀNH CỦA KHÁCH
HÀNG: TRƯỜNG HỢP NGHIÊN CỨU ĐIỂN HÌNH TẠI SHOPEE

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ABSTRACT

Purpose – The purpose of this paper is to examine the relationship between two main dimensions, Brand Association and Customer Loyalty. Besides, the research is also conducted to test other relevant networks of Brand Awareness, Brand Equity and Customers' Willing To Pay.

Design/methodology/approach – A survey of which questionnaires using Likert Scale to Shopee customers in both Hanoi and Ho Chi Minh was conducted to collect the data including 380 personally responded answers. Scale Test, Exploratory Factor Analysis, Confirmatory Factor Analysis and Structural Equation Modeling were used to prove concrete relationships amongst variances, understand factors, analyze the Goodness of Fit of the Measurement model and bring about regression weights, respectively.

Findings – The results authenticated that Brand Association and Brand Awareness produce remarkable effects on Customer Loyalty. Brand Association holds a cardinal importance to Customers' Willing To Pay

Practical implications – That a company comprehends the relationships amongst those variances may assist it in formulating effective strategies to enhance Brand Association, Brand Awareness and Brand Equity so that the company achieve a copious amount of Customers' Loyalty.

Originality/Value – Not only can the research's findings be of substance for academic purpose but they make a great contribution to the development of a company of which Customer's Loyalty is the lynch pin. Both a company's managers and researchers can use these findings.

Keywords: *Customer loyalty, brand Association, brand Awareness, brand equity, customers' willing to pay.*

TÓM TẮT

Bài viết nhằm kiểm chứng mối quan hệ giữa hai biến chính là liên kết thương hiệu và sự trung thành của khách hàng. Để triển khai nhiệm vụ nghiên cứu, phương pháp nghiên cứu định lượng được sử dụng nhằm xử lý số liệu sơ cấp thu thập được từ 380 khách hàng thường xuyên mua sắm online trên nền tảng Shopee. Kết quả nghiên cứu cho thấy liên kết thương hiệu và nhận biết thương hiệu ảnh hưởng lớn đến sự trung thành của khách hàng. Điều này cũng tạo nên những hàm ý cho doanh nghiệp trong việc xây dựng chiến lược cụ thể để có được sự trung thành của khách hàng.

Từ khóa: *Sự trung thành của khách hàng, liên kết thương hiệu, nhận biết thương hiệu, tài sản thương hiệu, sự sẵn sàng chi trả của khách hàng*

1. Introduction

Currently, with a drastic increase in the number of start-up companies, any organizations find it progressively more challenging to establish a name for themselves in relevant industries. After scrutinization, it is believed to be brand that has major influence on a company's development. Brand which is regarded as the most invaluable asset for almost all organizations has been demonstrated as a contributing factor leading to Customer Loyalty, a customer's tool to examine a product's differentiation and uniqueness. Hence, companies are impelled to facilitate their decision-making process which mitigates some customer-related problems (Aaker, 1991; Emari et al., 2012; Kremer and Viot, 2012; Huang and Sarigollu, 2011).

It is believed that customers make a profound influence on a company's success. As a result, its satisfaction and loyalty are definitely causing organizations and researchers to be concerned for them becoming the lynch pin of any organizations and a proper defense against competitors. When an

organization has a thorough understanding and fulfills their customers' needs and wants, the satisfaction is actually gained. After that, the intention to repurchase the product they used to use is believed to have a dramatic increase. Reversely, if a brand fails to keep customers' credit and a sense of satisfaction, there will hardly be no rebuying in the future. Some factors are demonstrated to determine customers' satisfaction such as quality of products and services, price, situations and personal factors (Wilson et al., 2008).

Brand Association, which is in a concrete relationship with Customer loyalty, differentiates its identification from competitors, which make a unique impression on customers' mind (Tilde et al., 2009). Keller (1993) strongly believed that Brand Association includes top spirits, brand knowledge, brand opinion and brand dominance. Brand knowledge is a full set of Brand Association related to brands. Researchers have studied Customer satisfaction in different directions, from measurement to its relationship to other business aspects. And the possibility is that the more association a brand can bring to customers' mind, the more purchasing intention customers have.

Up to now, it can be seen that there has been a multitude of studies about the positive relationship between Brand Association and Customer Loyalty, however, gaps still exist. Researchers may focus more on large-scale companies or traditional organizations without taking any brand that use online selling into consideration while it is this kind of online selling that considerably need more Brand Association in order that customers spend greater trust on their brand than competitors', which enhances customers' loyalty and willingness to pay more (Lassar et al., 1995). Moreover, little attention has been dedicated to other relevant factors such as Brand Awareness, Brand Equity and Brand Image that impact positively Customer Satisfaction and Customer Loyalty, especially amongst the young who have greater willingness to shopping online.

With the aim to narrow the gaps aforementioned as well as understand the paramount importance of Brand Association on Customer Loyalty, the study is conducted based on a context of Shopee to assist other organizations in attaining substantive knowledge to develop their brands. Moreover, this research proves linkages amongst Brand Awareness, Customer's Willing To Pay and Customer Loyalty in order that companies have a general view of the issue. The idiosyncratic contribution of this study arises due to the inextricable relationships proved among relating-brand factors, which afford later academic researches as well as organizations' practical application.

The paper is constructed as follows, the upcoming section presents an overview of relevant literature review, then research methodology and data analysis, which are followed by structural model result along with detailed discussion. Conclusion section briefly explains several reasons involving in close relationship amongst those above factors. The final section concludes on the study findings as well as recommendations proposed for researches later on.

2. Literature review

Brand and Brand Management

Currently, an eminent brand is the lynchpin of many organizations (Broyles et al., 2009; Pappu & Quester, 2006; Esch et al., 2006). A brand which is a unique feature namely, name, symbol, and design that differentiates an organization's products or services from competitors' makes a significant contribution to enhance the value of the offerings (Aaker, 1997; Solomon & Stuart, 2002; Farquhar, 1989; Murphy, 1990; Neumeier, 2006; Schmitt, 1999). A substantive image, positive associations, and favorable attitudes formed through experienced memories are integral in creating a strong brand (Farquhar, 1989).

Researchers believe that branding provides a plurality of substantive benefits to the industry. Firstly, a clear brand identity helps marketers dramatically differentiate their organizations from their competitors (Keller, 2008; Aaker, 2007). Secondly, a successful branding assists firms reduce advertising costs thanks to increasing brand name's awareness (Keller & Lehmann, 2006). Thirdly, branding supports a firm to become an outstanding leader among the competitors in the same product category (Keller, 2008).

As a consequence, a desirable brand identity not only impels organizations to increase the profit margin resulting from Consumers' Willing To Pay a premium for products, but it may lead to profitable brand extensions into the same or dissimilar market as well. Finally, certain aspects of branding help firms safeguard their product features through legal protection from counterfeiting (Keller, 2008; Keller & Lehmann, 2006; Schmitt & Simonson, 1997).

The analysis of brand management is not available if the philosophy of science by Thomas Kuhn, a well-known contributor to "paradigms" knowledge, is not mentioned (Tilde et al., 2009). Throughout the 1985-2006 period, brand management based on two paradigms prevailed: a positivistic point of departure and a constructivist or interpretive nature. The positivistic stance implies a viewpoint of a brand possessed by the marketer who assumes the responsibility for communication to a passive consumer and regards brand equity as "A manipulative lifeless artefact" (Hanby, 1999, p.12). The interpretive paradigm reflects the brand nature and brand equity's value as something rooted in the link between marketer and an active consumer "As holistic entities with many of the characteristics of living beings" (Hanby, 1999, p. 10) and "As a living entity" (Hanby, 1999, p.12).

It is seven approaches applied in discovering what the brand management actually is that results in seven different definitions. The seven approaches which are presented in a chronological order and divided into three main sections, the first period 1985-1992, the second period 1993-1999, the last one 2000-2006 have made great contribution to bring renewal relevant approaches out in a given time frame.

In the 1985-1992 period (company/sender focus), the economic approach and the identity approach are initially derived from the research on the company, the sender of brand communication. While the economic approach concentrates on the capabilities to manage a brand via marketing mix elements as product, placement, price and promotion, and how these factors can be misused to impact on consumer brand choice, the identity approach concentrates on how the identity of the company can govern customers succinct brand message that is conveyed to all stockholders.

In the 1993-1999 period (human/receiver focus), the consumer-based approach allows the brand to be connected with consumer associations. Keller (1993) invented an entirely new methodology to brand management which is perceived as a cognitive perception in customer's mind, in which it is believed that a strong brand holds strong, unique and favorable associations. The personality approach presents that consumers are predisposed to furnish brands with human-like personalities. It is the 'human' brand perspective and the consumer that are the core values in this approach where consumers endow brands with personalities which is used in a dialogue-based exchange of symbolic value for their individual identity expression and construction. The relational approach derives from the philosophical tradition of existentialism and phenomenal nature, implying that a paradigm shift is happening because they are very similar to the roots of the research method.

In the 2000-2006 period (cultural/context focus), two approaches can be pinpointed in this period of time: the community approach and the cultural approach. The community approach in which the brand as the pivotal point of social interaction is derived from an anthropological research about so-called brand communities, where brand value is created and served as the pivotal point of social interaction among consumers, which furthers a thorough understanding of the consumption's social context to the overall view regarding about brand management. The cultural approach, in which the brand as part of the broader cultural fabric is the cultural approach which is akin to the community approach and influences millennium. The brand is regarded as a cultural anachronism in this approach, rejuvenating both anti-branding argument and a theory as to the creation of iconic brand.

Brand Association

Brand Association is related to information in the customer's mind about the brand, either positive or negative, linked to the node of the brain memory (Emari et al., 2012). Brand Association works as an information collecting tool to execute brand differentiation and brand extension (Osselaer and Janiszewski, 2001). Initially, any information that unintentionally come in Brand Association is

considerably connected to the brand name in consumer recall, and reflect the brand's image (Keller, 1993; Romaniuk and Sharp, 2003). The higher the Brand Associations in the product, the more it will be remembered by the consumer and be loyal towards the brand. Brand Associations play an important role in differentiating one organization from the others, and create favorable attitudes towards organizational product, which is drastically beneficial to organization.

Keller (1993) classifies Brand Associations into three categories, Brand attributes, Brand benefits and Brand attitudes. *Brand attributes* are those descriptive characteristics that features a product or service, what a customer thinks about a product or service's assets and what is related to its purchase intention (Keller, 1993). "Non-product-related attributes" and "product-related attributes" are the two types of brand attitudes which includes price information, packaging, user imagery or usage imagery. *Brand benefits* are the personal value consumers attach to the product or service attributes, that is, what consumers actually think the product or service could bring for them (Keller, 1993). *Brand attitudes* is defined as consumers' overall evaluations of a brand (Mitchell and Olson, 1981). Brand attitudes are crucial because they often form the background for consumer behavior (Keller, 1993). the extension. Abdallah & Abo-Rumman (2013) demonstrated a significant impact that Brand Association produces to Customer Loyalty, which showed a strong evidence that Brand Association is correlated as substantive linkage to Customer Loyalty.

It is true that Brand Association creates a copious amount of value for an organization. Firstly, it helps process information. Associations can serve to summarize a set of facts and specifications that customers would find it possible to handle and access. Secondly, Brand Association provides remarkable effects on product differentiation. For example, products as wine, perfume and clothing, Brand Association which includes attitudes, attribute, benefit and product quality can play an important role in separating this brand from the others. Thirdly, Brand Association provides reason-to-buy for customers. Many Brand Associations represent a basis for purchasing decisions and Brand Loyalty. When a product is improved in quality, packaging and attribute, customer may tend to use it and gradually it creates a loyalty in customers' mind. Lastly, basis for extensions is the result of having a successful Brand Association by creating a consistent feeling between the brand name and the new product or by providing a reason to buy. Therefore, the following hypothesis will be tested.

H1: Brand Association have a significant positive effect on Customer Loyalty

Impacts of Brand Awareness on Customer Loyalty

Brand Awareness is regarded as one of the brand assets that makes substantive contribution to enhance a brand value (Aaker, 1996; Keller, 2013). Lynch and Srull (1982) propose that information of an established brand is stored in the memory as associations' series. Moreover, consumers' awareness of a brand can bring in a sense of familiarity and commitment to the brand (Aaker, 1992). Researchers proved that Brand Awareness significantly impact on Brand Loyalty and equity (Pike and Bianchi, 2016; Asif et al., 2015). Aaker (1991) demonstrated that Brand Awareness can positively affect loyalty and perceptions. There are previous researches measuring the linkage between Brand Awareness and Brand Loyalty (Jung & Sung, 2008; Kim et al., 2009; Yoo & Donthu, 2001, 2002; Yoo et al., 2000). (Ghana, 2015) successfully using the regression equation to demonstrate the positive relationship between Brand Awareness and Customer Loyalty. The result is that there is a significant positive influence between Brand Awareness and Customers Loyalty, which means Brand Awareness strategies, factors developing Brand Awareness, and influencing customer decision patronize the services and determine Customer Loyalty.

