

The Impact of Ownership Structure on Bank Performance and Risk: Evidence from ASEAN

Received: January 29, 2019

Revised: June 15, 2019

Accepted: June 25, 2019

Dr.Pornsit Jiraporn

Professor of School of Graduate Professional Studies,
Pennsylvania State University, U.S.A.

Dr.Seksak Jumreornvong

Associate Professor of Finance,
Thammasat Business School, Thammasat University
(Corresponding Author)

Dr.Sung Chang Jung

Professor of College of Business Administration,
Chonnam National University, South Korea

Pree Preechaborisutkul

Manager, PricewaterhouseCoopers, Thailand

ABSTRACT

We investigate the effects of types of bank ownership structure on bank performance and bank risk in the ASEAN countries. The types of bank ownership focused in this study are government, foreign, and domestic shareholders. The empirical evidence reveals that higher domestic ownership is significantly associated with higher bank performance and less risk-taking. The empirical evidence of government ownership is similar to that of domestic ownership, albeit insignificant. The empirical result shows that the foreign ownership is not significantly associated with bank performance and bank risk. Domestic shareholders, with 'home-field' advantage, plays significant role in monitoring and sustaining ASEAN banks. Most previous studies focus on banks in the developed countries. We extend the literature by exploring banks in the ASEAN countries.

JEL Classification: G21, G32, G34

Keywords: Bank Ownership, Bank Performance, Bank Risk, Ownership Types, ASEAN

ผลกระทบของโครงสร้างผู้ถือหุ้นของธนาคารในกลุ่มอาเซียน ที่มีต่อผลประกอบการและความเสี่ยง : กรณีศึกษาจากธนาคารในกลุ่มประเทศอาเซียน

วันที่ได้รับต้นฉบับบทความ : 29 มกราคม 2562

วันที่แก้ไขปรับปรุงบทความ : 15 มิถุนายน 2562

วันที่ตอบรับตีพิมพ์บทความ : 25 มิถุนายน 2562

ดร.ภรตศิษฐ์ จิราภรณ์

ศาสตราจารย์ประจำบัณฑิตวิทยาลัย

มหาวิทยาลัยเพนซิลเวเนียสเตท ประเทศสหรัฐอเมริกา

ดร.เสกศักดิ์ จำเริญวงศ์

รองศาสตราจารย์ประจำภาควิชาการเงิน

คณะพาณิชยศาสตร์และการบัญชี มหาวิทยาลัยธรรมศาสตร์

(ผู้ประสานงานหลัก)

ดร.ชุน จาง จุง

ศาสตราจารย์ประจำคณะบริหารธุรกิจ

มหาวิทยาลัยแห่งชาติซอนนัม ประเทศสาธารณรัฐเกาหลี

ปรี ปริชาปริสุทธิกุล

ผู้จัดการ โปรซอฟเตอร์เข้าสู่คูเปอร์ ประเทศไทย

บทคัดย่อ

การวิจัยนี้ศึกษาผลกระทบของโครงสร้างผู้ถือหุ้นของธนาคารในกลุ่มอาเซียนที่มีต่อผลประกอบการและความเสี่ยงของธนาคาร โครงสร้างผู้ถือหุ้นที่ศึกษา ได้แก่ ผู้ถือหุ้นที่เป็นรัฐบาล ผู้ถือหุ้นจากต่างประเทศ และผู้ถือหุ้นในประเทศ การศึกษาพบว่า ผู้ถือหุ้นในประเทศทำให้ผลประกอบการของธนาคารสูงขึ้นและความเสี่ยงต่ำลงอย่างมีนัยสำคัญ ผู้ถือหุ้นที่เป็นรัฐบาลส่งผลในทางเดียวกับผู้ถือหุ้นในประเทศ แต่ไม่มีนัยสำคัญ ผู้ถือหุ้นจากต่างประเทศไม่มีความสัมพันธ์อย่างมีนัยสำคัญต่อผลประกอบการและความเสี่ยง ผู้ถือหุ้นในประเทศมีความได้เปรียบในความเป็นเจ้าถิ่น รวมทั้งมีบทบาทสำคัญในการกำกับดูแลและสร้างความยั่งยืนให้กับธนาคารในกลุ่มอาเซียน การศึกษาที่ผ่านมาเป็นการศึกษาในประเทศที่พัฒนาแล้ว การศึกษานี้ศึกษาธนาคารในกลุ่มประเทศอาเซียน

คำสำคัญ: ผู้ถือหุ้นของธนาคาร ผลประกอบการของธนาคาร ความเสี่ยงของธนาคาร ประเภทของผู้ถือหุ้น อาเซียน

1. INTRODUCTION

Back in 1997, ASEAN (Association of Southeast Asian Nations) leaders agreed to transform Southeast Asia into a well-balanced and competitive region through equitable economic development. The “ASEAN Vision 2020” (1997) aimed to reduce economic discrepancy within the ASEAN countries. As a vehicle to achieve this vision, ASEAN leaders established the ASEAN Economic Community (AEC). The banking industry in ASEAN is currently targeted for further integration through the ASEAN Banking Integration Framework (Yamanaka, 2013). Although the opening up of the region’s financial industry has seen slow progress by ASEAN bank regulators, banks in ASEAN are attempting to expand through mergers and acquisitions. Cross-border bank ownership includes a wider pool of investors and enables banks to diversify the risk of their portfolios with less exposure to domestic shocks. Most of the ASEAN countries have increased the cap on foreign ownership of banks, leading to more openness across countries. Given the recent development of the banking industry, the bank ownership structure becomes more important as the ownership structure is one of the crucial factors that might affect bank performance and bank risk.

In recent years during 2011–2015, the government-owned banks in ASEAN had quite different performance or return volatility relative to banks with different ownership types. For example, Krung Thai bank, which is a government-owned bank in Thailand, had stronger bank performance and lower return volatility than Bank of Ayudhya and CIMB Thai, whose shares are mainly held by foreign banks. Another example is that Bank Rakyat Indonesia, which is a government-owned bank in Indonesia, had higher performance and low return volatility relative to other banks with foreign or domestic ownership. These examples show that different ownership types might result in different bank performance and risk.

