Determinants of Bank Performance in Thailand: Foreign vs. Domestic Banks

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Abstract

The purpose of this study is to identify the determinants of foreign banks' performance in Thailand compared to those of domestic counterparts using bank-specific, macroeconomic, and multinational factors. The findings indicate a statistically negatively significant impact of asset size and GDP growth, a positive effect of capital adequacy ratio, and a mixed influence of liquidity risk on the performance of domestic banks. For foreign banks, significant and positive determinants of bank performance are liquidity risk, cost-to-income ratio, and capital adequacy ratio, whereas the trade relationship between the home country and Thailand is negatively significant for foreign banks' profitability.

Keywords: Determinants of bank performance, domestic banks, foreign banks

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Introduction

The significance of the banking system in Thailand is demonstrated by data from the Bank of Thailand (BOT), showing that total assets at the end of 2014 stood at 36 trillion baht, or 2.7 times the GDP. Financial institutions in Thailand are categorized into deposit-taking and non-deposit-taking institutions. Commercial banks, which belong to the former category, are the largest component, solely accounting for 47.9 percent of the total assets. The assets of other deposit-taking institutions, namely specialized financial institutions (SFIs), saving cooperatives and credit union and money-market mutual funds, totaled 21.7 percent of financial institutions' total assets.

In the period after the 1997 crisis, the Thai financial sector has undergone various reforms to develop a stable, resilient and efficient financial system. Thailand has also witnessed the growing role of foreign banks as the banking sector has progressively liberalized with fewer restrictions affecting foreign banks. As part of a series of measures to restore financial stability, foreign banks were allowed to take over distressed banks during the crisis and hold majority shares, which was not possible prior to the 1997 crisis. Under the first phase of the Financial Sector Master Plan (FSMP), foreign banks were afforded greater operational flexibilities. Foreign-bank branches, which were not permitted to open any more branches in Thailand, were then allowed to incorporate in Thailand and become subsidiaries allowed to open up to 4 branches. In 2010, to comply with Thailand's banking liberalization commitments in the World Trade Organization (WTO), foreign-bank branches were allowed to open up to 3 branches. As part of the FSMP phase II to enhance efficiency through heightened competition, new foreign entrants were permitted to incorporate in Thailand, taking the form of subsidiaries that may open up to 20 branches and 20 ATMs.

The roles of foreign banks will likely increase, possibly at a faster pace, as the Thai economy becomes more deeply integrated into the global economy and more involved in international trade and investment. Thailand's total export and import value in 2014 almost doubled that from 2005, with a 9-percent average growth rate over this period. Thailand has also seen an upward trend in foreign direct investment, growing at 12.4 percent on average during the same period. Furthermore, following the targets laid out in the ASEAN Economic Blueprint, the ASEAN Economic Community (AEC) was established in 2015, and financial integration in the region is to be achieved by 2020. A key milestone of financial integration is the establishment of qualified ASEAN banks (QABs) that will be subject to fewer operational restrictions to promote a greater presence of ASEAN banks in the region. These developments pave the way for a greater foreign presence in Thailand in the future. As the role of foreign banks grows, so does their importance to the soundness of the Thai financial system; hence, this is a matter of concern for the supervisory authorities.

The increasing role of foreign banks and their growing significance to Thailand's financial stability, a trend that will likely persist, has peaked the authors' interest to conduct a study to identify the determinants of foreign-bank performance in Thailand in comparison with that of domestic banks. The extent to which internal, or bank-specific, factors and external, or macroeconomic and multinational, factors relate to domestic and foreign banks' performance as measured by profitability indicators is to be assessed. The findings of this study will provide insights into the effects of a change in relevant factors on bank performance in Thailand, particularly those of foreign banks, an area with limited previous literature. The results of this study would help the management of existing domestic and foreign banks and new entrants in their strategy formulation and decision-making with regard to their operations in Thailand. Supervisory authorities may also find the results of this study to be of use in their policy making and consideration of the effects of a proposed policy on the performance of different types of banks through relevant determinants.

The rest of the paper is organized as follows. Section 2 provides the background of commercial banks in Thailand. Section 3 reviews the relevant literature. Section 4 discusses the methodology and data. Section 5 discusses the empirical results. The last section provides concluding remarks.