H2: Brand Awareness have a significant positive effect on Customer Loyalty

Impacts of Brand Association on Customers' Willing To Pay

Willingness to pay (WTP) is defined as "the amount a customer is willing to pay for his/her preferred brand over comparable/lesser brands of the same package size/quantity" (Netemeyer et al., 2004, p. 211), which suggests that the price is conceptualized with respect to a competitor or set of competitors that must be clearly specified (Aaker, 1996). According to Belch & Belch (2004), purchase

intention points to the consumer's purchase intention to a brand. The higher purchase intention is, the more likely it is to rebuy the products. Thus, purchase intention is the most important predictor of purchase behavior (Long-Yi, Jui-chi, 2012).

Satvalt et al. (2016) and Bayraktar (2015) successfully prove that Brand Association have great impact on Customer's Willing To Pay by using Structural equation model (SEM); "Data collection tools" which include valid and reliable questionnaire, interviews, library studies and the internet; "Validity and reliability" covering content validity and "Cronbach's test" to measure research and evaluate the reliability of the research, respectively. The result shows that there is a significant positive connection between Brand Association and Consumer's Willing To Pay. The following hypothesis will be tested.

H3: Brand Association have a significant positive effect on Customer's Willing To Pay

3. Research Methodology

Questionnaires developed

All items were measured using a five-point Likert-type scale, one of the best and most frequently used scales to measure opinions, due to its ease and balance (Zikmund, 2000), with level 1 – absolutely disagree, level 2 – disagree, level 3 – neutral, level 4 – agree, and level 5 – absolutely agree. The final questionnaires were sent and returned with a response of 380 customers by the questionnaires form below:

Table 1: Survey Questionnaires

Item code	Statements	Compiled from
I	Brand Association	
ATB1	It is appropriate to describe the products offered by Shopee as "up-market"	
ATB2	It is appropriate to describe the products offered by Shopee as "tough"	
ATB3	It is appropriate to describe delivery service offered by Shopee as "fast"	
ATB4	It is appropriate to describe display offered by Shopee as "logic"	
BEN1	Shopee constantly has promotions for customers	
BEN2	I feel relaxing when using Shopee	Keller (1993), Al-Abdallah.G & Abo-
BEN3	Customers can save a copious amount of money when using Shopee	Rumman.H (2003) and Bhaya, Z. (2017)
BEN4	Private shops can earn money through Shopee by uploading information of products on it	
ATT1	Shopee's staff always accommodate to customers' need	
ATT2	Shopee's staff always listen to customers' feedback	
ATT3	Shopee's staff always response to customers' queations in short time	
ATT4	Shopee's staff always ask their customers for feedback to improve products and service	

II Willing To Pay	
WTP1	I am willing to pay higher price in Shopee
WTP2	I am willing to pay when Shopee increase price
WTP3	I use almost Shopee's product line such as: TV, clothes, smartphone...
WTP4	I borrow money to buy Shopee's products
III Brand Awareness	
BRAW1	I associate shopping online with Shopee
BRAW2	Mentioning Miss Tieu Vy reminds me of Shopee
BRAW3	I always remember Shopee as one of the most frequently used brand
BRAW4	I recall Shopee whenever you have shopping need
BRAW5	I recall Shopee whenever I see "Sale Campaign in TV"
IV Customer Loyalty	
CL1	Shopee would be my first choice
CL2	I introduce to your friends and relatives to use Shopee's products and service
CL3	I give feedback to develop Shopee's products and service
CL4	I protect Shopee when someone else tarnish Shopee's image
CL5	I still use Shopee's products and service even if it is in scandals

Source: Authors' summary, 2019

Research model

Premised upon those three hypotheses aforementioned from Keller (1993), Oppong & Phiri (2018), Chinomona & Maziriri (2017) and Bayraktar (2015), the research model in this research is proposed as follows:

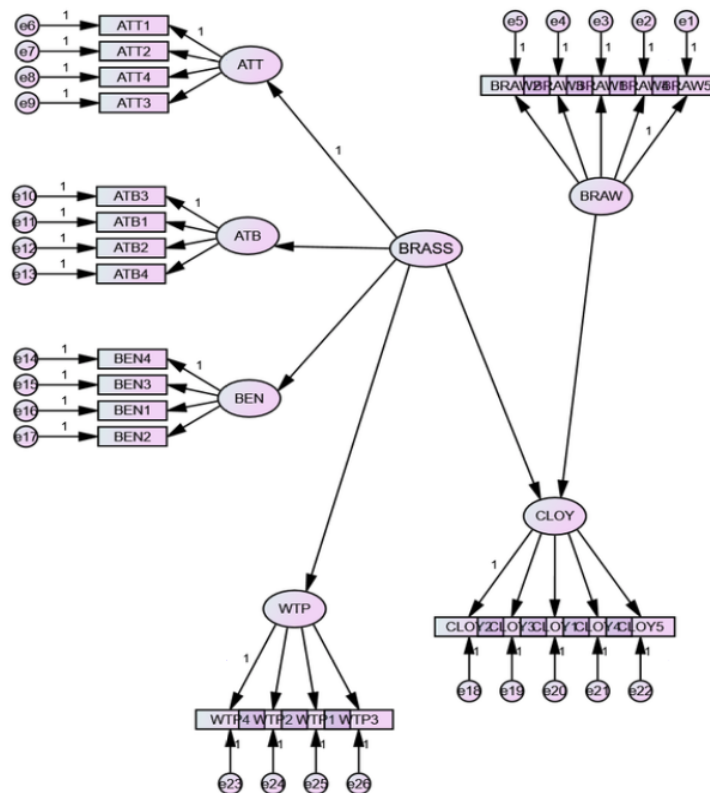


Figure 1: Proposed research model

Source: Outputs from AMOS, 2019

Data Collection and Sampling description

The research's data is assembled from Shopees's customers who have purchased Shopee at least once in the past 12 months in Ha Noi and Ho Chi Minh. In that it is difficult to measure the size of the population, non-probability sampling is considered to be more apposite to this research. The quantity of survey respondents is 380, in which Shopee's customers in Hanoi accounts for 50% and the figure for those in Ho Chi Minh is also 50%.

4. Data Analysis

Data analysis procedures

The study used a quantitative approach to determine whether or not Brand Associations (the independent variables) can affect consumer loyalty (the dependent variables). The research is carried out based on IBM SPSS and IBM AMOS, in which Cronbach's Alpha is to measure the scale's reliability, EFA to examine factors, CFA to confirm factors and structural equation modeling (SEM) to demonstrate the relation between Brand Association and Customer Loyalty.

Reliability Analysis

Table 2: Cronbach's coefficient and Corrected Item-Total Correlation

Observed variables	Corrected Item-Total Correlation	Cronbach's Alpha
<i>Attribute</i>		
ATB1	0.830	0.911
ATB2	0.791	
ATB3	0.841	
ATB4	0.740	

<i>Benefit</i>	
BEN1	0.798
BEN2	0.807
BEN3	0.791
BEN4	0.818
<i>Attitude</i>	
ATT1	0.808
ATT2	0.818
ATT3	0.706
ATT4	0.846
<i>Brand Awareness</i>	
BRAW1	0.698
BRAW2	0.685
BRAW3	0.684
BRAW4	0.752
BRAW5	0.754
<i>Customer Loyalty</i>	
CLOY1	0.653
CLOY2	0.794
CLOY3	0.719
CLOY4	0.694
CLOY5	0.616
<i>Willing To Pay</i>	
WTP1	0.686
WTP2	0.750
WTP3	0.666
WTP4	0.788

(Nunally, 1978; Peterson, 1994) proved that a scale has internal consistency in case Corrected item-total correlation is equal or greater than 0.3 and Coefficient Alpha higher than 0.6. If Coefficient Alpha is greater than 0.8, then it has a good internal consistency.

Explanatory Factor Analysis

Table 3: Pattern Matrix

Items classified into dimensions	Brand Awareness	Attitude	Attribute	Benefit	Customer Loyalty	Willing To Pay
BRAW5	0.836					
BRAW4	0.831					
BRAW1	0.745					

BRAW3	0.729	
BRAW2	0.721	
ATT1	0.905	
ATT2	0.895	
ATT4	0.872	
ATT3	0.690	
ATB3	0.914	
ATB1	0.892	
ATB2	0.821	
ATB4	0.753	
BEN4	0.884	
BEN3	0.842	
BEN1	0.841	
BEN2	0.834	
CLOY2	0.944	
CLOY3	0.802	
CLOY1	0.717	
CLOY4	0.674	
CLOY5	0.587	
WTP4	0.957	
WTP2	0.835	
WTP1	0.659	
WTP3	0.617	

Source: Outputs from SPSS, 2019

Hair et al. (2011) demonstrated that if $0.5 < KMO < 1$, that sample is accepted to be taken to Factor Analysis and in this research, Kaiser-Meyer-Olkin Measure of Sampling Adequacy is 0.903, which is in the interval of (0.5; 1). Moreover, Hair et al. (2006) strongly indicated that if Bartlett's Test of Sphericity is equal or less than 0.05, that hypothesis is accepted. In this case, hypothesis H1: Brand Association have a significant positive effect on Customer Loyalty is valid because Significance of KMO is 0.000.

Confirmatory Factor Analysis

Confirmatory Factor Analysis is attained premised upon three key pillars, unidimensionality, construct validity, and indices of model fit. *Unidimensionality* is achieved when the factor loading extracted in each construct is positive and higher than 0.6. It can be seen from the measurement model that all latent constructs do extract positive factor loadings from items and they are all greater than 0.6, with the lowest belonging to the BRAW's extraction from BRAW3 at 0.71. *Construct validity* constitutes convergent and discriminant validity. Convergent validity is met when Average Variance Extracted (AVE) is higher than 0.5, and Composite Reliability (CR) higher than 0.7 and higher than AVE simultaneously (Hair et al., 2006). The measurement model possessed the lowest AVE of 0.580, higher than 0.5 and CR of 0.873, thereby satisfying the aforementioned requisite. *The indices of model fit* are presented in Table 4, all of which passing the recommended cut-off points

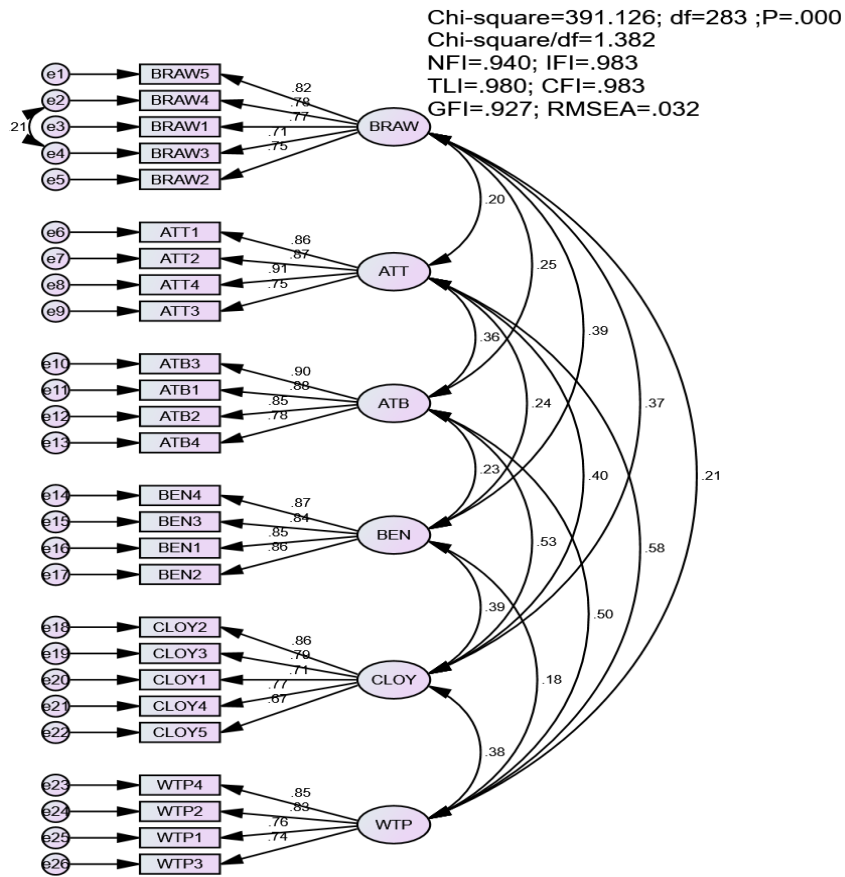


Figure 2: Measurement Model with Standardized Estimates

Source: Output from AMOS, 2019

Table 4: Convergent and Divergent validity of constructs

Standardized Regression Weights		Convergent validity		Discriminant validity
	Estimate	AVE	CR	MSV
BRAW5	<--- BRAW	0.821	0.589	0.152
BRAW4	<--- BRAW	0.781		
BRAW1	<--- BRAW	0.771		
BRAW3	<--- BRAW	0.711		
BRAW2	<--- BRAW	0.749		
ATT1	<--- ATT	0.863	0.720	0.336
ATT2	<--- ATT	0.871		
ATT4	<--- ATT	0.905		
ATT3	<--- ATT	0.747		
ATB3	<--- ATB	0.895	0.727	0.281
ATB1	<--- ATB	0.884		
ATB2	<--- ATB	0.846		
ATB4	<--- ATB	0.781		