The research objective of this paper is to study the effect of ownership structures on performance and risk of banks in the ASEAN countries. This study aims to add to the existing body of knowledge in the field of corporate finance and banking by examining further the types of ownership structure that could affect bank performance and risk. The study is also intended to shed light on the literature on emerging markets, especially in the ASEAN region. Moreover, this study extends its scope from previous studies by covering not only one specific country but the ASEAN countries and examines the effect of ownership structure not only on bank performance but also on bank risk-taking behavior.

2. RELATED LITERATURE

Ownership structure is a crucial factor in determining the level of efficiency and the possibilities of survival of different types of firms (Jensen & Meckling, 1979). There is a significant difference in bank performance and risk with different types of ownership structure (Iannotta, Nocera, & Sironi, 2007; Shaban and James, 2018). The types of bank ownership structure can be broadly divided into government, foreign, and domestic ownership (Rahman & Reja, 2015; Taboada, 2011).

The Impact of Ownership Structure on Bank Performance and Risk:

Evidence from ASEAN

Generally, government-owned banks have a different operational and business environment from non-government-owned banks. In Vietnam, the government-owned banks performed worst compared to other types of ownership and there is a significant negative relationship between bank performance and government ownership (Son et al., 2015). On the other hand, in Singapore, the non-government banks had lower market valuation than the government-owned banks (Ang and Ding, 2006). According to the reports during the financial crisis in the Asia-Pacific region, banks with government ownership were able to prevent losses (Hossain et al., 2013). In addition, the results of the studies on the relationship between bank ownership structure and performance in Islamic Banks suggested that government ownership had a positive effect on financial performance and reported that banks with domestic and foreign ownership did not perform better than government-owned Islamic banks (Ben and Taktak, 2014).

As far as managing the cost is concerned, foreign-owned banks performed better than public and private-owned banks. Banks with the majority of foreign shareholders outperformed those with other types of ownership (Bonin, Hasan, & Wachtel, 2003). Due to the different style of management, capital, and organization structure, foreign banks have more capitalization and lower non-performing loans as compared to domestic-owned banks (Chantapong & Menkhoff, 2005). During a post crisis period in Russia, foreign ownership played an important role on the efficiency improvement of the domestic industry and also had a positive impact on bank performance (Orazalin, Mahmood, & Lee, 2015). However, Unite and Sullivan (2003) found the opposite conclusion. With an increase in competition in the banking industry due to the entry of foreign banks, foreign banks took higher risk as they acquired less creditworthy loan customers. Therefore, the banks with foreign ownership increased bank risk-taking due to the increase in non-performing loans. Some foreign banks lacked effective monitoring which resulted in lower bank profitability.

Different types of ownership entail different forms of governance. (Shleifer and Vishny, 1994; Easterbrook and Fishel, 1996; Jensen 1993; Berger et al., 2005; Lin and Zhang, 2009; Shaban and James, 2018). There are quite several views for the impact of ownership types on bank performance. The “Social” view says that government-owned banks can overcome market failures and promote investments that increase social welfare (Stiglitz, 1993; Cull, Peria and Verrier, 2018). The “development” view stresses that government-owned banks can play an important role in providing resources to industries that private banks cannot help. Such industries are vital to economic development (Gerschenkron, 1962; Cull, Peria and Verrier, 2018). The “Agency” view, however, says that government-owned bank can be inefficient due to government bureaucracy and the conflict of interest between government officers who are assigned to control those government banks (Banerjee, 1997; Hart et al., 1997; Cull, Peria and Verrier, 2018). Moreover, the ‘political’ view says that the government-owned banks are a hub for politicians to play politics and gain personal profit, which exacerbates resource misallocation

and economic inefficiency (Shleifer and Vishny, 1994; Shleifer, 1998; Cull, Peria and Verrier, 2018). Government ownership is also often considered an inefficient type of ownership compared to other types. Some studies observe inefficiencies, overstaffing and high levels of nonperforming loans in government-owned banks (Sapieza, 2004; Claessey and Van Horen, 2012; Shleifer, 1998).

The ‘hero’ view praises the role of foreign bank ownership which can bring financial resources and innovation including technical skills. Foreign-owned banks also incur competition and efficiency improvement in the banking sector (Levine, 1996; Goldberg, 2004). Nevertheless, the ‘hero’ may turn to ‘disaster’ since foreign-owned banks can destabilize the local banking system by transforming external shocks and destroy local banks by increasing competition (Stiglitz, 1993). The above arguments suggest that different kinds of ownership have different impacts on firm performance. Moreover, the economic and political environments of banks should have an important role in the relationship between ownership types and performance / risk of banks.

Cross-country studies about the different impacts of different types of ownership often find contrasting results. The economic development (Lee et al., 2012) and political factors (Micco et al, 2007) are important factors determining bank performance and risk. Mian (2003) finds that government-owned banks underperform in emerging markets. Fries and Taci (2005) finds that government-owned banks are less cost-efficient in 15 East European transition countries than those of other types. Some studies (Sathye, 2003; Isik and Hassen, 2003 and Fethi et al, 2011), however, find that government-owned banks are more efficient than other types in India, Turkey and Egypt respectively. Dong et al. (2014) find that government banks tend to take more risk than those of other types. Many studies compare foreign-owned banks and domestic-owned banks and find that foreign-owned banks are more profitable (Beger et al., 2004; Isik and Hassen, 2003). Nevertheless, Naaborg and Lensink (2008) find the negative relationship between foreign ownership and performance. They argue that domestic-owned banks have the ‘home-field’ advantage. Under the home field advantage, domestically owned banks are more efficient than banks from other countries. Domestic owned banks have lower operating cost and can overcome the difficulties from regulatory structure and country-specific characteristics. (Robert E. Litan, Anthony M. Santomero, 2010)

Many studies in the banking literature examined the impact of ownership structure on bank performance. Bank performance was commonly measured by the return on asset and the return on equity. Rahman and Reja (2015) studied the commerce banks in Malaysia and stated that types of ownership structure had a significant relationship with bank performance as measured by the return on equity and the return on assets. Moreover, different types of ownership structure also resulted in different levels of bank risk-taking behavior. Public banks have higher risk than other types of bank with regard to risk-taking as measured by the log of insolvency risk, Z, (Iannotta et al., 2007).

