THE IMPACT OF FOREIGN BANK ENTRY ON DOMESTIC BANKS AND ECONOMY OF LAO PDR

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ABSTRACT

Title of Thesis	THE IMPACT OF FOREIGN BANK ENTRY ON DOMESTIC BANKS AND ECONOMY OF LAO PDR
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As the level of financial combination and liberalization increased considerably in the 1990s, the number and market share of foreign banks in Lao PDR has increased rapidly. The purpose of this thesis is to estimate the effects of foreign bank presence on the performance of domestic banks and the economy in the Lao PDR empirically. For the first model, a sample of 27 banks over the time period of 2012–2020 is used in the analysis of the effect on the performance of domestic banks, employing a panel data methodology by random effect model. The results specifically show that higher foreign bank entry causes the management ability of domestic banks to drop as the operating expenses and total cost of domestic banks have increased, while the asset quality, liquidity, and bank growth also declined as the diminution of market share by loan. All of these can point to the reduction of earning ability as well as the profitability of domestic banks as ROE, ROA, and NPM. Furthermore, the second model is to detect the relationship between foreign bank presence and the Lao economy using the VAR Granger causality model and impulse response function, using time series data from 2005 to 2020. The result implies that changes in the growth rate of domestic GDP and credit to economy or financial development in Lao PDR cause foreign bank asset percentage changes and mostly foreign banks perform as substitutions, not for complementary, this makes the competition stronger which lower domestic bank's performance and cause a lower growth rate of GDP in long run.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

In any economy, the financial system performs several essential roles. Fundamentally, it serves as an intermediary in mobilizing financial resources, allocating capital to efficient projects, monitoring financial resource operations (exercising corporate governance), facilitating risk management, and providing a payment system that facilitates more productive exchange and trade in the economy. Financial institutions and the financial system influence the path of economic development and even affect the rapidity of economic growth (Goldsmith, 1969). In a study, King and Levine (1993) analyzed a dataset of 80 nations from 1960 to 1989. They found a strong positive relationship between financial development and economic growth; financial development level is a good leading indicator of economic growth.

Financial system consists of financial markets (stock and bond markets) and financial intermediaries (such as banks, insurance companies, microfinance, and funds). They have the very basic function of moving resources from those who have a surplus of funds to those who are deficient. Financial intermediations are a far more essential source of funding for businesses than financial markets are. This is because transaction costs, risk sharing, and information costs in asymmetric information markets can be reduced by financial intermediaries. Therefore, financial intermediaries play a very important part in improving economic efficiency because they offer liquidity services, promote risk sharing, and clear information problems, so small savers and borrowers are allowed to gain from the presence of financial markets with productive investment opportunities. Without a well-functioning set of financial intermediaries, it is very difficult for an economy to reach its full capability (Mishkin, 2013).

Several decades ago, the financial system was clearly divided in this way, high-income households and large enterprises preferred to use the securities markets, but less wealthy households and small-medium enterprises used financial intermediaries such as banks, microfinance institutions, and other financial institutions (Gale, 2001). So, it does not surprise why financial intermediaries have become more important in developing countries because they still involve several small and medium-sized entrepreneurs. Or even in developed countries, financial intermediation is also essential in the economy, especially to ease risk sharing due to the asymmetric problem and pooling by lowering transaction costs. Obviously, many countries have operated their financial systems in a way that pays more attention to the financial markets or intermediation. So, the bank-based system or financial intermediation raises economic growth to a greater level than the market-based financial system, particularly at the initial stages of economic development. By the way, the market-based one provides important financial services that motivate revolution, modernization, and long-run growth (Levine, 2002).

Furthermore, because of the key roles of the financial sector, financial development has become one of the most important processes in many developing economies; many economists and researchers believe it can help the economy perform better as they say the economy will be efficient if the financial system is so great. So, this led the development of financial markets and intermediaries to become a serious and complicated part of the growth process and should never be neglected to improve at every current time. It responds positively to economic growth and industrialization. There is even verification that the financial development degree is a great indicator of capital accumulation, technological change, and future economic growth. Moreover, when the financial sector lacks development, it critically affects the pattern and speed of economic development, and the health of the financial system can also ensure the health of the economy, so a poor financial system always leads to a terrible economy that can also cause an economic crisis (Levine, 1996).

Financial liberalization is an important component of financial transformation because it allows central banks to be more expert in regulating monetary policy, managing and reorganizing the banking system, liberalizing interest rates, reducing the expansion of direct credit, and specifically promoting and developing the financial

sector's role in facilitating the economy. In numerous nations, bank institutions are the most central of financial institutions, as banks can motivate the economic growth of a country. To guarantee a secure banking structure, several authorities have regulated and restricted the operation of banking businesses for many years in the past. Until the 80s and 90s, several countries had adopted financial reformation and were moving towards less financial restrictions. The banking sector came forward in the process of transformation, involving the abolition of the control on credit allocation and interest rates; the privatization of state-owned commercial banks; stimulating bank competition and liberalization of capital flows, and accepting foreign banks to operate in the country (Beju & Ciupac-Ulici, 2012).