BEN4	<---	BEN	0.867	0.727	0.914	0.152
BEN3	<---	BEN	0.836			
BEN1	<---	BEN	0.847			
BEN2	<---	BEN	0.86			
CLOY2	<---	CLOY	0.862	0.580	0.873	0.281
CLOY3	<---	CLOY	0.789			
CLOY1	<---	CLOY	0.707			
CLOY4	<---	CLOY	0.767			
CLOY5	<---	CLOY	0.668			
WTP4	<---	WTP	0.852	0.633	0.873	0.25
WTP2	<---	WTP	0.829			
WTP1	<---	WTP	0.757			
WTP3	<---	WTP	0.739			

Source: Output from AMOS, 2019

Table 5: Indices of model fit in the Measurement Model and Structural Model

Fit Index	Recommended cut-off point	Measurement model	Structural model
Chi-square/df	less than 3	1.382	1.585
Normed Fit Index (NFI)	greater than 0.9	0.940	0.930
Comparative Fit Indexes (CFI)	greater than 0.9	0.983	0.973
Incremental Fit Indices (IFI)	greater than 0.9	0.983	0.973
Non-normed Fit Indexes/Tucker-Lewis Index (NNFI/TLI)	greater than 0.9	0.980	0.970
Goodness of Fit Index (GFI)	greater than 0.9	0.927	0.915
Root Mean-Square Error of Approximation (RMSEA)	less than 0.05	0.032	0.039

Source: Authors' summary from AMOS output, 2019

5. Research results

It is noticeable that all three hypotheses are accepted, H1, H2 and H3 because the critical ratios, C.R. of those three hypotheses are all greater than 1.96 and p-values of which are equal or less than 0.05. It is worth mentioning that p-values of H1, H2 and H3 are less than 0.05, which means that significance is 95% and the critical ratios of which are 7.597; 2.407; 8.538, respectively, much greater than 1.96. Therefore, these factor covariances are accepted.

Of those three hypotheses, H1, indicating the impact of Brand Association on Customer Loyalty, covers the most significant ratio with Estimate $\beta = 1.09$; S.E = 0.143; critical ratio C.R. = 7.597 and p-value less than 0.001 (significant at 99.9%). Likewise, H2 indicating the impact of Brand Awareness on

Customer Loyalty, also has a lower significant ratio than H1 but still a great covariance with Estimate $\beta = 0.126$; S.E = 0.052; critical ratio C.R. = 2.407 and p-value = 0.016 (significant at approximately 99%). In short, it is true that both Brand Association and Brand Awareness considerably affect Customer Loyalty.

Moreover, this research also proves a strong relationship between Brand Association and Customer's Willing To Pay that ratio Brand Association putting on Customer's Willing To Pay is significant positive with Estimate $\beta = 0.894$; S.E = 0.105; critical ratio C.R. = 8.538 and p-value less than 0.001 (significant at 99.9%), which are all in accepted interval of research's requirements.

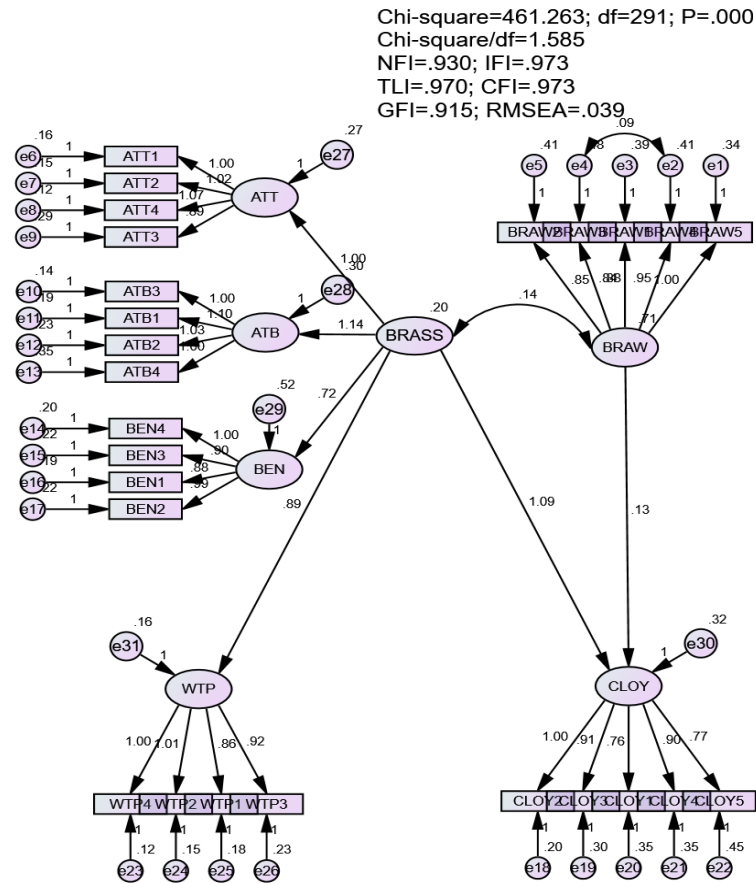


Figure 3: Structural model with Unstandardized Estimates

Source: Output from AMOS, 2019

Table 6: Unstandardized regression weights

			Estimate	S.E.	C.R.	P	Hypothesis	Conclusion
WTP	<---	BRASS	0.894	0.105	8.538	***	H3	Accepted
CLOY	<---	BRASS	1.09	0.143	7.597	***	H1	Accepted
CLOY	<---	BRAW	0.126	0.052	2.407	0.016	H2	Accepted

Source: Output from AMOS, 2019

6. Discussion

The thesis is analyzed to demonstrate why those hypotheses are accepted or rejected based on survey among Shopee customers. While conceptual model, based on theoretical frameworks, is adaptable for all context, the rejection of attendant hypotheses not compatible with research-based findings, should not be deemed abnormal.

Brand Association and Customer Loyalty: It is proved that there is a concrete relationship between Brand Association and Customer Loyalty which is also the linkage between items of Brand Association and those of Customer Loyalty. When Brand Association including benefit, attribute, attitude and product quality more meet customers' need, they are to tend to be more loyal to the brand. For example, when a product is more and more improved in quality and attractive packaging, customers would be likely to use that product for its outstanding attributes.

Brand Awareness and Customer Loyalty: The paper proved that Brand Awareness is of cardinal importance on Customer Loyalty. When a brand is more featured in customers' mind, they tend to use that brand's product because it creates a familiar feeling of customers on products. For example, when a person meets Tieu Vy, miss of Vietnam, he will remember Shopee because Tieu Vy endorses Shopee products.

Brand Association and Customer's Willing To Pay: However, Brand Association does not have major influence on Customer's Willing To Pay. It can be that Brand Association includes attribute, attitude, benefit and product quality is appropriated, which may lead to such high price that customers do not have ability to pay. So, they will use product with lower quality but affordable price. The advice is that besides improving items needed to foster Brand Association, a company should take price strategy into consideration so that customer can use good products but with reasonable price.

7. Conclusion and Recommendations

The research is conducted to verify empirical relationships amongst four constructs of Brand Association, Brand Awareness, Customers' Willing To Pay and Customer Loyalty. The findings prove reliable as the indices of model fit pass the acceptable threshold, determined by previous studies. And, organizations can rely on those findings to make decisions regarding sale promotion. The initiative could be to direct limited resources into product quality, attribute, attitude and benefit.

In order to have a thorough understanding about the research, the author is, first, to have a big picture about the Brand as well as detailed concepts of each variables relevant. The authors also base on previous researches to provide hypotheses and then employ methods such as EFA, CFA and SEM to measure those ones, which is accepted or rejected. This study is implemented based on 380 responses from Shopee's customers answering survey questionnaires in both Hanoi and Ho Chi Minh City. There are several substantive findings have been proved in this research and all three hypotheses proved relevant, Customer Loyalty is ascribable to Brand Association, Brand Awareness is of cardinal importance on Customer Loyalty and Brand Association produces remarkable impacts on Customers' Willing To Pay.

It is inevitable that there are several limitations in this research we should measure. Firstly, the population of 380 data may not be generalized enough to drive an exact result. Future studies can have a larger-scale research with customers from different countries. Secondly, using convenient sampling is also a contributing factor leading to a compromise in the objectivity. Future researches, hence, should be circumspect in using probability sampling. Thirdly, this research has a small scale that only focus on customers in Ha Noi and Ho Chi Minh city, which might not be able to generalize to other geographical areas.

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CURRENT SITUATION OF VALUE ADDED TAX FORECASTING THE CASE IN VIETNAM

THỰC TRẠNG DỰ BÁO THUẾ GIÁ TRỊ GIA TĂNG TRƯỜNG HỢP TẠI VIỆT NAM

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ABSTRACT

In many countries' current structure of tax revenue, value added tax (VAT) is the largest contributor due to its simplicity, efficiency and stability. In France, VAT is the most important source for the national treasury, accounts for 45% of total tax revenue. In Vietnam, the proportion of VAT revenue compares to total state budget revenue increases rapidly and become the most important source of state budget: increases from 22.36% in the period 2006 - 2010 to 23.78% in the period 2011 - 2015, continued to increase to 24.48% in 2016, and 25.49% in 2018 (Ministry of Finance, 2018). Therefore, the forecasting of VAT has great impact on the preparation process of budget revenue, as well as the state budget plan. The main subject of this article is an analysis on the method and current situation of forecasting revenue from VAT, from which some solutions and recommendations for VAT forecasting in Vietnam will be proposed. Derived from analysis of the current situation of VAT policy, VAT revenue and influencing factors; bases on the collected data, the authors propose to apply four models of VAT revenue forecasting, including: ARIMA model, macroeconomic model, forecasting method based on effective tax rate (ETR) model and monthly revenue forecasting model. The research results indicate that the use of monthly revenue forecasting model and macroeconomic model are the most suitable in the case of Vietnam.

Từ khóa: *Value added tax, tax revenue forecast, monthly revenue forecast, elasticity.*

TÓM TẮT

Trong cơ cấu nguồn thu thuế hiện nay ở nhiều quốc gia thì thuế giá trị gia tăng (VAT) chiếm tỷ trọng lớn nhất do tính đơn giản, hiệu quả và ổn định. Tại Pháp, VAT là nguồn thu quan trọng nhất đối với kho bạc nhà nước, chiếm khoảng 45% tổng doanh thu thuế. Tại Việt Nam, tỷ lệ thu VAT so với tổng thu ngân sách nhà nước tăng nhanh và trở thành nguồn thu quan trọng nhất của ngân sách nhà nước: tăng từ 22.36% trong giai đoạn 2006 - 2010 lên 23.78% trong giai đoạn 2011 - 2015, tiếp tục tăng lên 24.48% trong năm 2016, và 25.49% trong năm 2018 (Bộ Tài chính, 2018). Vì vậy, việc dự báo thuế giá trị gia tăng có tác động lớn đến quá trình chuẩn bị nguồn thu ngân sách cũng như kế hoạch ngân sách nhà nước. Đối tượng nghiên cứu chính của bài viết là phân tích về phương pháp dự báo và thực trạng dự báo nguồn thu từ thuế GTGT. Trên cơ sở đó, đề xuất một số giải pháp và khuyến nghị cho công tác dự báo thuế GTGT tại Việt Nam. Xuất phát từ phân tích tình hình hiện tại của chính sách VAT, doanh thu VAT và các yếu tố ảnh hưởng; dựa trên dữ liệu thu thập được, các tác giả đề xuất áp dụng bốn mô hình dự báo doanh thu VAT, bao gồm: mô hình ARIMA, mô hình kinh tế vĩ mô, phương pháp dự báo dựa trên mô hình thuế suất hiệu quả (ETR) và mô hình dự báo doanh thu hàng tháng. Kết quả nghiên cứu chỉ ra rằng việc sử dụng mô hình dự báo doanh thu hàng tháng và mô hình kinh tế vĩ mô là phù hợp nhất trong trường hợp của Việt Nam.