The Impact of Ownership Structure on Bank Performance and Risk:

Evidence from ASEAN

Agency theory suggests that there are conflicts of interest between people with different interests in the same assets (Fama & Jensen, 1983). An agency cost arises due to the fact that shareholders face problems in monitoring management. Contractual terms between managers and shareholder may limit management's control and decisions. To reduce this cost, the various contractual mechanisms are designed to align the interests of managers and shareholders (Klein, 1998). Agency costs vary with firm's ownership structure, organization form, and alignment of shareholders' and managers' interests (Fama & Jensen, 1983; Jensen & Meckling, 1976). The previous literature, studying agency problems and risk taking in the banking industry, found a significant relationship between bank ownership structure and its risk and suggested that the shareholder and manager's agency problem affects the choices of risk taking (Demsetz et al., 1997). Types of ownership structure are related to corporate governance practices. The different corporate governance practices have an effect on bank performance and risk management (Tandelilin et al., 2007). The different types of ownership structures may result in different styles of monitoring management and different contractual mechanisms to align the interests of managers and shareholders, possibly resulting in difference performance and risk-taking of banks.

From the above literature, it is interesting to study whether bank ownership types matter regarding performance and risk, especially in the unique economic and political environments of the ASEAN countries. ASEAN countries are agricultural economy where Singapore could be the financial center of the region. Southeast Asia is one of world's fastest-growing markets and one of the least well known. The ASEAN Economic Community (AEC) has a combined GDP of \$2.4 trillion, and is the third fastest growing major Asian Economy after China and India (Royal Academy, 2015). Among the 10 member countries of ASEAN, Brunei is an absolute monarchy, Myanmar, Indonesia (1947–1998), and Thailand (1932–1973, lately May 22, 2014 to present) are under military rule, Laos, Vietnam and Cambodia (1975–1993) are governed by a communist one party system, Malaysia, and Singapore are under the one-dominant party rule, and Cambodia (1993–present), Indonesia (1998–present), the Philippines (Except 1972–1986), and Thailand (on and off since 1973) are governed by multi-party systems. South Korea has joined ASEAN in 1989 as a dialogue partner. Overall, the political system of ASEAN countries may be regarded as undemocratic and information-asymmetric. This undemocratic and information asymmetric environment can invite corruption and agency problem. It is thus interesting to know how bank ownership types behave in fast growing economies with opportunities and inefficient undemocratic markets. This paper focusing on the ASEAN countries analyzes the impact of bank ownership types on performance and risk.

3. DATA AND RESEARCH METHODOLOGY

3.1 Sample Selection

This study is focused on the listed banks in the ASEAN countries. The sample data is collected over the five-year period starting from 2011 to 2015. Since the samples from Lao, Brunei, Cambodia, and Myanmar has less than five subsequent year of time series, those countries are excluded from the study. This study also excluded one delisted bank and sixteen banks listed in the stock market during the sample period. Some of the banks are also excluded from the study due to data unavailability. The final sample of this study consisted of sixty-three listed banks in six countries, namely, Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam. The total number of bank-year observations are three hundred fifteen observations. The data is obtained from Thomson Reuters Eikon, Data stream and annual reports. The sample distribution by countries is presented in the following table.

Table 1: Sample Distribution by Countries

Country Name	Number of Listed Banks
Indonesia	22
Malaysia	10
Philippines	12
Singapore	3
Thailand	11
Vietnam	5
Total	63

3.2 Data Description

The focus of this study is to examine the impact of ownership structure on bank performance and risk. The variables used in this study were defined as follows:

3.2.1 Ownership Structure

In this study the ownership structure is classified into 3 types: government, foreign, and domestic ownership which are the common types of ownership structure used in many previous studies (Rahman & Reja, 2015; Son et al., 2015; Taboada, 2011). Following the recent literature, the ownership structure is measured by the total number of shares held divided by the total number of shares in the bank (Rahman & Reja, 2015; Son et al., 2015). The government ownership is defined as shares held by the

The Impact of Ownership Structure on Bank Performance and Risk:

Evidence from ASEAN

government and stated-own enterprise. The foreign ownership is defined as shares held by foreign investors. The domestic ownership consists of large domestic individuals and institution investors.

Due to the limitation of shareholder information obtained from Thomson Reuters Eikon, shareholders who hold less than 0.5% of total shares have not been captured in the exported data. The previous literature also used 0.5% as the threshold to count the portion of shareholder ownership due to data availability in the public and stated that this approach did not significantly impact the overall result of the study (Wiwattanakantang, 1999).

The ownership structure is defined as follows:

$$\text{Government ownership} = \text{GO} = \frac{\text{Shares held by Government}}{\text{Total share}}$$

$$\text{Foreign ownership} = \text{FO} = \frac{\text{Shares held by foreign investors}}{\text{Total share}}$$

$$\text{Domestic ownership} = \text{DO} = \frac{\text{Shares held by domestic individual and institution investors}}{\text{Total share}}$$

The type of ownership structure is determined by the proportion of shares held by such type.

3.2.2 Bank Performance

Bank performance generally focuses on the return on equity and the return on assets. In this study, market-based data, namely Tobin's Q, is used to examine the impact of ownership structure on bank performance rather than accounting data. The dependent variables are described as follows:

(1) ROE: Return on equity

$$\text{ROE} = \frac{\text{Profit after tax}}{\text{Total shareholder equity}}$$

The return on equity is the ratio of the profit after tax divided by total shareholder equity. The return on equity measures a company's profitability and demonstrates how much profit a company can generate with the shareholder's investment.

(2) ROA: Return on assets

$$\text{ROA} = \frac{\text{Profit after tax}}{\text{Total assets}}$$

The return on assets is the ratio of the profit after tax divided by total assets. The return on assets also measures how a company's profitability relates to its total assets and demonstrates how efficient management uses a company's assets.

(3) TBQ: Tobin's Q

$$TBQ = \frac{\text{MV of total sharehodler equity} + \text{BV of total liabilities}}{\text{Total assets}}$$

Tobin's Q is the company's market value of total assets, as measured by the market value (MV) of the total shareholder equity and the book value (BV) of total liabilities, divided by the book value of total assets. The previous literature also used Tobin's Q when studying company performance (Laeven & Levine, 2009; Riewasathirathorn et al., 2011).