The level of financial combination and liberalization increased considerably in the 1990s. In particular, the percentage of foreign banks' presence in total bank assets in developing countries has risen from 19 percent in 1995 to 42 percent in 2000 (World, 2002). There is a common realization about foreign banks that they affect the domestic banking system by creating new competitors in the banking sector and also improving domestic banking efficiency. Foreign banks brought appreciated and needed sectors from abroad for the domestic banking market and economies development, such as foreign investments and new technology. Foreign banks improve financial limitations, alleviate credit access and improve the allocation of credit to domestic businesses, lower the cost of borrowing, and help with easier access to international capital markets, so it can improve firm performance in host countries (Claessens, Demirguc-Kunt, & Huizinga, 2001; Hermes & Lensink, 2004). So, bank performance in developing countries is improving along with the financial system improvements (Alin Marius & Capraru, 2012).

On the other hand, there were some negative impacts of foreign bank penetration on domestic banking sector in developing countries. Based on the fact that most foreign banks have better performance than domestic banks do, foreign banks with higher lending proficiency can also put competitive pressures on domestic commercial banks, which may reduce their lending expansion to the point where the whole credit supply declines. Although domestic banks increased their credit capacity to expand profitability, this lending turned into non-performing loans. Furthermore, while foreign banks improve credit accessibility and lower borrowing costs due to the domestic

banks' reaction to competition, if those foreign banks aggravate financial limitations on firm performance because of the retrenchment by local banks, a greater number of foreign banks might lower growth of industry. Nevertheless, the foreign bank may also encounter the problem of adverse selection if the host banking markets are informational asymmetry and domestic commercial banks have the advantage of informational accessibility (Dell, Amp, Apos, Ariccia, & Marquez, 2004).

However, those are not all the effects of financial liberalization. Some studies even found that foreign banks can benefit many sectors of the economy, but foreign bank presence is not riskless as it can also increase the banking crises probability, particularly in countries with weak administration and regulation. Financial internationalization as the emerging in financial services is so much more complex than in goods and other services trades. The advantages and disadvantages of emerging in financial services rely on various constraints, including the structure of the domestic financial industry, the supervisory and regulatory background, and the sequencing of liberalization (Wang, 2004).

From the above evidence, I found that there were extensive studies about foreign and domestic banks' correlation, but I consider that those were too general. We cannot assume the real impact of foreign banks on one specific country by those results, especially for the high-growth developing countries, because the previous results took the average all banks' performance in both developed and developing countries. It eradicated the dissimilarity in financial aspects between countries. So, we can investigate different results by studying that topic as limited and specific countries' selection and different research questions.

As no identified study has been conducted to determine this concern in Lao PDR, in this study, we analyze the impact of foreign bank entry on bank performance and economy in Lao PDR, a developing country in Southeast Asia, for the period of 2005–2020. The Lao financial system contains a small number of financial institutions, dominated by public commercial banks, with only a few non-bank financial institutions, including microfinance institutions (Asian Development & World, 2002), but the banking sector performs the most significant role in the Lao financial system, as the limited number of domestic banks and numerous business opportunities enticed many foreign banks to establish in Laos, which had expanded the access of financial resources

for local business and household, as they come with many different types of credit which some is not available in domestic banks, not only credit side, they also provide more options for the depositor and make Lao banking market more competitive which seems to be positive for the businessman and household. However, we do not actually know how exactly they affect domestic banks and economy.

As there is no evidence to show how foreign banks impact the domestic banks in Laos, as this area of research has not been touched in depth, this study specifically tries to answer that whether foreign bank entry enhances the financial performance of Lao domestic banks? And how do foreign banks affect the Lao economy? This study will go one step further than previous literature about the banking system in Laos, which will be useful to banking management, researchers, academicians, policymakers, and businessmen. They would also understand the benefits and complications brought by foreign banks in the local market to make appropriate decisions and analyze the financial markets.

This thesis has been divided into six major chapters and organized as follows: The first chapter has provided an introduction to the topic and has given an overview of the thesis and the economic background in Lao PDR. The second chapter is about the financial system of Lao PDR. Thirdly, it discusses the previous literature on the impact of foreign bank presence. Chapter 4 describes the empirical methodology and data set we have employed to analyze the impact and explanations of concepts. Chapter 5 reports the results of the empirical study and considers them. Chapter 6 summarizes the conclusions of the examination and gives recommendations.

1.2 Lao economy overview

Lao PDR is one of the poorest countries and least developed in Asia, but significant economic growth in previous decade has benefited the country. The Lao economy depends on external demand for forestry, natural resources, particularly mining and hydropower in the country. Government of Laos's regulatory knowledge and capacity of economies is limited and threatens future sustainable development and the country's ability to address economic vulnerabilities.