Keywords: *Thuế giá trị gia tăng, dự báo thu thuế, dự báo thu tháng, độ co dãn.*

1. Introduction

In the market economy, forecasting is extremely important as it provides necessary information to identify and efficiently allocate resources in the future. For the state budget, budget revenue forecast is the starting and most important point. In the current tax revenue structure of many countries, value added tax is the largest distributor due to its simplicity, efficiency and stability. Therefore, the forecasting of value added tax has great impact on the preparation process of state budget plan.

The process of forecasting VAT revenue also establishes a reliable information network and database, from which to predict a country's potential tax revenue evaluate the impacts of tax policy

changes such as tax rate, tax base, tax exemption on tax revenue. Information on tax collection efforts and compliance rate has also been collected, helping to improve tax administration and tax reforms towards an effective tax system.

In addition, the forecasting of VAT revenue also contributes to evaluate the impacts of macroeconomic policy changes on tax policy and tax revenue, helping to develop and implement fiscal policy effectively. Specifically, estimate the effects of such factors as growth rate of the economy or of economic sectors on VAT collection amount, evaluate the impacts of macroeconomic policy changes on tax policy and tax revenue, for example the limitation of import tariff barriers, trade liberalization.

Therefore, the authors focus on analyzing VAT revenue forecasting methods and the current status in Vietnam. On that basis, some solutions and recommendations will be proposed to improve the forecast of VAT revenue.

To accurately forecast VAT revenue, the forecasting agency must use complex models to forecast the impact of Vietnamese economy on the collected revenue. Base on the current data and tax policies in Vietnam, the authors' results indicate that using the monthly revenue forecasting model and macroeconomic model are much more appropriated. In the coming time, it is necessary to build a database system, especially for the macroeconomic model, to simulate the impact of tax policy changes (such as tax rates, preferential conditions, exemptions) on the tax payable or tax liability incurred by a typical taxpayer or industry.

2. Literature review and theoretical basis for VAT revenue forecasting methods

Tax revenue forecast has long been studied and applied, especially in developed countries. Such organizations as the IMF and the OECD have done a great deal of researches and produced a number of reports to support countries, especially developing countries, in applying models for forecasting revenue. Theoretical and empirical researches have identified 5 methods for forecasting VAT revenue, including auto regressive model, effective tax rate model, monthly revenue forecasting model, macroeconomic and microeconomic models.

King and John (1995) have shown that the simplest and unconditional forecasting method is the extrapolation of linear trend formed by revenue over the years. $T_t = f(T_{t-1}, T_{t-2}, \dots)$. Legeida and Sologoub (2003) used the Auto Regressive Integrated Moving Average (ARIMA) to forecast VAT revenue in Ukraine. Accordingly, VAT revenue in the current period correlated with that in the previous period (self-correlation), and the disturbance (random shock) in the previous period affected that in the current period.

Legeida and Sologoub (2003) also used the method of forecasting VAT revenue basing on effective tax rate (ETR). To forecast tax revenue in future periods, we calculate effective tax rate by dividing the tax collection amount by the estimated tax base. Usually effective tax rate is lower than statutory tax rate. This difference may come from tax exemption or taxpayer compliance problem. Then tax revenue forecast is calculated by multiplying tax base forecast in the following period by effective tax for the current period. Under effective rate approach, the major challenge is to estimate potential VAT base.

Chan Yan Koo (2000)'s study on methods of forecasting tax revenue with current tax policies and amendment proposals on China's tax law includes VAT forecasting models. He proposed monthly revenue forecast model for VAT to develop a short term forecast for tax management. Accordingly, to forecast VAT revenue in the current year, it is essential to calculate the growth rate compared to the same period of previous year, basing on monthly collection of the last 12 months and current year, as well as expected GDP growth rate for current year.

The forecasting method applying microeconomic model is based on the fundamental principle that if the tax law is not changed, the increase in VAT revenue will be due to the increase in tax base over time and the elasticity of tax revenue with respect to tax base. According to Mackenzie (1991), tax base must be identified to calculate VAT forecast. Since VAT follows the destination principle and applies on

final expenditure on goods and services in the domestic economy, the VAT base must correspond to expenditure on final consumption and government expenditure on goods and services. To reflect the impact of such other factors as policy on tax revenue, the dummy variable model can be used (according to Singer, 1968).

While macroeconomic models approach the issue from the perspective of the national economy, micro simulation models focus on actions or behaviors of sectors and individuals affected by relating public policies. Specifically, micro models simulate impacts of tax policy changes (such as tax rate, preferential conditions, tax exemption) on the tax payable amount or the arising tax debt of a typical taxpayer or sector. Then, the model sums up the data of each taxpayer, sector and calculate arising VAT from current tax laws and regulations. The micro simulation models can be considered by approaching the I/O table. According to Le Minh Tuan (2007), to calculate VAT using I/O model, we should begin with the final consumption of goods and services (both domestics and imports) reflected via the final demand matrix. After that, this consumption is adjusted to tax system and tax policy issues, including: VAT (included tax in the retail price), duty-free goods (via tax rate), compliance rate, etc. Specifically, to accurately forecast the tax revenue for the following year, we need to develop a final consumption input-output table (I-O) of all sectors and exempt industries of the previous year, from which to calculate the potential tax of each sector of the current year (with corresponding tax rate) and that of the following year (basing on consumption growth rate forecast and policy changes on tax rate and tax base). The potential tax of the previous year will be compared with actual revenue to determine compliance rate. Compliance rate will be adjusted with potential VAT revenue of the following year to provide a forecast to actual VAT.

3. Current situation of forecasting value-added tax (VAT) in Vietnam

The estimated revenues for different types of VAT shall be made as follow: The General Department of Taxation will use the database and forecast the collection amount of VAT inclusive of the domestic VATs; on the other hand, The General Department of Customs is responsible for managing and reporting the VAT receipts related to the purchase of the goods. Forecast for next year is mainly based on the growth rate of current tax revenue compared to the same period of last year. Appropriate growth rates are adjusted in line with the pace of growth of relevant industries, sectors and regions of the economy to provide the ultimate level of growth.

3.1. Methodology

The method used by tax authorities to forecast revenue is the extrapolation method combined with the expert method.

The extrapolation method is based on the assumption that the VAT revenue will continue to follow a trend similar to the preceding period using the information of a short-term nature and especially based on experts with substantial experience in the field of collecting VAT in order to assess growth rate, revenue forecast, etc. This method is quite simple in terms of technics and easy to calculate. In this method, the tax authorities use aggregate forecasting indicators to calculate and determine VAT revenue in a given period (short-term forecasts, monthly and quarterly and yearly results). Tax revenue is forecasted based on the assumption that the revenue procedure is not broken by the impact of the mechanism, policy or structural change of the economy. Two steps to forecast VAT collection include:

Step 1: Before making the forecast, the forecasting agency must carry out the analysis and assessment of the situation of revenue in the period in order to adjust the extraordinary revenues arising out of the norm and have the basis to forecast growth indicators for next year. This analysis is made of actual data from years and opinions of experts in the industry.

Step 2: Use the indicators to conduct the forecast. The most frequently used indicators are the ratio of revenue, growth rate and adjust ratio on GDP.

- Earnings growth index:

The average annual growth rate (usually five years) is calculated according to the average formula of the growth rate over the years.

$$\text{Average annual growth rate of the year} = \left\{ \frac{\text{Tax of year } t}{\text{Tax of Year } (t-n)} \right\}^{(1/n)}$$

Forecasted tax amount = Previous year tax amount x Average growth rate

- Tax revenue ratio/density:

The indicator is used to forecast the amount of tax collected in a year. Tax revenue density is the percentage (%) of the tax collected in the assessment period over the annual tax rate determined by the formula:

$$\text{Revenue of n months (Year X)} = \frac{\text{Amount of tax collected in n months (Year X)}}{\text{Amount of tax collected in Year X}} \times 100\%$$

- Adjusted ratio on GDP:

$$\text{Proposed tax amount} = \frac{\text{Previous year tax amount}}{\text{Previous year GDP}} \times \text{GDP forecast}$$

In addition, the tax authorities are applying microeconomic -based method to forecast the tax revenue including VAT. This method forecasts revenues based on analyzing, calculating the collection amount from businesses, the taxpayers (accounting for 80% of the total revenue), from which to estimate the overall.

The traditional forecasting method applied by the tax authorities has not met the management requirements, requiring the forecasting task to be innovated and modernized so that the forecast can be quick and accurate to effectively serve the macro management of the state.

Since 2006, the European Technical Assistance Project (ETV2 / PTF2) has been implemented by the European Technical Assistance (EU) project to the Ministry of Finance (MOF). From 2009 up to now, the General Department of Taxation has continued updating data, running model tests, analyzing and evaluating forecast results based on state budget revenues and experts' consultations and comparing with reality to gradually adjust the model. Up to now, the General Department of Taxation has started to pilot some revenue forecasting models such as monthly forecasting model for monthly revenue forecast for each type of tax and total tax revenue; the model of value-added tax forecasts based on the IO balance sheet in 2000. However, the selection and application of the most optimal VAT forecasting models have not yet been done.

3.2. Declaration of results of forecasting value added tax

The work of forecasting tax revenue including VAT has initially made some changes, namely:

- The revenue forecasting now has a staffing structure for data collection and tax collection.
- Assessment of the level of completion of consolidated plans and details of VAT; Identification of the objective and subjective causes that affect the process of implementing the revenue estimate.

- Analysis of the pros and cons in the process of managing the organization of tax collection by tax authorities at all levels; influencing factors and lessons learned to improve the organization of revenue management and develop an appropriate process of managing collection.

- Accurate determination the ability of taxpayers to pay taxes as well as the tax contributions of different regions and economic sectors.

However, the VAT forecasting has some limitations, such as:

- Up to now, the analysis, forecasting and construction of revenue estimates have not been fully and correctly acknowledged. Therefore, the investment in the analysis and forecasting is limited as it does not apply modern technology to the analysis; and does not improve the capacity and facilities to serve the task of collecting, processing, synthesizing, archiving and providing information to the statistical system to create a source database for analysis and projection.

- Slow adoption of the new method of predictive analysis and estimation of revenue. Up to now, the taxation industry has been using traditional analytical methods, mainly based on the trends of previous years and the determination of economic indicators such as output, price, sales, cost, income of a number of products and services that have large tax payments. The current VAT forecast does not really apply to either a micro- or macro-economic model but only to the trend of revenues. Although VAT is a fairly stable tax in terms of tax policy and tax base, in the situation of current tax reform requirements, the simple forecasting method is no longer appropriate.

- The quality of the statistical reporting system is still low and does not meet the requirements of modern forecasting analysis. The database used for forecasting analysis has not been prioritized, invested, reviewed, archived systematically and is not abundant. In addition, the identification of an effective forecasting model is not available, so the data input for forecasting is not sufficient and updated, many statistical indicators of the tax sector do not comply with national statistical standards and not in accordance with international practice. On the other hand, the unification and integration of databases on tax calculations and underlying economic parameters affecting tax collection efforts are not available.

- The capacity and experience of forecasting staff are lacking. The number of analytical and forecasting staff is limited. Most analysts and forecasters have not been trained in finance and taxation, and have not yet had access to quantitative analysis and forecasting methods.

- Theoretical basis for the development of analysis and forecast model has not been invested in proper research, but instead, is in the initial stage of research.

- The results of the forecast analysis are generally local, sketchy, emotional, not quantifiable to determine the relationship between the components of GDP and the revenue results as well as their mutual impacts. The standard deviation between the state budget and actual settlement is large over the years. In the period 2003-2016, the difference between the amount collected in the balance sheet and the estimate was about 9.87%. In the post-crisis period from 2010 -2013 the level of bias was up to 18.61%; specifically, in 2010, the draft budget for VAT were 123,977 billion dong, but the final settlement of VAT was 155,022 billion dong; and in 2013 the VAT in the estimation is 258,494 billion but in the settlement report is 208.535 billion dong. This may be due to the fact that revenue forecasts do not reflect the economical and political changes. In addition, the actual VAT collected in the finalization reports is lower than the estimated VAT amount over many years, which may be due to tax incentives, tax reductions, tax compliance and tax refunds in export and investment activities.