3.2.3 Bank Risk

According to previous literature, Z-score was widely used for determining bank risk-taking behavior (Chalermchatvichien, Jumreornvong, & Jiraporn, 2014; Laeven & Levine, 2009). In this study, equity volatility is also included as another dependent variable in order to extend the study to cover the market-based valuation (Laeven & Levine, 2009; Riewasathirathorn et al., 2011). The dependent variables are described as follows:

(1) Ln(Z): The natural logarithm of the Z-score

$$\text{Ln}(Z) = \text{Ln} \left(\frac{\text{ROA} + \text{CAR}}{\sigma(\text{ROA})} \right)$$

ROA represents the return on assets. CAR represents the capital-asset ratio and computed as total shareholder equity divided by total assets.

The Z-score of each bank is calculated as the return on assets plus the capital-asset ratio divided by the standard deviation of the return on assets (Laeven & Levine, 2009). The distance from insolvency is estimated by using Z-score (Roy, 1952). When accumulated losses are greater than bank's equity, it is defined as insolvent.

Because of the high skewness of the Z-score, the natural logarithm of the Z-score is applied. The natural logarithm of the Z-score is also normally distribution. The higher the level of Ln(Z), the higher the stability of banks.

(2) EV: Equity volatility

Equity volatility is computed as the annualized volatility of weekly stock returns of the bank. The benefit of using equity returns is that the equity volatility used market instead of accounting data.

3.2.4 Control Variables

Based on the prior literature, the following control variables are included in this study.

(1) SIZE: The natural log of total assets

$$\text{SIZE} = \text{Ln}(\text{Total assets})$$

Larger banks have higher scale efficiency in banking and greater opportunity to diversify their risk. It leads to a higher return to scale and lower risk relative to smaller banks (McAllister & McManus, 1993). Many previous studies also used total assets as control variables when they studied the impact of bank ownership structure on its performance and risk (Iannotta et al., 2007; Riewasathirathorn et al., 2011).

(2) PROV: The ratio of loan provision to gross loans

$$\text{PROV} = \frac{\text{Loan provision}}{\text{Gross loans}}$$

Loan provision to gross loans is used to measure the quality of assets. Higher risk of loan leads to higher interest income because of higher interest rate (Iannotta et al., 2007). Higher loan provision indicates that banks have higher credit risk and poorer quality of assets which results in lower bank's performance and higher risk (Sanmontrikul, 2013).

(3) LTA: The ratio of total loan to total assets

$$\text{LTA} = \frac{\text{Total loan}}{\text{Total Assets}}$$

A Higher ratio of loans to total assets might make banks more profitable. However, higher loans might create higher bank's cost of operations and increase its risk at the same time (Iannotta et al., 2007). Many previous studies used the ratio of loans to assets as control variable when they studied the impact of the bank's ownership structure on its performance and risk (Iannotta et al., 2007; Riewasathirathorn et al., 2011).

(4) ISLA: Islamic bank dummy

Islamic bank has different operational characteristics (i.e. business model) compared to Non-Islamic banks. The differences between Islamic and conventional banks are their funding and activity structures (Beck et al., 2013) Islamic banks are not allowed for the charging of interest payments. They rely on profit-and loss- and thus risk-sharing on Asset-Liability Management (ALM). Musharakah (as an example), which is a profit-and-loss sharing partnership and the most authentic form of Islamic financing, is a

contract of joint partnership where two or more partners provide capital to finance a project or own real estate-or moveable assets. Whereas profits are distributed according to pre-agreed ratios, losses are shared in proportion to capital contribution. (Hussain, et al., 2015). In addition, conventional banks depend more on external liabilities than Islamic banks, they are probably less exposed to liquidity risk. (Beck et al., 2013). Following Beck et al. (2013), an Islamic bank dummy (“ISLA”) is used to identify whether the bank is Islamic. “1” represents Islamic bank while “0” represents Non-Islamic bank. Although the previous literature found that there was no significant difference between Islamic and Non-Islamic banks in term of Bank’s performance and risk (Beck et al., 2013). This study used ISLA as control variable in the proposed model in order to represent the differences of operational characteristics.

(5) DCAR: Differential of the capital adequacy ratio requirement

$$\text{DCAR} = \text{Actual CAR} - \text{Minimum total capital requirement}$$

Differential of the capital adequacy ratio requirement is used for measuring the incremental between Bank’s actual capital adequacy ratio (CAR) and Minimum total capital requirement.

(6) GDP: The GDP growth rate

The GDP growth rate is generally used as a control variable for the macroeconomic condition. The GDP variable accounts for the impact of the economic cycle on bank performance. Most previous studies use this control variable when the scope of the studies covered several countries (Iannotta et al., 2007; Riewisathirathorn et al., 2011; Sanmontrikul, 2013)

Table 2: Summary of statistics. This table presents the summary statistic of each variable in the study. do = domestic ownership, go = government ownership, fo = foreign ownership, size = The natural log of total assets, lta = The ratio of total loan to total assets, prov = The ratio of loan provision to gross loans, gdp = The GDP growth rate, roe = Return on equity, roa = Return on assets, lnz = The natural logarithm of the Z-score, tbq = Tobin's Q, ev = Equity volatility, dcar = Differential of the capital adequacy ratio requirement, isla = Islamic bank dummy.

description	do	go	fo	size	lta	prov	gdp	roe	roa	lnz	tbq	ev	dcar	isla
mean	0.304	0.143	0.230	27.386	0.688	0.007	0.050	0.132	0.014	3.619	1.055	0.297	0.032	0.302
median	0.233	0.000	0.136	24.800	0.713	0.005	0.055	0.130	0.013	3.585	1.026	0.272	0.020	0.000
sd	0.281	0.242	0.266	6.330	0.140	0.006	0.016	0.074	0.009	0.783	0.224	0.159	0.031	0.460
max	0.964	0.907	0.980	37.329	1.453	0.035	0.072	0.418	0.043	5.919	4.228	1.347	0.214	1.000
min	0.000	0.000	0.000	18.453	0.208	0.000	0.008	(0.144)	(0.021)	1.798	0.726	0.010	0.001	0.000
N	315	315	315	315	315	315	315	315	315	315	315	315	315	315

Table 3: Summary of correlation matrix. This table presents the correlation matrix of variables in the study. do = domestic ownership, go = government ownership, fo = foreign ownership, size = The natural log of total assets, lta = The ratio of total loan to total assets, prov = The ratio of loan provision to gross loans, gdp = The GDP growth rate, roe = Return on equity, roa = Return on assets, lnz = The natural logarithm of the Z-score, tbq = Tobin's Q, ev = Equity volatility, dcar = Differential of the capital adequacy ratio requirement, isla = Islamic bank dummy.