Commercial banks in Thailand

Commercial banks are financial institutions licensed to undertake commercial banking business under the Financial Institutions Business Act B.E. 2551 (2008) and include locally incorporated banks and foreign-bank branches. Aggregate data on locally incorporated banks from the BOT generally include banks that are domestically owned and those that are majority-owned by foreign entities. Nonetheless, for the purpose of this study, banks incorporated in Thailand with majority foreign shareholding are classified as foreign banks. Hence, foreign banks in this paper comprise foreign-bank branches, which are considered to be the same entity as their foreign parent banks, and locally incorporated banks with foreign majority shareholding that are further categorized by how they enter the Thai market as banks that enter through establishment as subsidiaries and hybrid banks that enter through mergers with domestic banks. Foreign banks are subject to certain restrictions and requirements depending on their license types, as summarized in the Table 1.

Table 1. Number of banks and requirements for license types, as of December, 2014.

License type	Branches and ATMs	Paid-up Capital	Number of banks
Domestic bank	- no limitation	N/A	10
Foreign bank: Branch	- up to 3 branches	3,000 million Baht	13
Foreign bank: Locally-incorporated Subsidiary	- up to 20 branches and 20 ATMs	20,000 million Baht	6
Hybrid banks	- no limitation	N/A	-
		Total	29

At the end of 2014, the number of commercial banks stood at 29, with 10 domestic banks, 6 locally incorporated foreign banks, and 13 foreign-bank branches. However, as of September 2015, the figure had somewhat changed, with the completion of a merger between the Japanese Bank of Tokyo-Mitsubishi UFJ (BTMU) and the domestic Bank of Ayudhaya (BAY) and the official opening of the Australian ANZ subsidiary in Thailand, bringing the current number of foreign banks to 20 while the total number of commercial banks remained the same at 29.

Literature review

A number of studies have been undertaken assessing determinants of banks' performance, which are often indicated by profitability, with regard to banks from across countries in a region and banks in a specific country. Molyneux and Thornton (1992) conducted a study on banks across 18 European countries from 1986–1989, with results indicating a positive relationship between interest rates, bank concentration, and government ownership as independent variables and ROE as a dependent variable.

Most previous studies on bank performance consider local and foreign banks together as a whole. Some later studies consider local banks and foreign banks separately, whereas some adopt a comparative approach. Focusing on foreign banks alone, a study by Ling et al. (2013) on microeconomic and macroeconomic factors that affect foreign-bank performance in Malaysia found that of 7 variables, bank size, cost-to-income ratio, and real GDP have a statistically significant effect on return on asset (ROA), whereas capital ratio, real interest rate, inflation, and global financial crises have no significant effect on the performance of foreign banks in Malaysia. Meanwhile, a comparative study by Muda et al. (2013) to identify profitability determinants of domestic and foreign Islamic banks in Malaysia shows that determinants of profitability of domestic banks are different than those of foreign banks. Using an unbalanced panel for all Islamic banks in Malaysia from 2007–2010, this study suggests that overhead expenses ratio, loans ratio, technical efficiency (ability to minimize inputs given specific outputs), GDP growth and bank size are significant profitability determinants of domestic Islamic banks but do not significantly affect foreign Islamic banks in Malaysia. However, GDP per capita seems to have a significant effect on foreign Islamic banks' profitability but does not significantly relate to the profitability of their domestic peers. Deposit ratios, capital and reserves, inflation and banks' age are found to be important determinants for all Islamic banks, both domestic and foreign. The study also indicates that domestic banks are more profitable overall but are adversely affected by the global financial crisis, whereas foreign banks are not.

In Thailand, Chantapong (2003) undertook an earlier study on bank performance after the 1997 Asian financial crisis comparing domestic and foreign banks. Using regression analysis based from 1995–2000, the study shows that foreign-bank profitability during this period was higher than that of domestic banks, though the gap gradually narrowed, suggesting a positive impact of the financial restructuring program implemented after the crisis.

Previous literature generally explores how various internal and external factors relate to bank performance, for which internal factors have usually been defined as bank-specific factors that are in management's control. Pertinent literature is discussed further as below.