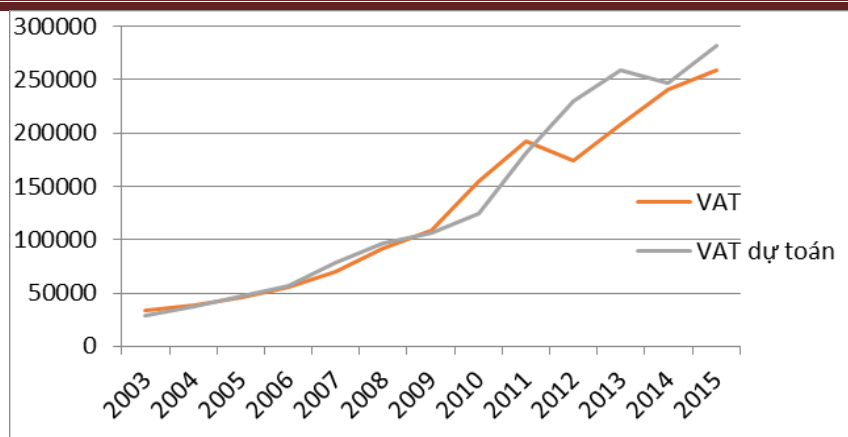


Figure 1: VAT estimated and settled in period 2003 -2015

Source: Ministry of Finance, 2016

4. The application of VAT revenue forecasting model in Vietnam

Derived from the analysis of the actual status of VAT receipts and based on available data from the General Department of Taxation, the General Statistics Office, the Ministry of Finance and the Ministry of Planning and Investment; the research team proposes the application of four models for VAT revenue forecasting, including the Autoregressive Integrated Moving Average (ARIMA) model, the macroeconomic based model, the effective tax rate model, and the monthly revenue forecasting model.

4.1. Models used in forecasting

4.1.1. ARIMA model

The ARIMA model forecasts future VAT revenues derived from its past values. The amount of VAT collected in the current period is believed to correlate with the amount collected in the previous period (self-correlation); and the disturbance (random shock) in the previous period affected the disturbance in the present period. To forecast ARIMA-based VAT revenues, the team used a series of 44 quarterly VAT observations from 2005 to 2016 from the Ministry of Finance budget report.

The data string used in the ARIMA model is integrated. So to predict VAT revenues for 2017 with the ARIMA model, we need to consider whether the chain is an integrated sequence.

The Unit Root Test for the differential first-order value chain of VAT resulted in a p-value of 0 (below the critical 1%, 5%, 10%), which demonstrates the rejection of the hypothesis H_0 : variable with unit tests; and the data we are considering has integrated. Also, note the p-value of C and Trend, if this p-value is statistically significant, then the data has an even and trending coefficient, where the resulting table is correct. Therefore, the VAT data collected in step 1 differential has been stopped.

Table 1: ADF test results of the VAT data chain

Data series	Level	ADF test	Prob	Critical value at 5% level
VATq	Deviation 1	-9.563293	0.0000	-3.596616

Source: Author's data processing results

Identification of the ARIMA model (p, d, q) is to find the appropriate values of p, d, q. The above tested VAT data chain indicates that the chain stops at level 1, we have $d = 1$. The determination of p and q will depend on the SPAC graphs = $f(t)$ and $SAC = f(t)$.

Through the self-correlation graph and the partial correlation of the first-order variable VAT value chain, there is a statistically significant (PAC1) correlation coefficient, which may be appropriate for the model AR (1). As such, p can have a value of 1. Similarly to the definition of p, we see that q can have a value of 1. Thus we have the ARIMA model (p, 1, q).

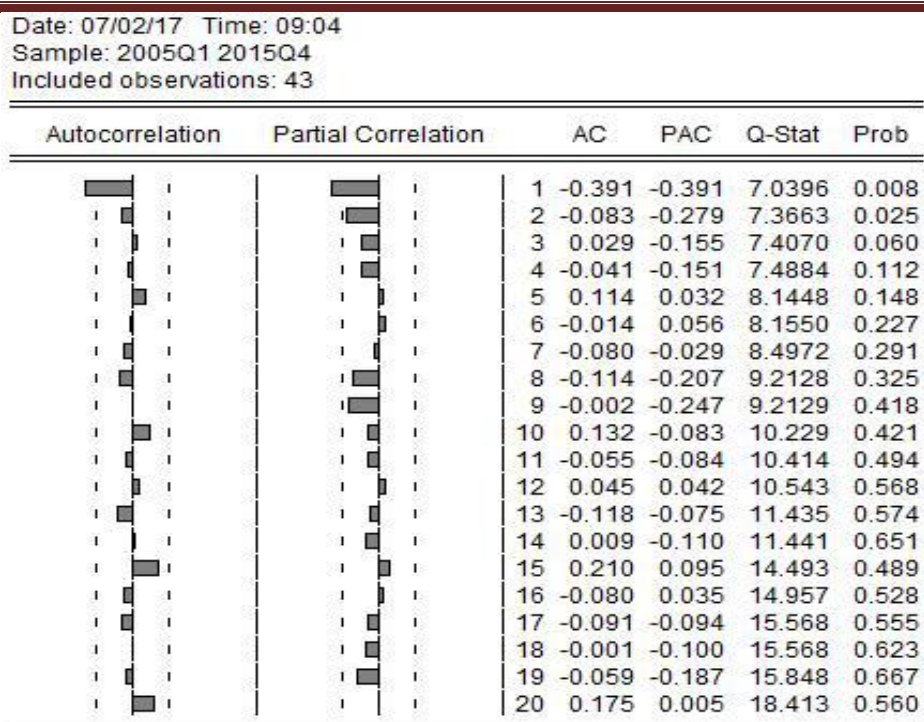


Figure 2: Self-correlation graph and partial correlation of the sequence

Source: Author's data processing results

In fact, the VAT rate is less variable, so VAT revenues often depend on the potential tax base as the final expenditure of the individual and the government. While final consumption usually has seasonal factors, in quarter (Q) 1 and Q4 consumption levels tend to increase. Therefore, the team will consider adding seasonal factors when making predictions using the ARIMA (SARIMA) model.

To test the suitability of the models we are based on AIC / SBC / HQ standards.

Table 2: Model selection according to AIC / SBC / HQ standards

Model	AIC	SBC	HQ
AR(1)MA(1) SAR(4)	19.88138	20.04358	19.94153
AR(1) MA(1) SMA(4)	19.88138	20.04358	19.94153
MA(1)	19.91448	20.03613	19.95959

Source: Author's data processing results

According to the AIC standard, the model chosen for the current VAT collection is self-correlated with VAT revenues and shuffles (random shocks) in the previous period and a fourth-grade delay.

According to the SBC standard, the model chosen for the current VAT collection is self-correlated with VAT revenues and shocks (random shocks) in a previous seasonal period and 4th grade delay.

According to the HQ standard, the selected model is the VAT collection in the current period only correlates to random shocks in the previous period.

After estimating the SARIMA models obtained according to the AIC/SBC/HQ standards, we have a residual stop sequence and most of the latencies are in terms of white noise. Therefore the selected models are suitable, unmotivated and have a small variance.

Proceeding from the models according to the selection criteria, we have forecasted the VAT revenue for 2017 as follows:

Table 3: Results of the 2017 VAT forecast from the self-regression model

Unit: Billion VND

Model	2017 Q1	2017 Q2	2017 Q3	2017 Q4
AR(1)MA(1) SAR(4)	72629.35	73997.82	74366.28	73734.74
AR(1) MA(1)SMA(4)	71887.24	72617.86	72861.02	72207.14
MA(1)	71760.06	70577.71	71893.12	72241.59

Source: Author's data processing results

In the selected models, when forecasted according to the HQ standard, the error of the forecast is the lowest: 4.77%. Total forecasted VAT for 2017 according to the model is VND 286,472.48 billion.

Table 4: Forecast error of self-regression models

Model	Root Mean Squared Error	Mean Absolute Error	Mean Abs. Percent Error
AR(1)MA(1) SAR(4)	4124.044	3592.031	5.72175
AR(1)MA(1)SMA(4)	4096.548	3571.552	5.692394
MA(1)	3557.33	2934.791	4.768390

Source: Author's data processing results

4.1.2. Model based on macroeconomic variables

The forecast of VAT revenues may be derived from establishing a stable empirical relationship between the growth of VAT revenues and the corresponding increase in the tax base. In this method, the team chooses to consider the relationship between VAT and GDP. Data is taken as a series of data on VAT and GDP representing the quarterly tax base for the period 2005 - 2016 from the Ministry of Finance and the General Statistics Office. Data entered into the model is the natural log of VAT and GDP. In addition, according to the analysis of tax policy change and VAT collection, the team added further dummy variable D to the model to examine the change in other factors on VAT revenues. Specifically D assumes a value of 0 representing the pre-crisis period of 2009 and D assumes a value of 1 for the post-2009 period.

The team used the following log-linear model:

$$\ln \text{VAT} = \alpha + \beta * \ln \text{GDP} + \gamma D + u_i$$

Linear regression

Number of obs = 44
F(2, 41) = 128.73
Prob > F = 0.0000
R-squared = 0.8205
Root MSE = .26456

lnvat	Robust		t	P> t	[95% Conf. Interval]	
	Coef.	Std. Err.				
lngdp	.4956721	.1048775	4.73	0.000	.2838676	.7074766
d	.8392019	.1099357	7.63	0.000	.6171823	1.061222
_cons	3.997765	1.208623	3.31	0.002	1.556903	6.438628

Figure 3: Results of regression model estimation

Source: Author's data processing results

After the hypothesis testing of the model the estimate was obtained without deviation and the coefficients were statistically significant at α levels of 5%

\
Ramsey RESET test using powers of the fitted values of lnvat
Ho: model has no omitted variables
F(3, 38) = 1.03
Prob > F = 0.3893

Figure 4: Regression model test results

Source: Author's data processing results

The model's results show that average VAT revenues increased by 0.495% on a 1% increase in GDP, given that other factors remained unchanged, and that the 2009 economic crisis had an impact on the VAT.

We have a model for forecasting VAT revenues by GDP as follows:

$$\text{LnVAT} = 3.997765 + 0.4956721 \text{ LnGDP} + 0.8392019 \text{ D} + u_i$$

Based on the forecast of the world and domestic economic outlook for the period 2016-2020 from the National Center for Socio-Economic Information and Forecasting, we have forecasted GDP growth, from which forecasted VAT receipts as follows:

Table 5: Results of the VAT forecast for 2016-2018 from the regression model

Year	Low-end		High-end	
	GDP (%)	VAT _t (billion dong)	GDP (%)	VAT _t (billion dong)
2016	6.2	267,195.54	6.67	267,799.46
2017	6.35	275,605.57	6.83	276,865.65
2018	6.75	284,826.74	7.62	287,322.92

Source: Author's data processing results

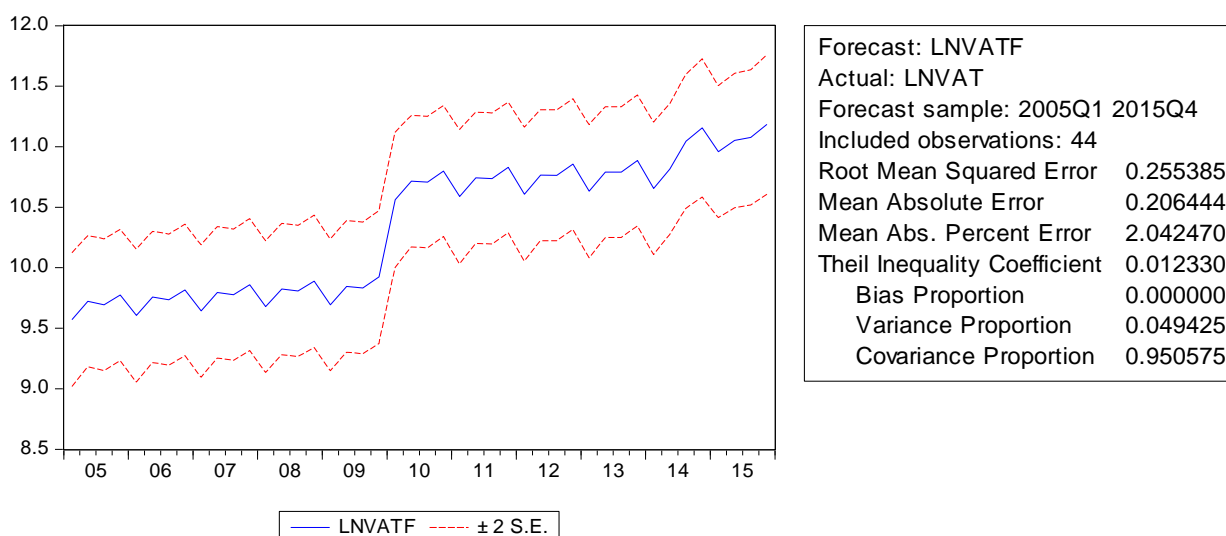


Figure 5: Forecast errors of the regression model

Source: Author's data processing results

Thus, according to the forecast model, VAT revenue in 2017 is estimated at 275,605.57 billion dong with a 6.35% GDP growth scenario; and 276,865.65 billion dong with the GDP growth scenario of 6.83%. The predicted error in the average sample is 2.04%.