	do	go	fo	size	lta	prov	gdp	roe	roa	lnz	tbq	ev	dcar	isla
do	1.00													
go	(0.48)***	1.00												
fo	(0.43)***	(0.23)***	1.00											
size	(0.28)***	0.11**	0.27***	1.00										
lta	(0.40)***	0.11	0.34***	0.30***	1.00									
prov	(0.22)***	0.11**	0.17***	0.30***	0.19***	1.00								
gdp	0.18***	0.02	0.02	0.23***	(0.21)***	(0.09)	1.00							
roe	(0.16)***	0.32***	(0.21)***	0.10*	(0.06)	0.03	0.04	1.00						
roa	(0.13)**	0.20***	(0.09)	0.23***	(0.07)	0.14**	0.10*	0.85***	1.00					
lnz	(0.11)*	0.14**	(0.03)	(0.18)***	0.18***	(0.17)***	(0.16)***	0.13**	0.14**	1.00				
tbq	0.14**	0.00	(0.07)	(0.02)	(0.18)***	0.06	0.04	0.24***	0.23***	(0.05)	1.00			
ev	0.03	(0.11)*	0.17***	0.37***	0.13**	0.11*	0.10*	(0.05)	(0.00)	(0.22)***	0.07	1.00		
dcar	0.22***	(0.15)***	0.08	0.15***	(0.10)*	0.17***	0.10*	(0.23)***	0.10*	0.01	(0.06)	0.04	1.00	
isla	(0.16)***	0.11**	0.33***	(0.15)***	0.10*	(0.06)	0.09	0.04	0.00	0.05	(0.08)	(0.27)***	(0.10)*	1.00

*, **, and *** Indicates statistical significant at 10%, 5%, and 1%, respectively

3.3 Research Methodology

In the recent literature, the portion of shares in each type of ownership structure is used to determine bank performance (Rahman & Reja, 2015; Son et al., 2015). This study proposed to extend the model by adding the control variables which are also the factors to determine bank performance and risk based on other previous literature (Iannotta et al., 2007; Riewsthirathorn et al., 2011). This study focuses on the impact of ownership structure on bank performance and risk. The models and panel data methodology are described as follows:

3.3.1 Models

The models used to test hypothesis are presented as follows:

Hypothesis 1: Bank's ownership structure - government, foreign, and domestic shareholder - affect its performance.

With respect to bank performance, this study is focused on ROE, ROA, and Tobin's Q. The proposed models used to study the impact of ownership structure on bank performance are presented as follows:

$$ROE_{i,t} = \alpha + b_1GO_{i,t} + b_2FO_{i,t} + b_3DO_{i,t} + \sum b_k \text{ControlVariables}_{i,t} + \epsilon_{i,t}$$

$$ROA_{i,t} = \alpha + b_1GO_{i,t} + b_2FO_{i,t} + b_3DO_{i,t} + \sum b_k \text{ControlVariables}_{i,t} + \epsilon_{i,t}$$

$$TBQ_{i,t} = \alpha + b_1GO_{i,t} + b_2FO_{i,t} + b_3DO_{i,t} + \sum b_k \text{ControlVariables}_{i,t} + \epsilon_{i,t}$$

Hypothesis 2: Bank's ownership structure - government, foreign, and domestic shareholder - affect its risk.

LnZ and EV are employed to represent bank's risk. The proposed models used to study the impact of ownership structure on bank risk are presented as follows:

$$\text{LnZ}_{i,t} = \alpha + b_1GO_{i,t} + b_2FO_{i,t} + b_3DO_{i,t} + \sum b_k \text{ControlVariables}_{i,t} + \epsilon_{i,t}$$

$$EV_{i,t} = \alpha + b_1GO_{i,t} + b_2FO_{i,t} + b_3DO_{i,t} + \sum b_k \text{ControlVariables}_{i,t} + \epsilon_{i,t}$$

Note that the definitions of the dependent, independent, and control variables are given and the expected relationship between dependent variables are also stated in the previous section 3.2 "Data description". For other variables, α represents the constant term and ϵ represents the error term.

3.3.2 Panel Data Methodology

The panel data are used to perform the analysis which is consistent with most previous literature reviews on the impact of bank ownership structure on its performance and risk (Iannotta et al., 2007; Rahman & Reja, 2015; Son et al., 2015). The panel is used in this study in order to obtain larger observation samples. The generalized chow test is commonly applied in order to test whether all data could be pooled together. Since this study focused only on bank industry, the non-poolable data should not be an issue.

However, using panel data analysis, there are three common issues which are heteroscedasticity, autocorrelation, and cross-sectional correlation. The Breusch-Pagan test is applied to identify heteroscedasticity (Waldman, 1983) whereas the Wooldridge test is used to identify autocorrelation problems (Wooldridge, 2002). For cross-sectional correlations, Pesaran CD (cross-sectional dependence) test is applied to identify a problem of cross-sectional dependence. Cross-sectional dependence is a problem in panel analysis with long observation periods (over 20–30 years), however, in this study the problem should be less serious because of the short observation period (5 years) (Baltagi, 2008).

The Hausman test is used in order to find whether the random or fixed effects model is more appropriate for testing the null hypothesis in this study. The method is to test whether the unique errors are correlated with the regressors (Torres-Reyna, 2007). If the firm effect and time effect are highly correlated with explanatory variables, the fixed effects estimation method will lead to consistent and efficient estimates. On the other hand, if those effects are less correlated with explanatory variables, the random effects estimation method will lead to consistent and more efficient estimates.

4. EMPIRICAL RESULTS

The purpose of this research is to study the effect of types of bank ownership structure on its performance and risk. The ROE, ROA, and TBQ models are used to examine bank performance while the LnZ and EV models are used to examine bank risk. This research used the panel data analysis to examine the effect of types of bank ownership structure on its performance and risk. The Hausman test is applied to find whether the random or fixed effects model is more appropriate for testing the null hypothesis of this study. The results of the Hausman test suggest to apply the fixed effect model to the ROE, LnZ, and EV models, and apply the random effect model to the ROA, TBQ model (refer to the table 3).