The economic environment in Lao PDR is improving. Since the economic reform process has started in 1986 under the New Economic Mechanism ("NEM"), the Lao economy has shifted from a centralized, planned economy towards liberalized market-oriented system. "Open-door" policies to the global market have been applied to attract and promote foreign direct investment. The changes have formed satisfactory economic conditions for country development.

Since 2000, the country has been one of the fastest growing economies in the world, with average annual growth approximately 7 percent. A great part the economic growth comes from enlarged foreign investment movements in agricultural and industrial sectors, including mining and hydropower, as well as tourism, industrial forestry and agricultural crop plantation. However, the growth drivers have not been sufficiently inclusive. Strong GDP growth did not create as various jobs as predicted. Poverty decreased, but at a slower than other fast-growing countries in the region. Moreover, this growth has not been sustainable from an environmental perspective. Stocks of natural capital have been reducing, several forests and water resources remain at risk (World, 2021).

The forestry and agriculture sectors have an average annually growth of 4.1 percent during 2005 to 2010, accounting for 30.4 percent of total GDP, while the industry sector (hydropower and mining) grew by 12.5 percent per year, accounting for 26 percent of GDP. The service sector raised by 8.4 percent annually, accounting for 37.2 percent of GDP.

The Lao economy will continue to benefit from international aid and foreign investment in mining and hydropower. Construction will be another strong economic factor, especially as road projects and hydroelectric dams gain steam. In 2004, Laos

had Normal Trade Relations status with the United States, allowing Laos-based producers to lower tariffs on exports. Laos is taking steps in joining the World Trade Organization; the trade policy reforms will improve the business environment. On the fiscal side, a value-added tax (VAT) regime, began in 2008, had renovated the government's tax system.

Moreover, the Lao stock market, a joint venture between the Lao government and the Korean Stock Exchange was officially open on 10 October 2010. The stock market would be a source of long-term funding for business and investment expansion (LNCCI, 2021).

In order to promote foreign direct investment, the Government of Lao PDR has implemented the "Promotion of Foreign Investment Law". In the National Socio-Economic Development Plan (NSEDP) 2006–2010, the Lao government wants to promote FDI in hydropower, mining and agriculture sectors to foster growth, decrease poverty, and complete the Millennium Development Goals.

Most foreign direct investment in Laos still goes into resource sector, particularly mining and hydropower (approximately 80% of total FDI). However, foreign direct investment in non-resource sectors, especially the financial services sector has improved since 2008 compared to previous years. Major FDI into Lao PDR has come from the region, mostly from Thailand, China, Vietnam, Australia, India, Japan, and Korea (Oliver & Alfons, 2009).

Lao economic development faces both opportunities and challenges. The country's development still needs the assistance from international organizations to help Laos further participate into the international economy by developing and implementing transparent, sound, modern and inclusive economic regulations and policies. Combination with the international economy helps create sustainable investment and trade, the conditions for economic improvement and higher incomes for men and women from all areas of Lao society. Higher incomes are an essential part of Laos' definitive goal of achieving middle-income country status.

Nevertheless, the Government of Laos will also focus on the financial system along with overall economic development as Bank of the Lao PDR will continue to conduct monetary policy and manage the floating exchange rate regime with the aim of maintaining monetary stability, encouraging economic growth and sustainability,

improving services to be modern and safe, supervising and ensuring the soundness of the financial system to enable better regional and international integration (BOL, 2018a).

1.3 Lao banking system

The commercial banks in Laos are small as compared to the others in the region. The total assets of Lao commercial banks are 118,236.25billion LAK (about 14 billion USD). The banking system is under the administration of the Bank of Lao PDR (central bank of Laos) and consists of 42 commercial banks (BOL, 2017). The banking system is dominated by large, state-owned banks. The health of the banking sector is problematic to define because of a deficiency of reliable data. However, banks are generally supposed to be poorly regulated and there is extensive concern about bad debts and non-performing loans that have not been completely reconciled yet by the state-owned banks.

In the period 1992-1995, Laos internationally opened the financial market. Foreign banks began to enter the Lao banking market. However, the Lao banking system remains weak. Although foreign branches have the required capital, employees, and technology, they are not permitted to activate business in other provinces except Vientiane Capital. Until 2008, private foreign banks could launch their branches nationwide. State-owned commercial banks are too small to start relationships with foreign banks and enter into an international banking market. The ability to mobilize funds from the banking sector is still limited. The credit structure in Lao PDR also controls economic growth (Asian Development & World, 2002).

All these changes have an impact on the Lao banking sector's performance and productivity level. There is still a huge space for analyzing the performance and efficiency of Lao commercial banks in some different dimensions. For that reason, this study was related to the current banking trend in Laos and was undertaken to emphasize the result of the changing banking structure in Laos.