Internal factors

Bank size

Although a long list of literature exists, the studies do not often yield consistent results with regard to the relationship between bank size and profitability. A recent study by Perera et al. (2013) on banks in a group of South Asian countries and a study by Sarita and Zandi (2012) on performance determinants of banks in Indonesia find that bank size is positively related to profitability, indicating possible benefits of economies of scale. These results are in contrast to the findings of Syafri (2012) and Zeitun (2012), which suggest a negative relationship and no significant relationship between the variables, respectively.

Asset quality

Associated with the concept of credit risk, asset quality tends to relate to banks' earnings and may affect bank profitability. Loans are banks' major asset that generates income. Therefore, loan-portfolio quality seems to have a direct bearing on banks' profitability. Moreover, one of the risks facing banks is the loss from delinquent loans (Dang, 2011). Thus, ratios relating to non-performing loans are often used as proxies for asset quality. Loan loss-provision ratios also reflect regulatory requirements and management's views on banks' asset quality. A study covering 76 banks in China from 1999-2006 conducted by Heffernan and Fu (2008) finds that loan-loss provisioning actually improves performance. By contrast, Dinh (2013) finds that Vietnamese banks' before-tax profits are not influenced by loan-loss provision, whereas a negative and significant link between the ratio and net interest margin (NIM) of Vietnamese domestic banks are found, possibly as a result of inefficient risk management and the downturn of the economy in 2008.

Liquidity risk

Liquidity is a matter of concern for both bank managers and regulators, as it reflects the availability of a bank's funds to meet depositors' withdrawal demands and other short-term obligations. The inability to fund such short-term liabilities could bring about the risk of bankruptcy. Under Basel III international regulatory standards, liquidity requirements are to be imposed on banks for the purpose of individual banks' safety and soundness and the financial system's stability. However, maintaining excess liquidity could mean opportunity costs for banks, as certain investments are foregone, which may affect profitability.

A significant association between bank performance and the ratio representing liquidity risk as total loan to assets has been observed in a number of studies with contradictory findings. Nonetheless, Frederick (2015) finds no significant relationship between such variables in a study on factors affecting the performance of domestic commercial banks in Uganda. Muda et al.'s (2013) empirical study, using different liquidity ratios of liquid assets (including cash, short-term funds, and deposits and placements with other financial institutions) over total assets also suggests that liquidity ratio cannot explain the performance of both domestic and foreign Islamic banks in Malaysia.

Efficiency

Cost efficiency is often found to be a significant contributing factor to profitability. Cost-efficient banks may offer services at attractive prices for customers and still be able to maintain or improve their profitability. Wong et al. (2007) identify major determinants of banks' performance in Hong Kong involving a panel dataset of 38 retail banks from Q1 1991 to Q4 2005 and find that ROA is positively related to the level of cost efficiency, with larger banks usually being more cost efficient than smaller banks. This is consistent with Frederick's (2015) study exploring operational efficiency from another aspect through operating expenses; the study's findings suggest that operating expenses had a significant negative impact on banks' ROAs in Uganda from 2000–2011.

Capital Adequacy Ratio

Capital indicates if a bank is solvent, and capital adequacy is often identified as a significant determinant of bank performance. Most previous studies find a positive impact of capital adequacy on profitability, suggesting that better-capitalized banks appear to perform better (Ximenes and Li, 2013; Sufian and Chong, 2008; Syafri, 2012). Capital adequacy has been the main focus of international regulatory frameworks for banks. Banks are required to maintain a minimum capital to meet specified capital-adequacy ratio (CAR), generally calculated as regulatory capital to risk-weighted assets. In Thailand, the regulatory requirement for CAR for both domestic and foreign banks is set at a minimum of 8.5 percent.

Macroeconomic factors

GDP Growth

Most studies suggest that a good economic environment, indicated by the real GDP growth rate, is likely to facilitate banks' operations, as banks would be able to charge higher rates and earn more profits (Wong et al., 2007). In Vietnam, Dinh (2013) finds a strong and positive influence of GDP on domestic banks' profitability, suggesting that domestic banks take the opportunity to offer more loans in good times while customers are simultaneously able to repay their debts given the favorable economic environment. However, the study indicates no significant relation between GDP and foreign banks' profitability.