Domestic ownership (DO) is significantly positively related to TBQ, market based measure. Thus, consistent with Naaborg, I. and Lensink, R. (2008), the increase in domestic ownership increased bank performance. The result is different from the finding of Ben and Taktak (2014) that domestic ownership did not well perform. In term of bank risk, DO is significant negatively related to equity volatility (EV). It means that the increase in domestic ownership results in lower market price's volatility.

The Impact of Ownership Structure on Bank Performance and Risk:

Evidence from ASEAN

Government ownership is not significantly associated with either bank performance or bank risk. Nevertheless, their relations are similar to those of domestic ownership. Foreign ownership, interestingly, has no significant impact on bank performance and bank risk in ASEAN countries. These empirical results imply that domestic investors play important monitoring roles in ASEAN's bank operation. In sum, neither government ownership nor foreign ownership has strong influence in ASEAN.

The empirical results of the relationship between controls variables and dependent variables (bank performance and bank risk-taking) are demonstrated as follows;

Total assets (SIZE) are significantly negatively related to ROE and ROA. The results are consistent with the previous finding of Beck et al. (2013) that there is negative relationship between total assets and financial performance. It means that higher total assets of banks decrease bank's profitability. In addition, the empirical result shows that SIZE is significantly negatively related to EV. It means that the higher SIZE lowers market price volatility.

The ratio of loans to total assets (LTA) is negatively related to ROA, ROE, and TBQ which means that the higher ratio of loans to total assets results in lower bank performance. LTA does not show the significant coefficients with LnZ and EV.

Loan provision to gross loans (PROV) is statistically negatively related to ROE and ROA. PROV is positively related to TBQ without significance. It means that the higher ratio of loan provision to gross loans decreases bank performance. These negative signs of the coefficients are in line with this research's expectation. The higher loan provision to gross loans indicates that banks have higher credit risk and poor quality of the assets, which results in lower bank's performance. The ratio of loan provision to gross loans is statistically negatively related to LnZ which means that the increase in loan provision to gross loans indicated the higher probability of default. In addition, PROV is positively related to EV which means that the higher ratio of loan provision to gross loan indicated higher market prices' volatility. This empirical result is consistent with this research's expectation and consistent with the empirical result of Chalermchatvichien, Jumreornvong, and Jiraporn (2014) that the negative relationship between LnZ and the ratio of loan loss provision to gross loans and positive relationship between EV and the ratio of loan loss provision to gross loans.

DCAR is significantly negatively related to ROE. It means that the higher differential of capital adequacy ratio requirement results in a decrease of ROE. DCAR is significantly positively related to LnZ, and significantly negatively related to EV. It means that the higher differential of capital adequacy ratio requirement results in the higher stability of banks. The result of the signs of the coefficients is consistent with the empirical result of Qin and Wei (2014) that the Z-score is significantly positively related to the capital adequacy ratio. The result of the regression of DCAR is not significantly related to ROA, but significantly negatively related to TBQ. The sign of the coefficient is consistent with the

finding of Mathuva (2009) that the capital adequacy ratio measure is negatively related to the profitability of banks.

GDP is significantly positively related to ROA. It means that the higher GDP increases ROA. However, GDP is not statistically related to ROE, TBQ, LnZ and EV.

Table 4: The impacts of ownership structure on bank performance and risk. The table presents the relationships between bank performance and risk, and variables in the study. do = domestic ownership, go = government ownership, fo = foreign ownership, size = The natural log of total assets, lta = The ratio of total loan to total assets, prov = The ratio of loan provision to gross loans, dcar = Differential of the capital adequacy ratio requirement, isla = Islamic bank dummy, gdp = The GDP growth rate, roe = Return on equity, roa = Return on assets, tbq = Tobin’s Q, lnz = The natural logarithm of the Z-score, ev = Equity volatility.

Dependent Variable	roe	roa	tbq	lnz	ev
Model	FE Model	FE Model	RE Model	RE Model	FE Model
Intercept	1.4423***	0.1480***	1.0814***	3.6056***	1.8700***
DO	(0.0033)	(0.0000)	0.2221**	(0.0624)	(0.5222)***
GO	0.1730	0.0168	0.1545	0.2431	(0.2054)
FO	(0.0622)	(0.0008)	0.1258	(0.0765)	0.0629
SIZE	(0.0433)***	(0.0046)***	0.0001	(0.0066)	(0.0467)**
LTA	(0.1436)***	(0.0113)**	(0.1714)	(0.0249)	(0.1031)
PROV	(2.7638)***	(0.3089)***	3.0568	(2.7807)**	1.8636
DCAR	(0.5061)***	(0.0088)	(0.8503)*	6.6158***	(2.1054)***
ISLA	(omitted)	(omitted)	(0.0475)	0.1144	(omitted)
GDP	0.0044	0.0102	(0.1858)	(0.2587)	0.1243
R-squared	0.03%	3.93%	7.89%	1.56%	12.73%
F-statistic/ Wald chi2	14.17	9.43	12.68	723.10	7.51
p-Value	0.000	0.000	0.177	0.000	0.000
N	315	315	315	315	315

note: *** p < 0.01, ** p < 0.05, * p < 0.1

*, **, and *** indicates statistical significant at 10%, 5%, and 1%, respectively.

Note(a) indicates that “ISLAMIC” variable is omitted for ROE, ROA, TBQ, and EV models due to multicollinearity problem.

5. CONCLUSION

The purpose of this research is to investigate the effect of types of bank ownership structure on its performance and risk of banks in ASEAN countries. The types of bank ownership focused in this study are government, foreign, domestic shareholders. This research is extended from the previous literature by covering both bank performance and risk-taking. Moreover, the study includes not only the specified countries but also the emerging ASEAN countries.

The empirical evidence reveals that higher domestic ownership is significantly associated with higher bank performance and less risk-taking. The government ownership, however, is not significantly related to bank performance and bank risk. Overall, the empirical evidence of government ownership and domestic ownership are similar. The empirical result shows that the foreign ownership is not significantly associated with bank performance and bank risk. Domestic investor, with more market's familiarity and information, take the leading role in developing and sustaining ASEAN banks.

Compared to the empirical results in the developed countries (i.e. European) from the previous literature, the results are the opposite. Higher government ownership results in lower bank performance and the higher risk. On the other hand, higher foreign ownership results in higher bank performance and lower bank risk (Iannotta et al., 2007).