1.4 Objective of the Study

The core objective of this study is to answer the main research question by inspecting the effect of foreign bank entry on the financial performance of domestic

commercial banks and economy in Laos. In this regard, the study focuses on exploring the correlation between foreign bank presence and domestic commercial bank performance and finding out how they affect Lao bank performance and the economy.

1) Therefore, our first step is to figure out the answer to a simple question: how does foreign bank penetration affect Lao domestic bank performance? in terms of profitability, cost, efficiency, and stability of the bank. The foreign bank presence variables are measured by both numbers and assets of active foreign banks in the country.

2) The second question is, do foreign banks foster the Lao economy? So how does the foreign bank presence affect the credit availability and GDP growth in Laos? because these can confirm the economic growth of a country.

Due to the previous literature, the performance and efficiency of the banking industry in Lao PDR have been determined based on the size of banks, different financial ratios, etc. The study will provide new views on research in the current study. By the way, this also describes how domestic and foreign banks performed from the years 2000-2017.

1.5 Benefits of the study

This study will enhance new knowledge on the grounds of ownership and financial performance in one of developing countries such as Laos, which goes one step further than previous literature about the banking system in Laos. It will be useful to banking management, researchers, academicians, policymakers, and businessmen.

1) The discoveries of the investigation could be used by management in the banking industry to make appropriate decisions and to analyze the financial markets as they would be aware of the impact of other entrants on the banking environment. They would also understand the benefits and complications brought by foreign banks in the local market.

2) The government could intend to figure out how the foreign banks in Laos impact the local banks and economy. This would support them in making policies to regulate new entrants into the Lao banking market as they would identify clearly the possible benefits or threats that they may cause to the domestic banks.

1.6 Scope of the study

This study focused on both domestic and foreign banks in Lao PDR. These banks are not listed on the Lao Securities Exchange, except BCEL bank. The dataset is collected annually by data of 27 commercial banks in Lao PDR and other factors such as foreign bank presence and macroeconomic variables from 2012 to 2020 for the first question and during 2005-2020 for the second question, which is provided by the Bank of Lao PDR and 27 selected banks in the form of international accounting standards (IAS) and statement of accounting standards (SAS) in reporting their financial statements and by the World Bank database.

CHAPTER 2

LAO BANKING SYSTEM

2.1 Structure of Lao Banking System

The commercial banks in Laos are small as compared to the others in the region. The total assets of Lao commercial banks are 118,236.25billion LAK (about 14 billion USD). The banking system is under the administration of the Bank of Lao PDR (central bank of Laos) and consists of 42 commercial banks (BOL, 2017). The banking system is dominated by large, state-owned banks. The health of the banking sector is problematic to define because of a deficiency of reliable data. However, banks are generally supposed to be poorly regulated and there is extensive concern about bad debts and non-performing loans that have not been completely reconciled yet by the state-owned banks.

The government is concentrating on improving state-owned commercial banks to help them be more competitive against private commercial banks. Their purpose is to empower state banks to efficiently run and mobilize long-term savings for long-term investment. The Lao economy still has the problem of long-lasting macroeconomic instability and financial inefficiency. There is a great volume of non-performing loans in the banking market, especially at state-owned commercial banks.