Inflation

Inflation is another factor that is often considered to be a possible determinant of bank performance. As inflation potentially affects banking products' pricing, the performance of banks operating in economies with volatile inflation is expected to be more susceptible compared to banks in economies with stable inflation (Uzhegova, 2015).

Multinational factors

Due to the multinational characteristics of foreign banks, some factors may not be under control of foreign banks' management but are rather particular to each foreign bank, such as parent banks' profitability. Some of these factors are considered in Dinh's (2013) study in addition to bank-specific and macroeconomic factors. The study examines determinants of foreign banks' profitability in Vietnam compared with domestic banks from 2000–2012, employing a fixed effects model and using before-tax profit to total assets and NIM as proxies for profitability. The empirical results indicate that the experience of a foreign bank, as measured by the length of time that the foreign bank has been operating in the country, does not significantly influence its performance, whereas a parent bank's profitability affects foreign bank profitability negatively. Dinh (2013) did not suggest a reason for the latter finding and indicated that further research was needed regarding the effect of parent banks' profitability on the performance of foreign banks. In other aspects, the study finds that foreign banks performed better compared with domestic banks during the period of study, possibly owing to investment in technology and better risk management.

Methodology and data

Dependent variables

This study employs ROA as an indicator of bank performance in line with most of the previous studies in this area. NIM is sometimes dismissed in earlier literature in which banks have high off-balance-sheet activities. However, off-balance-sheet activities are not widespread enough in Thailand to be of concern; thus, NIM is included in this study.

Independent variables

In addition to the usual bank-specific and macroeconomic factors, this study also explores the potential effects of multinational factors, including a foreign bank's home country's economic condition and the foreign bank's experience as reflected by the length of time it has operated in Thailand. Moreover, at an initial stage, banks are often motivated to expand their networks to a foreign country to cater to the international banking services needs of their corporate customers that conduct business outside of their own countries. Thus, the home country's trade relationship with Thailand was selected as an independent variable. The dummy for the type of bank, domestic or foreign, is also included to determine if being of domestic or foreign character would affect a bank's performance. Independent variables for this study, their description and their expected impact on dependent variables are shown in Table 2.

Table 2. Independent variables and expected impact

Variables	Description	Notation	Expected Impact
Internal factors			
Bank size	Natural logarithm of total assets	SIZE	+
Asset quality	Non-performing loans to total loan	AQ	-
Liquidity risk	Net loans to total assets	LIQ	+
Inefficiency	Cost to income ratio	OPC	-
Capital adequacy	Regulatory capital adequacy ratio	CAR	+
Type of bank	Dummy variable for domestic and foreign bank	TYPE	N/A
Macroeconomic factors			
Economic condition	Thailand's quarterly GDP y-o-y growth rate	GDP	+
Inflation rate	Consumer Price Index y-o-y growth rate	CPI	+
Multinational factors			
Trade relationship between home and host countries	Trade value (imports and exports) between bank's home country and Thailand	TRADE	+
Experience	Natural logarithm of bank age	AGE	+
Home country's economic condition	Quarterly GDP y-o-y growth rate of foreign bank's home country	FGDP	+

Models

All banks

$$ROA_{i,t} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AQ_{it} + \beta_3 LI_{it} + \beta_4 OPC_{it} + \beta_5 CAR_{it} + \beta_6 GDP_{it} + \beta_7 CPI_{it} + \beta_8 TYPE + \varepsilon_{it} \quad (1)$$

$$NIM_{i,t} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AQ_{it} + \beta_3 LI_{it} + \beta_4 OPC_{it} + \beta_5 CAR_{it} + \beta_6 GDP_{it} + \beta_7 CPI_{it} + \beta_8 TYPE + \varepsilon_{it} \quad (2)$$

Domestic banks

$$ROA_{i,t} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AQ_{it} + \beta_3 LI_{it} + \beta_4 OPC_{it} + \beta_5 CAR_{it} + \beta_6 GDP_{it} + \beta_7 CPI_{it} + \varepsilon_{it} \quad (3)$$

$$NIM_{i,t} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AQ_{it} + \beta_3 LI_{it} + \beta_4 OPC_{it} + \beta_5 CAR_{it} + \beta_6 GDP_{it} + \beta_7 CPI_{it} + \varepsilon_{it} \quad (4)$$