In addition, the empirical evidence reveals that higher bank profitability is associated with lower size of banks and the lower ratio of loan to total asset. The empirical evidence strongly shows that the lower ratio of loan to provision is associated with higher bank performance and less risk-taking. Also, the empirical result strongly shows that the increase in the capital adequacy ratio is associated with higher bank stability. There is no significant difference between Islamic bank and non-Islamic in term of bank performance and risk-taking.

The overall empirical results conclude that the type of ownership structure affect bank performance with respect to market data (i.e. TBO). The types of ownership structure also affect bank risk-taking. The results also note that market prices the ownership types as the results from the models using market data are statistically significant. The reasons of the effect types of ownership structure on bank performance and risk might come from the fact that the differences in ownership structure may have different management styles, familiarity of the local government, and banking regulatory, level of specialty and information, and 'home-field' advantage in the local market. However, not only types of ownership structure but also bank size, the ratio of loans provision to gross loans, differential of capital adequacy ratio requirement affect bank performance and risk-taking.

REFERENCES

- Ang, J. & Ding, D. (2006). Government Ownership and the Performance of Government-Linked Companies: The Case of Singapore. *Journal of Multinational Financial Management*, 16(1), 64-88.
- Baltagi, B. (2008). *Econometric Analysis of Panel Data*. Chichester: John Wiley & Sons.
- Banerjee, A. V. (1997). A Theory of Misgovernance. *The Quarterly Journal of Economics*, 112(4), 1289-1332.
- Beck, T., Demirgüç-Kunt, A. & Merrouche, O. (2013). Islamic vs. Conventional Banking: Business Model, Efficiency and Stability. *Journal of Banking & Finance*, 37(2), 433-447.
- Ben, K., Zouari, S. & Taktak, N. B. (2014). Ownership Structure and Financial Performance in Islamic Banks: Does Bank Ownership Matter? *International Journal of Islamic and Middle Eastern Finance and Management*, 7(2), 146-160.
- Berger, A. N. (1995). The Relationship between Capital and Earnings in Banking. *Journal of Money, Credit and Banking*, 27(2), 432-456.
- Berger, A. N., Clarke, G. R., Cull, R., Klapper, L. & Udell, G. F. (2005). Corporate Governance and Bank Performance: A Joint Analysis of the Static, Selection, and Dynamic Effects of Domestic, Foreign, and State Ownership. *Journal of Banking & Finance* 29(8), 2179-2221.
- Bonin, J. P., Hasan, I. & Wachtel, P. (2003). Bank Performance, Efficiency and Ownership in Transition Countries. *Journal of Banking & Finance*, 29(1), 31-53.
- Chalermchatvichien, P., Jumreornvong, S. & Jiraporn, P. (2014). Basel III, Capital Stability, Risk-taking, Ownership: Evidence from Asia. *Journal of Multinational Financial Management*, 28(C), 28-46.
- Chantapong, S. & Menkhoff, L. (2005). Cost Efficiency of Domestic and Foreign Banks in Thailand: Evidence from Panel Data. *Verein für Socialpolitik*, Research Committee Development Economics.
- Claessens, S. & Van Horen, N. (2012). Being a Foreigner among Domestic Banks: Asset or Liability? *Journal of Banking & Finance*, 36(5), 1276-1290.
- Cull, R. J., Verrier, J. E., Martinez P. & Maria S. (2018). Bank Ownership: Trends and Implications. *Policy Research working paper*, no. WPS 8297.
- Demsetz, R.S., Saldenber, M.R. & Strahan, P.E. (1997). Agency Problems and Risk Taking at Banks. *Staff Reports*, no. 29. Federal Reserve Bank of New York.
- Dong, Y., Meng, C., Firth, M. & Hou, W. (2014). Ownership Structure and Risk-taking: Comparative Evidence from Private and State-controlled Banks in China. *International Review of Financial Analysis*, 36, 120-130.
- Easterbrook, F. H. & Fischel, D. R. (1996). *The Economic Structure of Corporate Law*, Cambridge, MA: Harvard University Press.

The Impact of Ownership Structure on Bank Performance and Risk:

Evidence from ASEAN

- Fama, E. F. & Jensen, M. C. (1983). Separation of Ownership and Control. *Journal of Law and Economics*, 26(2), 301–325.
- Fethi, M. D., Shaban, M. & Weyman-Jones, T. (2011). Liberalisation, Privatisation and the Productivity of Egyptian Banks: A Non-parametric Approach. *The Service Industries Journal*, 31(7), 1143–1163.
- Fries, S. & Taci, A. (2005). Cost Efficiency of Banks in Transition: Evidence from 289 Banks in 15 Post-communist Countries. *Journal of Banking & Finance*, 29(1), 55–81.
- Gerschenkron, A. (1962). *Economic backwardness in historical perspective: a book of essays* (No. HC335 G386). Cambridge, MA: Belknap Press of Harvard University Press.
- Goldberg, L. S. (2004). Financial-sector Foreign Direct Investment and Host Countries: New and Old Lessons. *FRB of New York Staff Report*, 81(2), 170–183.
- Hart, O. D., Shleifer, A. & Vishny, R. (1997). The Proper Scope of Government: Theory and Application to Prisons. *Quarterly Journal of Economics*, 112(4), 1127–1162.
- Hossain, M., Jain, P. & Mitra, S. (2013). State Ownership and Bank Equity in the Asia-Pacific Region, *Pacific-Basin Finance Journal*, 21(1), 914–931.
- Hussain, M., Shahmoradi, A. & Turk, R. (2015). An Overview of Islamic Finance. *IMF Working Paper no. 15/120*.
- Iannotta, G., Nocera, G. & Sironi, A. (2007). Ownership Structure, Risk and Performance in the European Banking Industry. *Journal of Banking & Finance*, 31(7), 2127–2149.
- Jensen, M. C. (1993). The Modern Industrial Revolution, Exit, and the Failure of Internal Control Systems, *Journal of Finance*, 48(3), 831–880.
- Jensen, M. C. & Meckling, W. H. (1976). Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure. *Journal of Financial Economics*, 3(4), 305–360.
- Jensen, M. C. & Meckling, W. H. (1979). Rights and Production Functions: An Application to Labor-managed Firms and Codetermination. *Journal of Business*, 52(4) 469–506.
- Kiuri, R. M. (2013). The Effects of Ownership Structure on Bank Profitability in Kenya. *European Journal of Management Sciences and Economics*, 1(2), 116–127.
- Klein, A. (1998). Firm Performance and Board Committee Structure. *The Journal of Law and Economics*, 41(1), 275–303.
- Laeven, L. & Levine, R. (2009). Bank Governance, Regulation and Risk Taking. *Journal of Financial Economics*, 93(2), 259–275.
- Lee, C.C., Hsieh, M.F. & Dai, H.W. (2012). How does Foreign Bank Ownership in the Banking Sector Affect Domestic Bank Behaviour?: A Dynamic Panel Data Analysis. *Bulletin of Economic Research*, 64(s1), s86–s108.