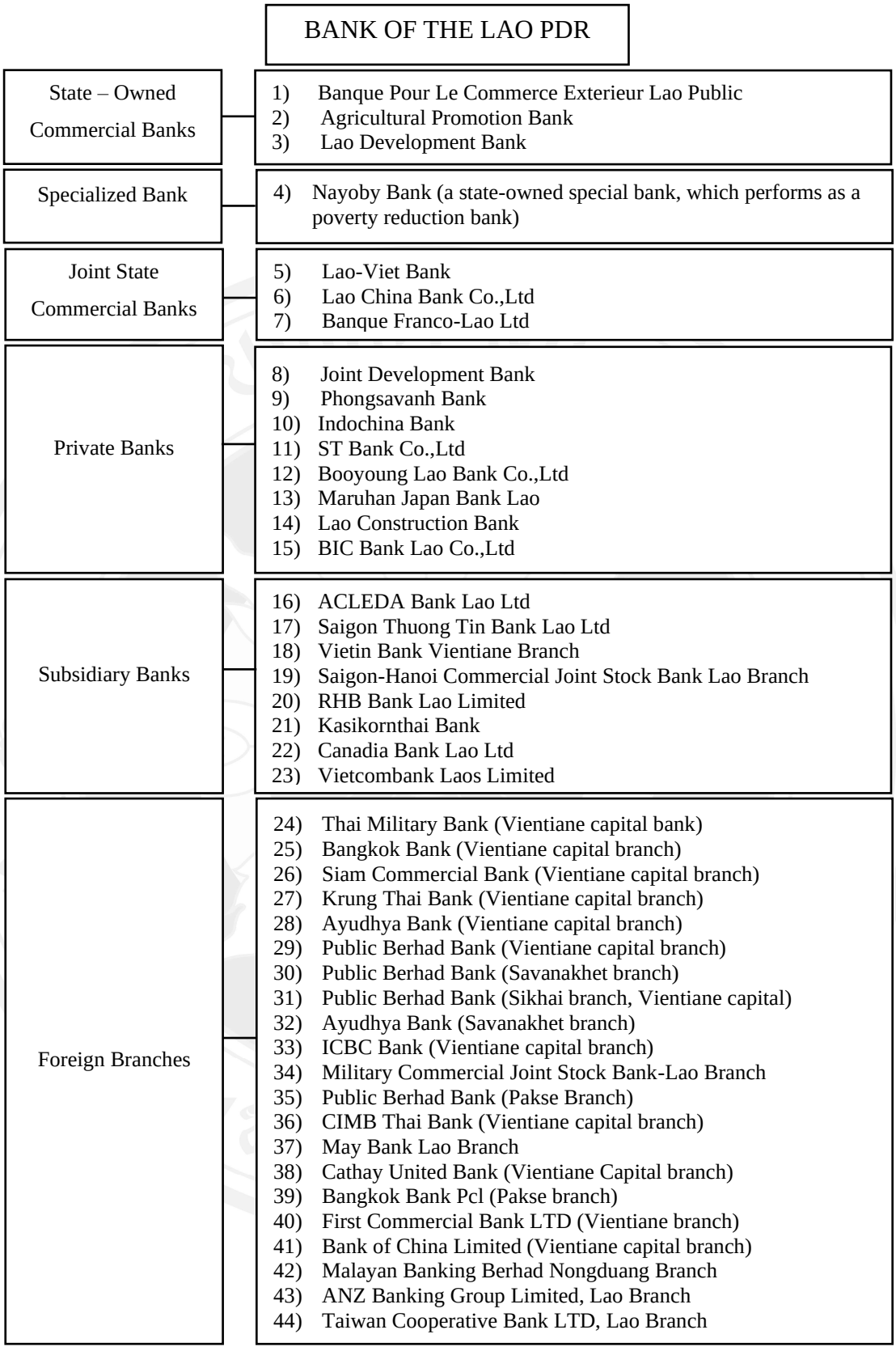

Figure 2.1 List of commercial banks in Lao PDR (2020)

Source: Bank of Lao PDR.("Annual economic report (Bank of the Lao P.D.R.),")

2.2 Lao commercial bank operation

All commercial banks in Laos have the same right from the Bank of the Lao PDR (BOL) to operate their business normally as accepting deposits, releasing credit, providing payment services, trading in foreign currencies, and making investments to provide financial resources for business and production and to make an important contribution to socio-economic development and fiscal stability.

The government promotes commercial banks to invest and finance to support industry, production and business, especially small-medium businesses, and the creation of employment to increase households' incomes as well as develop fundamental economic development.

Commercial banks in the Lao PDR are equal under the laws, they cooperate and compete each other to expand economy, but they are not allowed to compete illegally, to cause damage to other commercial banks, the fiscal and monetary policies and banking system.

Lao PDR encourages international cooperation in the banking industry in a variety of ways, including the exchange and sharing of information, technology, human resource development, and other experiences, in order to strengthen the Lao PDR's banking system and enable it to integrate at the regional and international levels (BOL, 2018b).

2.3 Banking supervision

The Bank of Lao PDR (BOL) has a banking supervision unit that currently requires all banks to supply information regularly. Reporting requirements were refined in 1993 and the set of reports banks have to submit covers: trial balance (monthly), balance sheet (quarterly), income statement (monthly), reserve requirement report (monthly), a foreign exchange transactions report (daily), interest rates (monthly) and loan portfolio details (monthly).

The experience of other countries has shown that a strengthened prudential framework leads to a stronger financial system. To that end, the Bank of the Lao PDR has received advice and assistance from multilateral agencies and other parties on improving our supervisory capacity and designing specific banking policies to reduce

system risks. Such policies could cover loan concentrations and loan loss provisioning, for example. A banking supervision expert from the World Bank visited during the year to advise on several issues, including banking policies and the supervision of foreign branches. The bank hopes to develop a closer relationship with its Thai counterpart, the Bank of Thailand, to ensure that foreign branches are effectively supervised.

The BOL supervises the banking system under the CAMELS and Basel II principles. In 2018, the BOL successfully completed Commercial Banks Law improvement, established commerc1ial bank's balance sheet analysis, risk-based supervision manual and auditing instruments, and also established an early warning system, laws, and regulations to follow commercial banks and the banking system soundness and began to be consistent with recent financial development as well as international standards, and to be integrated with other countries in the banking system. However, the BOL still focuses on progressing regulations in expansion of the banking system and enable it to link gradually to global standards. Meanwhile, commercial banks have also started to assess their banking systems in turning into a type of risk-based and completed operation plan to move toward banking supervision under the Basel II principle. Moreover, the BOL has stimulated commercial banks to advance their services such as internet banking via mobile applications or websites to have a cashless society and to facilitate settlements such as electricity-water payment, land tax, road tax, and lease repayment (BOL, 2018a).