Foreign banks

$$ROA_{i,t} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AQ_{it} + \beta_3 LI_{it} + \beta_4 OPC_{it} + \beta_5 CAR_{it} + \beta_6 GDP_{it} + \beta_7 CPI_{it} + \beta_8 TRADE_{it} + \beta_9 AGE_{it} + \beta_{10} FGDP_{it} + \varepsilon_{it} \quad (5)$$

$$NIM_{i,t} = \alpha_i + \beta_1 SIZE_{it} + \beta_2 AQ_{it} + \beta_3 LI_{it} + \beta_4 OPC_{it} + \beta_5 CAR_{it} + \beta_6 GDP_{it} + \beta_7 CPI_{it} + \beta_8 TRADE_{it} + \beta_9 AGE_{it} + \beta_{10} FGDP_{it} + \varepsilon_{it} \quad (6)$$

This study employs ordinary least-squares (OLS) and generalized least-squares (GLS) regressions on panel data for empirical analysis. The advantages of using panel data include (1) a considerably larger sample size (2) that is better suited to study dynamics of change and (3) has the capability to facilitate a more complicated behavioral model. As the number of observations is equal for all panel members, this study uses a balanced panel. Correlation coefficients between independent variables are calculated to detect multicollinearity problems.

Data

This study covers commercial banks operating in Thailand from 2006 to 2014 which should provide a sufficient period of coverage to ensure the results' credibility. Data for bank-specific variables are retrieved from BankScope database, whereas detailed data are collected from each bank's quarterly financial statements. Macroeconomic data are gathered from the Office of the National Economic and Social Development Board and BOT and summarized in Tables 1 and 3. This study only includes banks in existence throughout the entire observation period. Therefore, banks that ceased to operate during the period are excluded from the scope of this paper.

Empirical results

Descriptive statistics

This study used quarterly data from the first quarter of 2006 to the fourth quarter of 2014 to include a number of banks that started their operations in 2005 and reflected recent developments.

From Table 3, on average, the ROA and NIM of domestic banks were higher than those of foreign banks, suggesting that domestic banks performed better in terms of profitability than their foreign counterparts during the period of observation from 2006–2014. Domestic banks were larger by assets than foreign banks on average, as reflected by the higher mean value of banks' asset size (SIZE). Meanwhile, lower mean values of asset quality (AQ) and loan-to-total-assets ratio (LIQ) of foreign banks indicated that their asset quality and liquidity were better than domestic banks. The lower mean value of the variable operating expenses to operating income (OPC) was also an indication that foreign banks were more efficient in their operations, with a lower cost to income ratio. The mean of the CAR of foreign banks was higher than that of domestic banks and far above the regulatory requirement of 8.5 percent of risk-weighted assets.

Table 3 Descriptive statistics of variables

Variables	Mean			Paired-sample *t*-test
	All Banks	Domestic	Foreign	Probability
Dependent				
ROA	0.8714	1.0617	0.7812	0.0401**
NIM	2.3746	3.0482	2.0555	0.0000***
Independent				
SIZE	11.8110	13.4642	11.0279	0.0000***
AQ	0.0394	0.0498	0.0345	0.0000***
LIQ	0.5247	0.7224	0.4311	0.0000***
OPC	0.2120	0.5595	0.0474	0.1511
CAR	20.7781	15.1893	23.4255	0.0000***
GDP	3.4500	3.4500	3.4500	-
CPI	2.8611	2.8611	2.8611	-
TRADE	-	-	0.0864	-
AGE	-	-	6.1306	-
FGDP	-	-	5.4226	-
Observations	1,008	324	684	-

** Significance at 5% significant level.

*** Significance at 1% significant level.

Panels A to C of Table 4 C illustrated that independent variables for all models and all types of banks were not highly correlated, indicating no serious multicollinearity problem. Thus, our models were valid.

Table 4. Correlation between independent variables

Panel A: All banks

	SIZE	AQ	LIQ	OPC	CAR	GDP	CPI
SIZE	1.000						
AQ	-0.031	1.000					
LIQ	0.330	0.085	1.000				
OPC	0.034	-0.091	0.060	1.000			
CAR	-0.612	-0.020	-0.165	-0.013	1.000		
GDP	-0.017	0.037	-0.009	0.005	0.034	1.000	
CPI	-0.031	0.060	0.027	0.000	0.037	0.348	1.000

Table 4 Continued.