4.1.3. Forecasting Method Based on Effective Tax Rate (ETR)

To forecast tax revenue in the near future, we need to calculate effective tax rates by dividing the tax revenue by the estimated tax base. Then, we forecast the tax revenue by multiplying the tax base forecast for the following period with the effective tax rate for the current period.

The data taken was the VAT amount for the period of 2005 - 2016 according to the Ministry of Finance's final settlement report of the state budget; the potential tax base to be used is the final consumption expenditure of individuals, households and the government for the period 2005-2016 from the World Bank database.

Table 6: ETR of the VAT period 2003 – 2016

Year	VAT	Final Expenditure	ETR
2003	33,130	512,454.87	6.46%
2004	38,814	621,501.67	6.25%
2005	45,878	635,765.00	7.22%
2006	55,148	725,509.00	7.60%
2007	69,822	922,651.00	7.57%
2008	91,506	1,246,796.00	7.34%
2009	108,549	1,324,379.00	8.20%
2010	155,022	1,564,832.00	9.91%
2011	192,064	2,067,736.00	9.29%
2012	174,056	2,247,562.00	7.74%
2013	208,536	2,550,787.55	8.18%
2014	241,103	2,752,258.80	8.76%
2015	259,229	3,003,264.80	8.63%
2016	277,192	3,342.54	8.87%

Source: Author's data processing results

Calculate the ETRs for the years 2003 to 2016 by taking the actual VAT divided by the final consumption for goods and services. It can be seen that the ETR of VAT is rather high and is increasingly improving, reflecting a good level of tax compliance.

Given the assumption that the VAT rate is unchanged in the next period, we can obtain the ETR of 2016 at 8.87%. According to the Center for Economic Analysis and Forecast, the final consumption forecast for 2017 rose 7.2 percent. VAT in 2017 is forecasted at 277,893.5 billion dong.

4.1.4. Monthly revenue forecast model

With the data from the Internal Revenue report of the General Department of Taxation in the first 4 months of 2017 and 12 months of 2016, we can forecast the VAT revenue of the last 8 months of 2017.

Actual growth rate of total VAT revenue for the 4 months of 2017 compared to the same period of 2016 is 18.76%. The growth factor for the subsequent months of the period from 2016 to 2017 is estimated at 10.38% assuming a GDP growth rate of 6.2%; and 10.7% assuming a 2016 GDP growth rate of 6.67%.

In fact, VAT is a very high effective tax rate (ETR), which can reach up to 8.63% in 2016. The ETR is the ratio between the actual and potential tax revenue. Or else the ratio C (equal to the effective tax rate divided by the standard rate, here is 10%) is 86.3%. This means that tax exemptions are low and compliance is high. In the monthly revenue forecast model, the author does not adjust the change in effective tax rates in the following months of 2017.

According to the model of monthly revenue forecast, in the last 8 months of 2017, the domestic VAT amount is 141,017 billion dong; and the total domestic VAT in 2017 is 207.537 billion dong with the GDP growth rate of 6.67%.

Table 7: Forecast of local VAT in 2017

	2016	2017	
		GDP growth rate 6.2%	GDP growth rate 6.67%
Month 1	15914.244	22840.07885	22840.07885
Month 2	13740.86039	16864.69926	16864.69926
Month 3	12444.93438	13495.68306	13495.68306
Month 4	13913.30023	13319.58115	13319.58115
Month 5	13962.41669	15412.53012	15456.27903
Month 6	13462.62017	14860.82557	14903.00844
Month 7	12988.87184	14337.87452	14378.57299
Month 8	11982.98833	13227.52162	13265.06831
Month 9	16085.95672	17756.61749	17807.02016
Month 10	22188.42783	24492.88113	24562.40487
Month 11	19817.21775	21875.40111	21937.49506
Month 12	17260.66191	19053.32562	19107.40902

Source: General Department of Taxation, 2017 and author calculations

4.2. Comparison of models for forecasting value added tax in Vietnam

With actual data of 2017 VAT revenue is 255,724 billion dong (Dang Thi Han Ni, 2019), the following models of VAT prediction can be compared as follow:

The ARIMA model will help to forecast with greater confidence from traditional econometric modeling approaches, especially for short-term forecasting and future forecast environments with little variation. Modeling tools and model data are simple and easy to collect.

In practice, however, VAT revenues depend on changes in the tax base, standard tax rates, tax compliance, and changes in policy and economic environment. Therefore, the application of the ARIMA model is just a reference to consider the evolution of VAT from the past to speculate for the future rather than to show the impact of other factors on the actual tax revenue.

Applying the ARIMA model, VAT in 2017 is forecasted at 286,472.48 billion dong.

The ETR-based model forecasts the VAT revenues from potential tax bases, and the effective tax rates. Therefore, this approach takes into account taxpayer issues or exemptions. But in this approach, the difficulty is to estimate the potential VAT base, not available in the tax authorities database. The identification of potential tax bases is limited to household and government final consumption, which has to be adjusted to the added value of the exempt industry and of the duty-free establishments.

Applying the model, VAT in 2017 is forecasted at 277,893.5 billion dong.

Monthly forecasting model is implemented with monthly revenue generation rather than actual tax potential. Monthly forecasting is a useful tool for allocating targets for taxation and monitoring, made for tax officials and for forecasting seasonal revenues.

Applying the model is also simpler when data requirements are very small. Just calculate the monthly revenue of the last 12 months of the year, the monthly revenue this year and the GDP growth rate expected for the current year.

However, this model is not suitable for analyzing impacts on tax revenue and is limited to the expected monthly revenue forecast.

According to the model of monthly revenue forecasting, the total domestic VAT in 2017 is 207,537 billion dong with the GDP growth rate of 6.67%.

The macroeconomic model allows forecasting the VAT revenues in terms of elasticity with GDP and can produce fairly predictable results and allow for longer-term forecasts (1 to 3 years). Specifically:

Firstly, VAT revenues depend largely on the tax base because VAT is stable and less subject to tax rate and compliance. Especially, since the introduction of the VAT law in 1997 till now, the VAT policy has not changed much in terms of calculation method, taxable price and tax rate. After the VAT law was amended in 2003 up to now, the standard VAT rate is only 10% and the preferential rate is 5% and 10% respectively. In addition, the average C rate (equal to the effective rate / standard rate) of the period 2005-2016 is more than 81.6%, meaning that the deduction is not high and the actual tax loss rate is not high; especially, because the taxation is bound between the stages of production, circulation and consumption of goods and services.

Secondly, GDP as a proxy for economic activity has a theoretical macroeconomic background. GDP is capable of explaining specifically to tax revenues, and may eliminate other macroeconomic factors that do not have statistical significance in the model. Furthermore, the use of one or more explanatory variables in the model minimizes or eliminates the problem of multi-collinear.

Thirdly, the macroeconomic model also takes into account some of the effects of policy changes in certain periods by including dummy variables into the model.

However, according to regression results, R^2 is not good (82%), the model has some disadvantages:

Firstly, the determination of the VAT base derived from GDP is not sufficient. The VAT base must come from the government, individual and household end users; adjusted for total value added in tax-exempt areas such as finance, insurance, agriculture.

Secondly, the change in the taxpayers attitudes, or in other words, the level of compliance is not reflected in the model.

Thirdly, revenues and GDP have mutual impacts. Here, both tax revenues and GDP are no longer exogenous factors but have joined together within the model.

Finally, in the coming time, VAT reform focuses on one issue: revising and supplementing to reduce the number of groups of goods and services not added to VAT; groups of goods and services are subject to a tax rate of 5%. This means increasing the number of goods and services subject to a tax rate of 10%. The provisions on turnover thresholds for the application of VAT declaration forms are compatible with the market economy regime managed by the State and international practices. There will be changes in the tax base of the VAT, and the tax rates of some industries, which will have an impact on the effective tax rate and the level of VAT compliance. This will change potential VAT bases, potential VAT amounts and actual VAT amounts. The application of a simple macroeconomic model between GDP and VAT will not reflect all of these changes.

According to the macroeconomic model, VAT revenue in 2017 is estimated at 275,605.57 billion.

The research results indicate that the use of monthly revenue forecasting model and macroeconomic model is most suitable in the case of Vietnam.

5. Solutions and recommendations

Based on the analysis of the current situation of VAT forecasting and the application of forecasting models, the research team proposed some solutions to enhance the forecasting of state budget revenue in Vietnam in three steps, including: developing a logical forecasting model, building database, and finally implementing the model.

Firstly, regarding forecasting model:

The application of simple model like monthly forecasting model is meaningful in monitoring and allocating targets in tax collection management, whereas ARIMA model is only for reference when impacts of factors on VAT revenue cannot be evaluated.

To provide an accurate VAT revenue forecast, the forecasting agency needs to use a variety of complex models so as to forecast the impact of Vietnam's typical economy on the collected amount. The microeconomic model allows the forecasting of potential VAT revenue over a 1-3 year period for the state budget estimation, nevertheless, it does not accurately reflect the impact of each policy on VAT revenue. The application of this model brings effective forecast of VAT collection amount since it allows considerably accurate calculation of tax base and changes of such factors as tax rate, tax base, compliance rate on VAT revenue. However, in Vietnam, the current I/O table has only been updated by 2012, and the incompatibility between data on budget revenue from taxation by sectors and the division of economic sectors in the I/O table of General Statistics Office has caused difficulties for forecasting. Therefore, the forecasting agency must develop its own model, in particular the model for calculating tax base and arising VAT in each sector, from which to forecast VAT revenue when there are changes in tax rate and tax exemption in specific industries.

Secondly, regarding building database for the model:

The accuracy and connectivity of data will determine the final quality of the models and their results. Therefore, the forecasting agency needs to develop a consistent, complete and timely database on budget revenue and other indicators in the forecasting model. Database needs to be collected from three following sources:

- Available data at tax sections, divisions, departments such as VAT categorized by taxpayers, VAT refund on a monthly, quarterly and annual basis must be collected and reviewed.

- The data collected from relevant agencies must be compatible with forecasting models' input data such as GDP, final consumption, value added by sectors, VAT on imports, VAT refund on exports.

- The new data corresponding to variables designed by the forecasting agency to put into the forecasting model that has not been collected, for example: VAT base, VAT by sectors, etc. These information can be obtained from the management of taxpayers, VAT declarations, invoices and documents at all tax district departments and tax departments across the country. Accordingly, each invoice has its own code on the electronic declaration system. We can base on the fact that this invoice code does not appear in the VAT deduction (final consumption) to calculate VAT. Likewise, VAT base and VAT number by sector or region can also be determined based on this invoice code. So when there is a change in tax rate and tax base policy, we can analyze the fluctuation of VAT revenue.

Thirdly, regarding implementing the forecasting model

Currently, VAT forecast and state budget forecast are both performed by the State Budget Department. This will lead to inevitably limitations in forecasting, since tax administration agency is the one who directly implements and deeply understands VAT policy. Meanwhile, the Department of Estimation of Taxation under the General Department of Taxation only estimates the collection of VAT in the domestic market, not including VAT on imports and VAT refund on exports, which is managed by the Customs Department. According to the study, the forecasting agency must agree on functions and duties of related units. The General Department of Taxation should organize a specialized unit for forecasting different types of taxes, including VAT. This unit is under the State Budget Department and responsible for analyzing and evaluating the changes in the economy and tax policy, thus introducing an appropriate forecasting model for each period. To determine an appropriate model, the forecasting agency also designs variables into the model and develops statistical indicators for data collection. The Customs Department, the General Statistics Office and other relevant agencies are responsible for supporting and providing statistical data for forecasting.

On the other hand, staff training must incorporate theories on forecasting models and practical application in order to improve the quality of forecasting. The General Department of Taxation's staff should be trained in both econometrics, such as understanding and applying E views, SPSS soft wares, and specialized knowledge in taxation and economics, such as analyzing tax policy. Human resources training is not limited to staff engaged in the work of forecasting but also to statisticians. Because without knowledge of VAT forecasting will lead to the misunderstanding of indicators and variables in the model, thus distorting the data and producing unexpected forecast.