2.4 Foreign bank entry

Apprehensions over weak banking regulation and slack promulgation aside, the high growth of the Lao economy has led foreign direct investment to operate businesses in Lao PDR, such as construction, commerce, and also financial institutions. The Lao banking sector has gone through several transformations, including:

1) The New Economic Mechanism was started in 1988, and the centrally-planned economy has transformed into a market-oriented economy. The banking sector in Lao PDR was liberalized during the years of 1988-1989, but this process was not completely open.

2) In the period 1992-1995, internationally opened the financial market, and foreign banks began to enter the Lao banking market.

3) At the end of 1999, the Lao banking system enjoyed a certain degree of openness as the number of domestic and foreign banks had increased rapidly. The generally expected role of foreign banks is to make the banking sector more competitive.

In allowing new entrants to the banking system, the government recognizes that a competitive, well-developed financial sector will be important to efficient resource allocation within the economy and hence economic growth. The government wishes to encourage Lao participation but at the same time recognizes the advantages of attracting well-run established banks. The importance the government attaches to financial intermediation cannot be emphasized enough. The government expects all banks to be active in both mobilizing savings and making loans and to subscribe to government securities.

However, the Lao banking system remains weak. Although foreign branches have the required capital, employees, and technology, they are not permitted to activate business in other provinces except Vientiane Capital. Until 2008, private foreign banks could launch their branches nationwide. State-owned commercial banks are too small to start relationships with foreign banks and enter into an international banking market. The ability to mobilize funds from the banking sector is still limited. The credit structure in Lao PDR also controls economic growth. (Asian Development & World, 2002).

The total assets of Lao commercial banks expanded, took on a rising tendency, and had a speedy growth rate from 2010 to 2017. At the beginning of 2010 (2010/Q1), the total assets of Lao commercial banks were LAK20,016.74 billion and increased to LAK115,315.85 billion in 2017/Q1. This means that the total assets grew by 476.10 percent compared to 2010. Furthermore, only the assets of foreign bank branches increased by 1,317.31 percent since 2010, from LAK2,364.78 billion in 2010/Q1 to LAK33,516.32 billion in 2017/Q1 (see Figure 1-2). share by bank asset shows that the foreign bank has a greater segment quarterly, as it was 11.81 percent of the bank’s total assets in 2010/Q1, and rose to 29.06 percent of total assets (see Figure 1-3).