Panel B: Domestic banks

	SIZE	AQ	LIQ	OPC	CAR	GDP	CPI
SIZE	1.000						
AQ	-0.165	1.000					
LIQ	-0.389	-0.255	1.000				
OPC	-0.103	0.096	0.076	1.000			
CAR	0.012	0.098	-0.364	-0.144	1.000		
GDP	-0.034	0.069	-0.056	-0.063	0.075	1.000	
CPI	-0.063	0.135	0.017	-0.026	-0.059	0.348	1.000

Panel C: Foreign banks

	SIZE	AQ	LIQ	OPC	CAR	GDP	CPI	TRADE	AGE	FGDP
SIZE	1.000									
AQ	-0.213	1.000								
LIQ	-0.038	0.011	1.000							
OPC	0.022	-0.116	0.051	1.000						
CAR	-0.645	0.036	0.013	-0.003	1.000					
GDP	-0.020	0.026	-0.006	0.009	0.039	1.000				
CPI	-0.035	0.032	0.038	0.001	0.052	0.348	1.000			
TRADE	-0.141	0.075	0.044	0.046	0.054	0.599	0.521	1.000		
AGE	0.196	0.043	-0.399	-0.017	-0.166	-0.019	-0.039	-0.072	1.000	
FGDP	-0.215	0.279	0.129	-0.016	0.018	0.245	0.225	0.309	-0.006	1.000

For the panel model, the issues of heteroscedasticity, serial correlation or autocorrelation and non-stationarity of data were matters of concern and therefore were examined and addressed appropriately. A covariance coefficient method or cluster option for panels was selected in the estimation to create standard-error estimates that were robust to heteroscedasticity and serial correlation. In addition, the Hausman test was performed to determine whether each model was suited for fixed or random effects. The result indicated that a random effect was suitable for each model.

5.2 Regression results

Regression results for the balanced panel of all observed banks were shown in Table 5. The estimations were generally performed using the OLS method, whereas the GLS method through the addition of AR(1) as an independent variable has been adopted to address serial correlation in selected models. Taken as a whole, for bank-specific factors, only the variable regulatory CAR had a positive and statistically significant effect on ROA. However, the estimates showed that NIM was affected by banks' SIZE, LIQ, and OPC. Both macroeconomic factors of GDP growth and rate of inflation (CPI) were found to have a statistically significant impact on NIM. Surprisingly, GDP growth had a converse relationship with NIM, suggesting that banks' profitability as measured by NIM decreased during periods of economic growth. This is likely due to higher competition in the banking sector during economic growth, with banks lowering their rates to attract customers, resulting in a decrease in interest income. In addition, a dummy for type of banks (i.e., domestic or foreign) was added to the analysis. The finding implied that being of a domestic or foreign nature had a statistically significant impact on NIM. Different determinants of domestic and foreign banks' profitability were explored further, with the results shown in Table 6.

Table 5. Regression results – All banks

Independent variables	ROA		NIM	
	Coefficient	*p*-value	Coefficient	*p*-value
Constant	0.0783	0.9609	2.5499	0.0000
SIZE	0.0265	0.7841	-0.0575	0.0003***
AQ	-3.5096	0.3302	0.6233	0.1021
LIQ	0.4372	0.4611	1.7036	0.0002***
OPC	0.0048	0.4140	0.0005	0.0005***
CAR	0.0250	0.0000***	0.0007	0.1537
GDP	-0.0052	0.6936	-0.0048	0.0001***
CPI	0.0419	0.1168	-0.0133	0.0482**
DUMMYTYPE	-0.3456	0.3754	-1.4804	0.0023***
AR(1)			0.9075	0.0000***
Adjusted R-Squared	0.0233		0.7582	
Durbin-Watson	2.1452		2.7894	
Observations	1,008		1,008	

*, **, and *** indicate significance levels of 10, 5, and 1 percents, respectively.