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**EXPERIENCE OF INVENTORY MANAGEMENT ACCOUNTING
IN A NUMBER OF COUNTRIES IN THE WORLD - LESSONS LEARNED
FOR THE VIETNAMESE MANUFACTURING ENTERPRISES IN
INTEGRATION PERIOD**

KINH NGHIỆM KẾ TOÁN QUẢN TRỊ HÀNG TỒN KHO TẠI MỘT SỐ QUỐC GIA
TRÊN THẾ GIỚI – BÀI HỌC CHO CÁC DOANH NGHIỆP SẢN XUẤT VIỆT NAM
TRONG THỜI KỲ HỘI NHẬP

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ABSTRACT

In enterprises, inventory always plays a very important role in the process of production and business activities. For good management of cooperatives, there must be an effective combination between functional departments in the enterprise, in which management accounting is an important management tool indispensable for administrators. Management accounting provides managers in the enterprise with regular information on each type of cooperative system, assessing the current status and economic efficiency that they bring in each business period to ensure the medium of production continuous production while saving storage costs at the most reasonable level to operate business efficiently. However, inventory management accounting in Vietnamese enterprises is still a relatively new content, so the organization and implementation process is still inadequate and embarrassing, resulting in incomplete, timely and unresponsive information meet the management requirements for this important asset division of the business (Pham Thi Tuyet Minh, 2015). It is therefore necessary to study the application of inventory management accounting in some developed countries in the world such as Japan, France, USA to draw lessons for the Vietnamese manufacturing enterprises in integration period.

Key words: Experience, enterprise, inventory, inventory management accounting, integration period.

TÓM TẮT

Trong doanh nghiệp, hàng tồn kho (HTK) luôn có vai trò rất quan trọng đối với quá trình hoạt động sản xuất - kinh doanh. Để quản lý tốt HTK phải có sự kết hợp hiệu quả giữa các bộ phận chức năng trong doanh nghiệp, trong đó kế toán quản trị (KTQT) là công cụ quản lý quan trọng không thể thiếu đối với nhà quản trị. Kế toán quản trị cung cấp cho các nhà quản trị trong doanh nghiệp các thông tin thường xuyên về từng loại HTK riêng biệt, đánh giá hiện trạng và hiệu quả kinh tế mà chúng mang lại trong từng thời kỳ kinh doanh nhằm đảm bảo vừa sản xuất được liên tục vừa tiết kiệm được chi phí tồn trữ ở mức hợp lý nhất để hoạt động kinh doanh đạt hiệu quả cao. Tuy nhiên, KTQT hàng tồn kho trong các doanh nghiệp sản xuất Việt Nam vẫn là một nội dung tương đối mới, do đó quá trình tổ chức triển khai vẫn còn nhiều bất cập, lúng túng dẫn đến thông tin không đầy đủ, kịp thời và chưa đáp ứng được yêu cầu quản lý đối với bộ phận tài sản quan trọng này của doanh nghiệp (Phạm Thị Tuyết Minh, 2015). Do đó, cần thiết phải nghiên cứu quá trình áp dụng KTQT hàng tồn kho trong các doanh nghiệp tại một số quốc gia phát triển trên thế giới như Nhật, Pháp, Mỹ để rút ra bài học kinh nghiệm cho các doanh nghiệp sản xuất Việt Nam trong quá trình hội nhập kinh tế.

Từ khóa: Doanh nghiệp, hàng tồn kho, hội nhập, kế toán quản trị, kinh nghiệm, tổ chức.

1. Introduction about the role of inventory management accounting in enterprises

In enterprises, inventory (INV) always plays an important role in the process of production and sale. Inventory is idle resources stored for future use. Inventories represent more than 50% of total investment cost of an organization. It was also a potential source of waste that needs to be reviewed regularly and closely reviewed e.g. through perpetual stock taking, periodic reviews also as well as internal and external auditing. Another view is that inventory is the number of goods and products created to meet a future demand. This can be manufactured products or supply materials during the manufacturing process. If the company has an optimistic viewpoint and is not worried about inventory

costs, it will increase the inventory level to meet the business demand. Therefore, during the recession period, the enterprise will reduce its inventory. In order to better manage INV, there must be an effective cooperation of functional departments within the enterprise, in which accounting is an indispensable management tool for managements. INV in enterprises exists under a physical form, including many different objects, types, characteristics, storage conditions and formed from many sources. Determining its quality, condition, as well as the value of INV, is a difficult and complex task, which is not only reflected in the perspective of financial accounting but also management accounting. Poor inventory management accounting can result in increased costs during construction. Efficient management accounting of inventory can result in substantial savings in project costs. If inventory are purchased too early, capital may be held up and interest charges incurred for the excess inventory of inventory. Inventory may deteriorate during storage or get stolen unless special care is taken. Delays and extra expenses may be incurred if inventory required for particular activities are unavailable (Okwaro et al, 2017). However, management accounting in general and inventory management accounting (IMA) in particular in the manufacturing enterprises in Vietnam is still a relatively new concept, so the implementation process is still inadequate. Subsequently, there is not enough or updated information to meet the management requirements for this important asset division of the Enterprise.

Literature reveals that municipalities play an increasingly important role to deliver basic governmental services to the community. To achieve this, governments around the world, on all levels, have invested significant resources in municipalities with very mixed results, according to Schatteman (2010). As one of these municipal resources, inventory has become more complex and fragmented, and the question how it should be controlled has become more critical. Likewise, a study conducted by Schatteman (2010) in France reported municipalities to have abused government resources including inventory stocks. The author concludes that country municipalities need to be audited before any realistic measurement is made. Another study by Huefner (2011) found that inventory control was weak and caused losses in the twenty four municipalities of New York State. In the same manner, an article of Internal Audit Report (2005) found that poor IMA has resulted in a loss of \$ 118.25 in the Anchorage Municipality of the United State. In addition, the Audit report from the City of San Diego, in America, found that the authorization process for ordering goods or materials lacks strong controls, resulting in improper processing of unauthorized requisitions. Moreover, these results also indicated the lack of division of duties in the process of authorizing the purchase and issue of stocks.

The research methodology of this study was based on the data collection methods, questionnaire and the techniques used to analyse the data. A qualitative research method explores the attitudes, behaviour and experiences through methods such as open-ended questions, interviews, and focus groups. It attempts to get a broad opinion and comprehensive understanding of the phenomenon from the views of participants. Briefly, Welman *et al.* (2011) explain that a qualitative research has its own set of strength and disadvantages. Its strength includes creating a better understanding of the responses whereas its disadvantage is that its time consuming. This study did not conduct interviews; instead, it was predominantly quantitative in nature with only two open-ended questions allowing the respondents to express their views and opinions in the questionnaire. The study assisted the management accounting ensuring effective inventory management efficiency at all times as it was aid those entrusted with decision making to formulate strategies of combating the persistent problem of inventory management efficiency in the business. The research findings would hopefully add to the body of knowledge in the area of inventory management efficiency for common user items which would help researchers and scholars and be a basis for reference.

Up to now, Vietnam's accounting system in which IMA is still quite inadequate compared with many countries. According to the preliminary survey results in 2017 of the author, the number of enterprises knowing and applying IMA standards was simply about 23%; up to 61% of enterprises surveyed answered that they knew but did not apply, the rest were unknown.

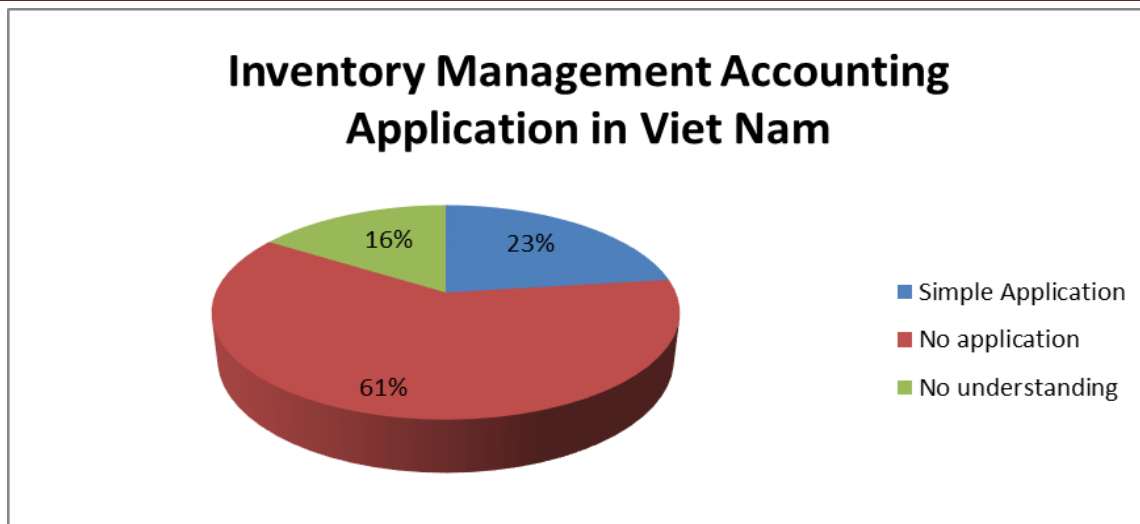


Figure 1: The percentage of applying inventory management accounting in Vietnamese manufacturing enterprises

Source: Author's survey (2017)

The awareness and the application process of IMA in the conditions and environment of Vietnamese enterprises are still having difficulties such as: enterprises have applied IMA but the application model is not scientific and reasonable, the knowledge of IMA Executive has not met the demand, the IMA information provided is still limited ... Therefore, it is necessary to study IMA application process in some developed countries in the world such as Japan, USA, France to draw some lessons for Vietnamese enterprises in the process of economic integration.

According to the author, Inventory management accounting is a part of Management Accounting that collects, processes and provides specific information about inventory for internal management purposes in enterprises. IMA in enterprises not only receives, processes, provides past information about the situation of managing and using inventory in time and meets the management requirements but also receives, processed and provides future forecasting information, forecast of consumption, serves as a decision of administrators: developing specific order plans as well as the selection of reliable suppliers who can be in a long-term relationship. Information provided by IMA not only includes financial information but also includes non-financial information. With the role of providing information for decision making, IMA information is extremely important for administrators. IMA has the function of linking between purchased and sold goods. When supply and demand of a certain kind of inventory are not consistent between periods, maintaining a regular amount of inventory to accumulate during peak periods is a very important task that every enterprise needs. When implementing this function well, the enterprise will ensure the consumption of goods, its prestige and especially the buying and selling prices. Inventory will be a good investment activity of the enterprise if the Managerial Accounting department has the right information and plans, calculations taking into account the risks in the reservation process. Thanks to the IMA information, the administrator then can plan to determine the demand for production and consumption, when to buy and what is the amount of each purchasing so as to achieve the highest efficiency in product management and consumption (Garrison, 2008). Therefore, IMA information facilitates the management functions to be better implemented and associates business activities with the environment outside the enterprise. It is through the exchange of information that enterprise, especially administrators, can understand the needs of customers, the capabilities of suppliers and the problems which can arise internally.