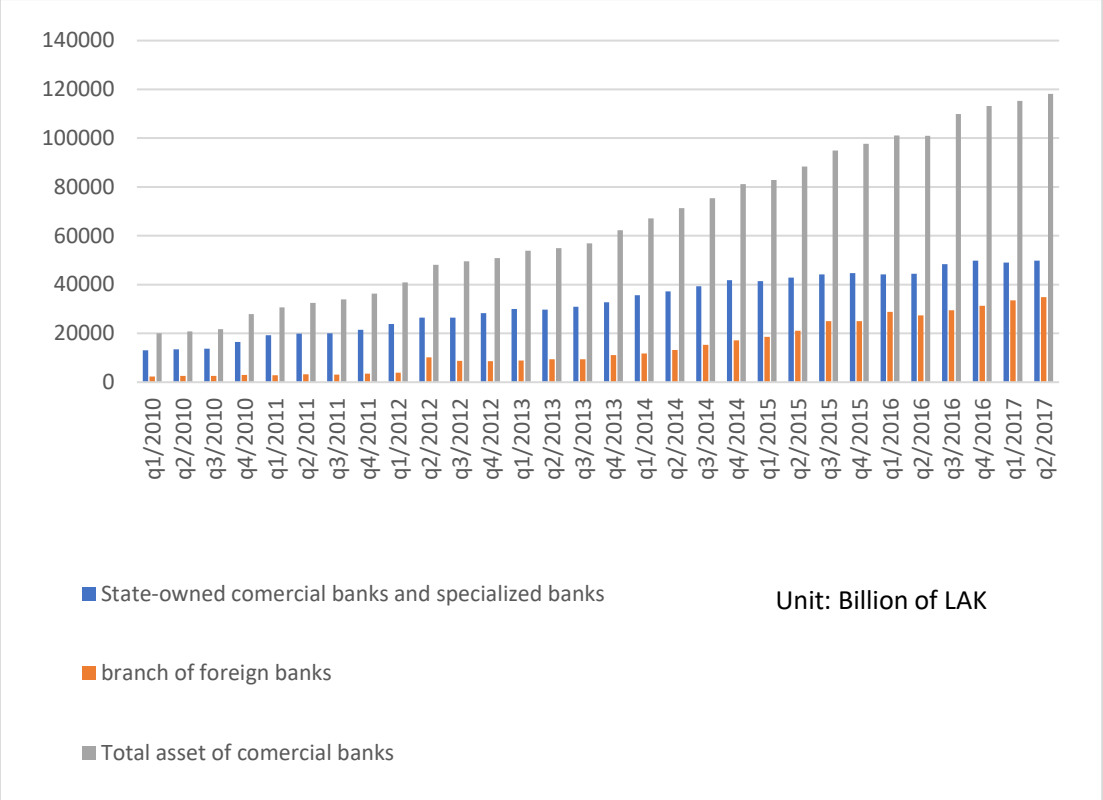

Figure 2.2 Total assets of Lao commercial banks (2010-2017)

Source: The data of this figure according to quarterly reports of Bank of the Lao PDR.

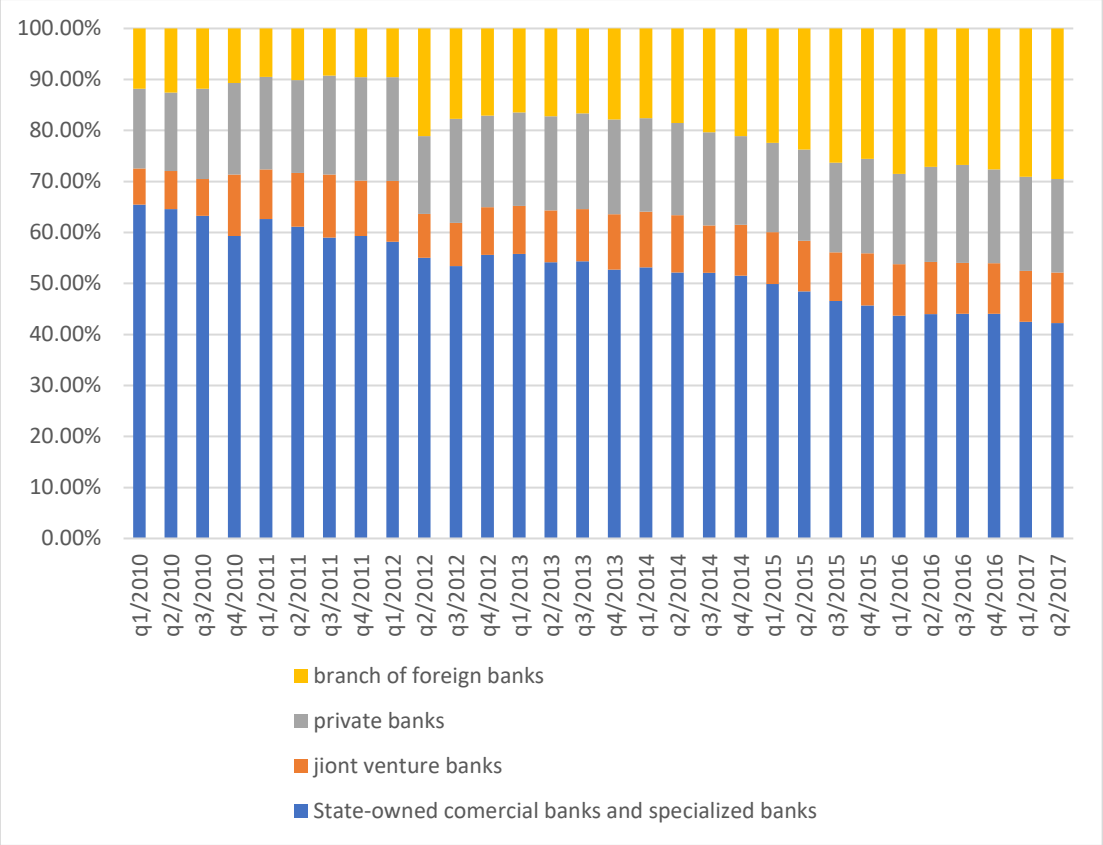

Figure 2.3 Market share by asset of Lao commercial banks (2010-2017)

Source: The data of this figure according to quarterly reports of Bank of the Lao PDR.

All these changes have an impact on the Lao banking sector's performance and productivity level. There is still a huge space for analyzing the performance and efficiency of Lao commercial banks in some different dimensions. For that reason, this study was related to the current banking trend in Laos and was undertaken to emphasize the result of the changing banking structure in Laos.

CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

Financial services internationalization has a key role in financial development, and banking markets are becoming more and more international because of financial liberalization. The presence of foreign banks in numerous countries has increased step by step and has a great market share in the sector, this procession of the foreign bank got more attention from researchers, economists, and policymakers in examining the performance and its impacts on the local economy. Many people generally believe that foreign banks can develop financial systems. Nevertheless, if we talk about doing research, it has two sides of consideration for that concern.