Regression estimates for domestic and foreign banks were illustrated in Table 6. Overall, domestic and foreign banks in Thailand had certain common profitability determinants, namely liquidity and capital adequacy, whereas other independent variables seemed to affect domestic and foreign banks' profitability differently. The results indicated that SIZE had a negative and statistically significant influence on domestic banks' ROA and NIM, which was consistent with findings from Syari's (2012). This suggests that despite economies of scale and scope, larger domestic banks cost more to organize and manage their operations, whereas smaller banks find it easier to adapt their strategies to accommodate the dynamic demands of consumers to make profits. Meanwhile, the findings indicated that SIZE did not have a statistically significant impact on the ROA and NIM of foreign banks. This may be due to operational restrictions imposed on foreign banks regardless of their size

Table 6. Regression results – Domestic banks and foreign banks

Independent variables	Domestic banks				Foreign banks			
	ROA		NIM		ROA		NIM	
	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value	Coefficient	*p*-value
Constant	8.4171	0.0163**	8.6444	0.0007***	-0.9310	0.4492	-0.1456	0.9300
SIZE	-0.3602	0.0657*	-0.5178	0.0003***	0.0941	0.3629	-0.1428	0.1352
AQ	-8.4121	0.0643*	4.2600	0.1404	-2.4210	0.5242	0.4527	0.5597
LIQ	-3.9401	0.0238**	1.5343	0.0179**	0.6531	0.1781	1.7019	0.0000***
OPC	-1.0031	0.2074	-0.1189	0.2010	0.0086	0.1763	0.0006	0.6227
CAR	0.0810	0.0000***	0.0147	0.4951	0.0237	0.0000***	0.0006	0.8421
GDP	-0.0290	0.2014	-0.0167	0.0012***	0.0107	0.5765	-0.0036	0.5076
CPI	0.0665	0.0600*	-0.0153	0.3788	0.0532	0.1643	-0.0028	0.8082
TRADE					-0.7613	0.0021***	-0.1194	0.2852
AGE					-0.0512	0.5654	0.4459	0.0255**
FGDP					0.0203	0.1621	0.0047	0.6144
AR(1)							0.8045	0.0000
Adjusted R-Squared	0.2799		0.1413		0.0233		0.8836	
Durbin-Watson	2.1036		1.6387		2.1452		2.6957	
Observations	324		324		684		684	

*, **, and *** indicate significance levels of 10, 5, and 1 percents, respectively

AQ, which represented credit risk, as measured by NPL to total loans was found to be insignificant at a conventional level of significance to the profitability of both domestic and foreign banks. Nonetheless, at a 10-percent level of significance, AQ was found to have a negative impact on domestic banks' ROA, suggesting that high NPL can damage domestic banks' profitability. The indication of a negative relationship between credit risk and profitability was supported by Dinh's (2013) study, which found a negative and significant link between credit risk and the NIM of Vietnamese domestic banks.

LIQ, represented by net loans to total assets, had a positive and significant impact on NIM for both domestic and foreign banks as expected, implying that banks with a certain level of liquidity risk can be profitable, whereas maintaining high liquid assets can be banks' opportunity costs. In contrast, the results showed a negative and significant effect of LIQ on domestic banks' ROA, reflecting that more liquid domestic banks are more likely to produce higher return on assets. This was contrary to the findings of Frederick (2015) and Muda et al. (2013) indicating no significant relationship between liquidity risk and the performance of domestic commercial banks in Uganda and Islamic banks in Malaysia, respectively.

OPC was found to have insignificant impact on profitability of domestic and foreign banks.

The CAR variable, calculated as a bank's regulatory capital to risk-weighted assets, had a statistically significant and positive impact on domestic and foreign banks' ROA. The finding of a positive relationship was expected and supported by the majority of the literature. The positive effect may be due to capital adequacy being the basis on which regulatory limits on various business activities are calculated and imposed. This means that the higher a bank's CAR is, the more business activities it can undertake; hence, the more likely it is to produce returns. Enhanced customer confidence in better-capitalized banks may also help attract more business.

For macroeconomic factors, the findings indicated that GDP growth significantly and negatively affected the NIM of domestic banks. This differed from Wong et al.'s (2007) conclusion that banks would be able to charge higher rates and to earn more profit in good times. Heightened competition to offer more loans may put pressure on banks' profits despite better economic conditions. Meanwhile, inflation or growth in the consumer price index (the variable CPI) was shown to have a positive impact on domestic banks' ROA (at a 10-percent significance level). Higher inflation could induce higher interest rates, possibly prompting an increase in banks' income.