- Levine, R. (1996). Foreign Banks, Financial Development, and Economic Growth. in *International Financial Markets: Harmonization versus Competition*, Claude E. Barfield ed., Washington, D.C.: The AEI Press.
- Lin, X. & Zhang, Y. (2009). Bank Ownership Reform and Bank Performance in China. *Journal of Banking and Finance*, 33(1), 20–29.
- Litan, R.E. & Santomero, A.M. (2010). *Brookings-Wharton Papers on Financial Services: 2000*. Washington, DC: Brookings Institution Press.
- Mathuva, D. (2009). Capital Adequacy, Cost Income Ratio and the Performance of Commercial Banks: The Kenyan Scenario. *International journal of Applied Economics and Finance*, 3(2), 35–47.
- McAllister, P. H. & McManus, D. (1993). Resolving the Scale Efficiency Puzzle in Banking. *Journal of Banking & Finance*, 17(2), 389–405.
- Mian, A. (2003). Foreign, Private Domestic, and Government Banks: New Evidence from Emerging Markets. *Journal of Banking and Finance*, 27(7), 1219–1410.
- Micco, A., Panizza, U. & Yanez, M. (2007). Bank Ownership and Performance. Does Politics Matter? *Journal of Banking & Finance* 31(1), 219–241.
- Naaborg, I. & Lensink, R. (2008). Banking in Transition Economies: Does Foreign Ownership Enhance Profitability? *European Journal of Finance*, 14(7), 545–562.
- Orazalin, N., Mahmood, M. & Lee, K. J. (2015). Bank Ownership and Performance: Evidence from Russia in a Post Crisis Period. *Journal of Accounting*, 5(1), 46–55.
- Qin S. & Wei Z. (2014), Basel III, Risk Aversion and Bank Performance: Evidence from Chinese Commercial Banks Panel Data. Retrieved from http://www.atlantis-press.com/php/download_paper.php?id=14584.
- Rahman, N. A. A., & Reja, B. A. F. (2015). Ownership Structure and Bank Performance. *Journal of Economics, Business and Management*, 3(5) 483–488.
- Riewsthirathorn, P., Jumroenvong, S. & Jiraporn, P. (2011). The Impact of ownership concentration on bank performance and risk-taking: evidence from East Asia. *Journal of Emerging Markets*, 16(2), 59–71.
- Royal Academy. (2015). *Encyclopedia of Neighboring Countries in ASEAN* (in Thai) Bangkok: Office of the Royal Academy.
- Sanmontrikul, J. (2013). *Determinants of Bank Performance on Asian Commercial Banks*. Bangkok: Faculty of Commerce and Accountancy, Thammasat University.
- Sapienza, P. (2004). The Effects of Government Ownership on Bank Lending. *Journal of financial economics*, 72(2), 357–384.
- Sathye, M. (2003). Efficiency of Banks in a Developing Economy: The Case of India, *European Journal of Operational Research*, 148(3), 662–671.

The Impact of Ownership Structure on Bank Performance and Risk:

Evidence from ASEAN

- Shaban, Mohamed & James, Gregory A., (2018). The Effects of Ownership Change on Bank Performance and Risk Exposure: Evidence from Indonesia, *Journal of Banking & Finance*, 88(C), 483–497.
- Shleifer, A. (1998). State Versus Private Ownership, *Journal of Economic Perspectives*, 12(4), 133–150.
- Shleifer, A. & Vishny, R. W. (1994). Politicians and Firms. *The Quarterly Journal of Economics*, 109(4), 995–1025.
- Shleifer, A. and Robert W. V. (1997). A Survey of Corporate Governance, *Journal of Finance*, 52(2), 737–783.
- Son, N. H., Tu, T. T. T., Cuong, D. X., Ngoc, L. A. & Khanh, P. B. (2015). Impact of Ownership Structure and Bank Performance-An Empirical Test in Vietnamese Banks. *International Journal of Financial Research*, 6(4), 123.
- Stiglitz, J. E. (1993). The Role of the State in Financial Markets. *The World Bank Economic Review*, 7(1), 19–52.
- Taboada, A. G. (2011). The Impact of Changes in Bank Ownership Structure on the Allocation of Capital: International Evidence. *Journal of Banking & Finance*, 35(10), 2528–2543.
- Tandelilin, E. (2007). Corporate Governance, Risk Management Bank Performance: Does Type of Ownership Matter? *EADN working paper No. 34*.
- Tandelilin, E., Kaaro, H. & Mahadwartha, P. (2007). Corporate Governance, Risk Management, and Bank Performance: Does Type of Ownership Matter? *EADN Working Paper No. 34*.
- Torres-Reyna, O. (2007). *Panel Data Analysis Fixed and Random Effects using Stata (v. 4.2)*. Princeton University: NJ. Udenze.
- Unite A. A. & Sullivan M. J. (2003). The Effect of Foreign Entry and Ownership Structure on the Philippine Domestic Banking Sector. *Journal of Banking & Finance*, 27(12), 2323–2345.
- Waldman, D. M. (1983). A Note on Algebraic Equivalence of White's Test and a Variation of the Godfrey/Breusch-Pagan Test for Heteroscedasticity. *Economics Letters*, 13(2), 197–200.
- Wiwattanakantang, Y. (1999). An Empirical Study on the Determinants of the Capital Structure of Thai Firms. *Pacific-Basin Finance Journal*, 7(3), 371–403.
- Wooldridge, J. (2002). *Econometric Analysis of Cross Section and Panel Data*, London: The MIT Press.
- Yamanaka, T. (2013, December). ASEAN no Ginko Sekuta Togo ni tsuite [Banking Sector Integration in ASEAN]. *Institute for International Monetary Affairs Newsletter*. p. 10.