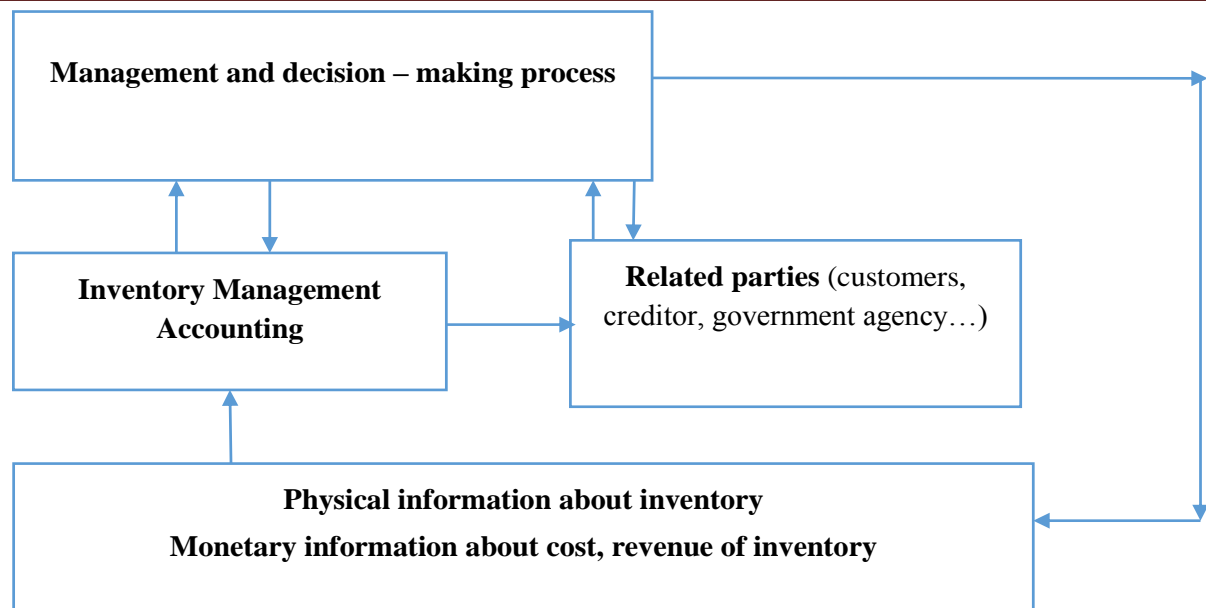


Fig 2: The role of IMA for decision – making in business

Source: Mayanja MK and Vander Poll HM (2011)

2. Inventory management accounting experiences in a number of countries in the world

2.1. Inventory Management Accounting experience in the Japanese enterprises

Although it does not have such a long-lasting development in the UK and the US, IMA in Japan has strongly increased since the World War II. IMA with management functions in Japanese enterprises is greatly influenced by Western countries, especially those of Germany and Britain before World War II and later by the United States. The IMA system in Japanese enterprises is often built separately from the Financial Accounting system. In order to serve the functions of governance, IMA has to accomplish 4 purposes, including: Planning and budgeting (operating budget, strategic budget); determining inventory costs; calculating the price; making decisions (Yoshikawa, 2001). According to the survey results of Howell, Robert A. Sakurai and Michiharu (2007) in 500 Japanese manufacturing enterprises listed on the Tokyo stock market, Japanese manufacturing enterprises all considered the IMA system as an important role in managing inventory costs, establishing and controlling inventory estimates, determining selling prices as well as making business decisions.

Japan is a country that has successfully adopted a timely inventory management model (JIT - Just in time) and this model plays an important role in inventory management activities in particular and serves as management function in general. Many researchers believe that what Japan has accomplished today comes from a production foundation on that wonderful system. The foundation of the Toyota manufacturing system is based on the ability to continuously maintain product lines in factories to adapt flexibly to market changes, which is the premise for the later concept of JIT. Excess inventory and labor are minimized, thereby increasing productivity and reducing costs. In another study on the IMA application in Japanese enterprises conducted by Mahajan Sahil (2007) in 12 mechanical manufacturing enterprises, 5 commercial enterprises and 3 enterprises in the supply chain showed that the had the application of JIT is commonly applied in small-scale Japanese enterprises having less than 100 employees such as TS Corporation, Shinryo Co Ltd or in large-scale enterprises having more than 1000 employees like Toshiba, Toyota ... in all industries, services, construction, logistic ... JIT is a production philosophy with the goal of eliminating all sources of waste, including unnecessary inventory and production scrap. It can be said that the contribution of the IMA system to the success of Japanese enterprises is undeniable and one of the reasons for this success is that the IMA Executives have a deep understanding about their business. Before being an IMA Executive, they have to work in many other areas of enterprises such as Production, Marketing and Design departments, etc. The number of IMA

Executives in a Japanese enterprise is also larger than those from other countries. According to a 2007 survey by Howell, Robert A. Sakurai, Michiharu, there were 18 IMA Executives on average in a Japanese Manufacturing Enterprise, and only 9 IMA Executives in German Manufacturing Enterprise, and in other countries this number was much smaller. In addition, the IMA system of in Japanese enterprises is very closely involved in the process of estimating inventory costs for new products. The estimation of inventory costs for new products in Japanese enterprises was conducted very early, right from the planning stage (Mahajan Sahil, 2017). The IMA Executive closely participated in determining the quota of raw materials consumption through estimation. In the period of manufacturing products, Japanese enterprises apply JIT to manage and cut inventory costs, especially in automobile and electronics manufacturing enterprises ...

2.2. Inventory Management Accounting experience in the French enterprises

A special feature in the IMA system of the French Accounting Chart is that the inventory is done in compliance with the periodic inventory method. The regular method is only used in analytical accounting to calculate the cost and price of all kinds of inventory. Under the guidance of the French Ministry of Finance, the IMA model has a more detailed level than the British-American model. The general regulations on IMA in France instruct enterprises to control their inventory by making reports on implementation and estimation based on accounting data but in fact, most French enterprises do not use these guidelines, they make inventory evaluation reports based mostly on non-financial information, not on financial data provided by accountants. Although the studies of accounting in this country encouraged enterprises when calculating inventory price, it is necessary to use many allocating production cost criteria, in fact the application of these theories is very limited, mostly using the criteria based on the volume of production. In French enterprises, IMA is considered as a tool in the corporate governance system, so the IMA organization is integrated with the Enterprise Resource Planning (ERP) and the Institute of Management Information System (IMIS)... According to Lucas Malcolm (2013), the purpose of the international economic inventory of enterprises is to accumulate, classify, evaluate, calculate and analyze the cost of cooperatives connected with production plans and strategic goals of businesses. On that basis, the general model of the international economic inventory of inventory includes the following basic contents: Classification of cooperatives, determination of cooperation costs and accounting bookkeeping system; System of calculating and allocating inventory cost and handling cost control process; inventory analysis and evaluation system; Detailed report system for inventory.

Therefore, besides the IMA system, the ERP also provides useful information about inventory. Inventory management features of ERP are directly linked with the Accounting and Sales department and also help these two departments quickly place orders, quote and set up contracts; which brought satisfaction to customers. According to research by Tamas Vamosi (2005), the results from the change and control of production processes, input materials have helped Manufacturing Enterprises in France save about 100,000 euros annually and increase productivity by 30% more. Thanks to the application of optimal Inventory Management method, these enterprises have reduced huge costs; comparison of the cost data of 2003 with 1993 showed that the cost of capital decreased by more than 50%, reducing operation costs by 35%, saving 28 million euros for storage costs. French businesses use the standard cost method in calculating product prices quite regularly. According to IFAC (2012), the percentage of enterprises using standard cost methods in France was 64%, 56% in Germany and 60% in Spain. The standard cost method are used by these enterprises to determine product cost, estimate and control inventory cost in the supply chain and evaluate performance, especially in foreign and joint venture enterprises in France. The application of measurement of inventories is quite limited in France (Gary C - Biddle, 2009). French businesses only use ABC (Activity Based Costing) method in their subsidiaries which are dominated by overseas parent companies.

2.3. Inventory Management Accounting experience in the American enterprises

America is a country with a long history of developing management accounting for both theory and practice. However, IMA in US enterprises is not organized into a separate accounting department but in relation to Financial Accounting, the departments perform each part of the assigned work. According to the survey of manufacturing enterprises in the US in 2014 by the National Accounting Association (NAA), 42% of enterprises applied JIT method, the purpose of this method was to help US enterprises easily estimate the amount of products and materials in stock, determining the amount of reserves whether is excessive or missing, is a relatively high rate compared to developed economies; 18% of enterprises applied EOQ method, 33% of enterprises applied both JIT and EOQ methods. In 2016, IMA for inventory management through the supply chain in Cordenos company which specialized in the production of art paper helped the company save annual costs; reduce scrap costs from \$630,000/year to \$54,000/year; reduce the inventory rotation time from 3 months to 2 weeks; time to order materials decreased from 7 days to 3 days. IMA has supported the effective investment in this paper company: the inventory cost in analyzing the IRR in 5 years increased from 2.6% to 35% thanks to annual savings from projects which is 3 times higher than the initial estimate. In the US, Derya et al (2005) studied the effect of excess inventory on long term stock price performance. The problem of inventory has continued to receive much attention in most businesses. Inventory levels of raw materials, semi-finished and finished goods need to be effectively managed to control the cost of inventory.

Fung (2012) pointed out that the process of implementing inventory organization in US enterprises is done through 4 steps: Shaping cooperative activities carried out in enterprises through strategic budget; determine the cost of each activity; select the cost allocation standard of joint activities in direct relation with the final product and allocate operating costs for inventory through appropriate standard. By adopting this model, many companies in the US were able to create a cost-competitive advantage and continually add value to shareholders and customers.

On the other hand, the success of this company also came from the performance of corporate governance, the ERP system was effectively operated to meet all demand for costs including Management Accounting information and was designed for each workshop. The inventory management function of ERP helped enterprises identify and quickly obtain information inventory so that they could have strategies to promote the release of inventory, reduce the need for capital mobilization, thereby contribute to promoting efficiency business. The modern measurements of inventory (ABC costing method, Variable costing method...) were developed in the US since the mid-1990s and are considered as effective price calculation methods to determine product prices in a complex operating environment because these methods will help US enterprises detect activities that do not add value, limit points in production and can cut product costs for enterprises (Huefner, R. J. 2011). These methods are evaluated as a tool to connect the product price determination system with the strategic objectives of the enterprise. According to the survey results of manufacturing enterprises in the US by NAA in 2006 the rate of applying these methods was 30% and in 2010 it was 38%, in 2013 it was 42%. However, the traditional measurements of inventory (the total price calculation method) is still applied quite popular among US enterprises, according to NAA in 2013, about 26% of US enterprises still used the traditional measurements of inventory. Thus, enterprises in the US are continuing to apply different measurements of inventory. Enterprises applying the variable cost method to calculate inventory prices have the highest price competition, the most cost-cutting efforts and thoroughly use cost information to analyze profits.

3. Lessons learned for the Vietnamese manufacturing enterprises in integration period

In Vietnam, the concept of Management Accounting has been formed and developed for over 20 years and was officially recognized in the Accounting Law passed by the Congress on June 17th, 2003. On June 12th, 2006, the Ministry of Finance issued Circular No 53/2006/TT-BTC guiding the management accounting application in enterprises with initial orientation for management accounting

implementation in enterprises; however the implementation in Vietnamese enterprises is almost unavailable. Therefore, despite having access to many modern management accounting theory, the application of these theories into Vietnamese enterprises is a really big problem. According to experience of applying Management Accounting in some countries around the world, even in countries with developed economies in both theoretical and practical aspects, the application of IMA is not simple. From research into IMA in the world, it showed the lessons learned for Vietnamese manufacturing enterprises as follows:

Firstly: Enterprises in many countries all over the world have applied IMA as an important tool to improve efficiency, effectively serve the management functions of administrators. Due to the influence of many different factors, the role and process of IMA of enterprises of different sizes in some countries are not quite the same. However, IMA is more effectively implemented in large-scale enterprises with abundant financial resources.

Secondly: IMA is an internal area of the enterprise so the application depends much on the information requirement of the administrators. Awareness of administrators and an understanding and conscious participation of accountants are the important factors for the application of IMA in enterprises.

Thirdly: IMA focuses on making estimation, from purchasing estimates to storage estimates. The estimates must be created in accordance with the business strategy and technical requirements of the enterprise. This approach has effectively worked for Japanese enterprises to improve the efficiency of managing inventory.

Fourthly: The ERP helps enterprises access reliable, accurate and timely management information. Data sources from departments will be focused on a single database and will be shared between all departments based on the authorization feature. Therefore, the application of this software in the activities of IMA will become more accurate, minimizing losses and errors in managing inventory.

4. Recommendations

In light of the findings outlined herein, the following recommendations were made:

Management accounting staff should be adequately equipped with appropriate qualifications, proper training & supervision, ensure adherence of stock record procedures & proper work allocation to promote effectiveness of stock record systems. The enterprise should ensure that inventory control function is only handled by competent well trained supply chain officers, stock record facilities must be adequately provided and full automation of stock control systems and software availed coupled with proper integration with other areas of supply chain management to attain the benefits of perpetual stock verification system, the current inventory audit practices and procedures need to be reviewed and redesigned while a fully computerized stock record system for posting inventory control data is adopted. Also stock records practice should be complied with fully during receipt, issuing, control and recording to ensure accurate and timely inventory management information, too much cumbersome rules and reliance on rigid rules and policies that slow down procurement process should be avoided by adopting a recent technology. Modernize the procurement process through computerization of the systems for example embracing the E-procurement, which will realize real time procurement thus increasing transparency in procuring goods and services .However, it also help in overhauling the paper based system that is inefficiency and lower transactions cost.

5. Conclusion

IMA is a part of Management Accounting in order to provide information about inventory and then each organization can perform the function of managing resource for activities, planning and controlling; evaluate performance and make sound decisions. Experience in IMA in enterprises in some countries around the world showed that although the management accounting methods have relatively long

development steps, the application of such methods into practice in every country is quite diverse. Not all the IMA methods are applied immediately after birth, and not all the traditional management accounting are no longer practical, but the application process depends on the business environment, economic conditions, administrators' requirements and qualifications of accountants in enterprise.

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