Regression estimates in Table 6 indicated that the multinational variable of TRADE, which represented growth in value of imports and exports between Thailand and the foreign bank's home country, had a significant and negative impact on foreign banks' ROA. This seems to suggest that setting up an overseas operation in a country with an increasing trade relationship does not necessarily enhance a foreign bank's profitability. Nonetheless, this result may be because, although most foreign banks target wholesale customers, their customers may be concentrated in specific industries, and the overall trade value may not be reflective of this character. However, the results showed that the length of time a foreign bank has operated in Thailand (AGE) had a significant and positive influence on foreign banks' profitability. This outcome suggests that experience and goodwill that a foreign bank accumulates over time in operation may lead to greater profitability, reflecting the possibility for foreign banks to expand and increase profits over time despite certain operational limitations to which foreign banks are subject. This result appeared to differ from Dinh's (2013) study finding no significant impact of experience of foreign banks in Vietnam on their performance. With regard to another multinational factor, GDP growth in the foreign bank's home country (FGDP) was found to be statistically insignificant with regard to foreign banks' performance.

Conclusions

This study aimed to identify the determinants of foreign banks' performance in Thailand compared with domestic banks using a balanced panel data of banks operating in Thailand over the entire period from the first quarter of 2006 to the last quarter of 2014. A total of 28 banks in Thailand were included in this study: 9 domestic banks and 19 foreign banks. This paper assessed bank-specific and macroeconomic factors for all banks and additional multinational factors that were specific to foreign banks with regard to their impacts on banks' performance as measured by profitability indicators, namely ROA and NIM. The type of bank (domestic and foreign) dummy variable was included to examine if being of different types had an effect on banks' profitability.

The data's descriptive statistics showed that on average, domestic banks in Thailand were larger and more profitable than foreign banks, whereas foreign banks were far more cost efficient, as indicated by the means of cost-to-income ratio. Overall, foreign banks also appeared to be more liquid, held better-quality assets, and had a higher CAR than domestic banks. When domestic and foreign banks were examined as a whole, the findings indicated significant and positive impacts of net loans to total assets, cost-to-income ratio, CAR, and inflation rate on a bank's profitability. Meanwhile, profitability appeared to be negatively and significantly affected by SIZE and GDP growth, whereas the results showed no significant relationship between a bank's AQ and profitability. The added bank type dummy was also found to have a statistically significant effect on NIM, suggesting that a bank's profitability might be affected by whether it was a domestic or foreign bank.

Separate regression estimates of the two subgroups of domestic and foreign banks indicated a statistically significant and negative influence of SIZE and GDP growth on domestic banks' performance and a positive association of capital adequacy with domestic banks' profitability. Whereas liquidity risk appeared to be significant to domestic banks' profitability, the outcomes suggested a negative effect on ROA but a positive effect on NIM. For foreign banks, significant and positive performance determinants were liquidity risk, cost-to-income ratio, CAR and the length of time the bank has operated in Thailand, whereas the trade relationship between the home country and Thailand was identified as a significant and negative determinant of foreign banks' profitability. Moreover, although not significant at the conventional level of significance, SIZE was found to be significant at a 10-percent significance level and, similarly to the case of domestic banks, had a negative impact on foreign banks' profitability.

This study's empirical results might benefit the management of banks operating in Thailand and policymakers, identifying factors that significantly affected bank performance. LIQ and CAR were identified as significant determinants of bank performance in most of the models in this study for both domestic and foreign banks. Therefore, effective capital and liquidity risk management were critical issues in managing a bank and essential for both domestic and foreign banks' profitability. Moreover, the findings suggested that larger banks did not necessarily lead to greater profitability and might cost more to manage. Hence, the bank's management should decide on an appropriate size of operations to suit its strategies and the nature of its business, taking into account relevant factors and context rather than simply trying to increase its size. AQ was also an issue for foreign banks to monitor, as it might have an effect on their performance over time. As for macroeconomic factors, a domestic bank should be managed in a way that can withstand changes in economic conditions, and its competitiveness should be enhanced to take advantage of opportunities in good times and be able to profit even during times of heightened competition.

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