Lu (2009) found that foreign banks bring helpful effects on the host country's banking system, for example, institutional innovation effect, competition effects, technology diffusion effects, and the effect of human resources. That means it enhances the efficiency of financial services. (Claessens et al., 2001) investigate that, while foreign banks reduce domestic banks' incomes, profits, and costs, they can expand the functioning of host banking markets through increased market competition, which improves domestic banks' efficiency. Hermes and Lensink (2001) argued that foreign banks led to rising income, profits, and costs and also recommended that this concern that the effect of foreign entry can be dissimilar for developed and developing countries, but in many cases, foreign banks' entry has a positive relationship with domestic banks.

Nevertheless, the foreign entry has also carried some harmful impacts because relaxation of limitations on foreign bank entry can cause the banking market to suffer risks by growing new competitors, thus reducing domestic bank profitability and may diminish charter values of domestic banks, which can cause them to destabilize the financial system and become more vulnerable, particularly if domestic banking regulations and supervision are not strong (Claessens et al., 2001). Ghosh (2016a)

analyzed a panel data set of 169 countries during 1998–2013 and found that a greater degree of banking-sector liberalization decreases both profits and cost inefficiency.

Further to the above literature, I have been motivated to examine some new evidence related to this field in Lao PDR's banking market to study the effect of foreign bank entry on performance of domestic bank and also figure out how it affects the host country's economy. So, I have divided the literature review into 2 parts clearly by the impact of foreign bank entry on domestic bank performance and the impact of foreign bank entry on the Lao economy.

3.2 Impact of foreign bank penetration on domestic bank performance and stability

As the banking system is a critical predictor of future GDP growth, there is also a positive correlation between the banking sector stability and real economic growth, which is a very significant determinant in economic research that is necessary for policymaking, as making decisions on monetary policy is based on economic forecasts. Bank performance is the confirmation of the stability and sustainability of the banking system. Many researchers try to find out whether the entrance of foreign banks impacts bank performance as well as banking sector stability, and there are two disparate views. One side, who supports foreign banks, claims that they will enhance the stability and efficiency of the banking system (Boustanifar, 2014). On the other hand, those who argue against foreign bank entry say that they might bring economic shocks from their home nations into the host country.

Dorothea and Oleksandr (2007) collected 160 banks' statistics during 2003Q2–2005Q3, using a dynamic panel data estimator and found that domestic banks' profitability has a positive relationship with the market share by assets of foreign banks in Ukraine and accept that foreign banks increase competition, bring positive spillover effects such as helping domestic banks familiarize new services, improve monitoring, decline the percentage of nonperforming loans, and gain from technology know-how brought by parental foreign banks. As a result, the profitability of local banks may increase because of improved operating efficiency. Goldberg, Dages, and Kinney (2000) analyzed quarterly credit data of commercial banks in Argentina and Mexico in the 1990s and investigated those foreign lenders were more stable than domestic ones,

and the loan growth rates of foreign banks were also greater than domestic banks. Moreover, banks with multiple ownership seem to benefit from the stability of credit in times when the domestic financial system is weak or suffering from a crisis.

Dong (2013) studied foreign bank entry into China from 2002 to 2011 and found that the NPL ratio of domestic banks was significantly higher than the NPL ratio of foreign banks. This means that foreign banks are more stable than local banks. The conclusions correspond to Clarke, Cull, and Martinez Peria (2001), Weller (2000), and Gormley (2010) that foreign banks positively affect domestic banking sectors, especially by increasing credit to the economy and strengthening stability. The observation of 19 banks' data in the period from 2001 to 2009 to find out the effect of foreign banks on Kenya's domestic banking sector reveals that foreign bank entry negatively impacts the profitability of domestic banks but enhances the efficiency of the domestic banking system in such ways as decreasing lending rates and competition intensifying. This also demonstrates that foreign banks' entry has a direct positive correlation to Tier 1 capital that enhances financial stability (Ben & Isaiah, 2014). Using different measures to capture this curiosity, Ghosh (2016b) studies the effects of foreign banks on banking crises by employing the dataset of banks in 138 countries during the period 1998–2013 and finds the probability of banking crisis decreases with great banking sector internationalization. They also emphasized that greater foreign bank existence offers better banking sector stability in the host country by providing more credit, advanced technologies, better supervision proficiency, and building up banking supervision. After the Asian crisis, the role of foreign banks in four countries that were most damaged by the Asian Crisis of 1997, such as Korea, Malaysia, Indonesia, and Thailand, Montgomery (2003) tries to compare the efficiency of foreign and domestic banks' operations after the crisis and found that foreign lending not only seemed to be more stable than lending by domestic banks but also provided more needed capital in the crisis times. Consequently, foreign banks perform a very important role in Asia, not only in the general ways of offering innovative services and motivating competition and efficiency but also benefit the stability of the banking industry during macroeconomic fluctuations. Martinez Peria (2002) and Peek and Rosengren (1997) also confirm that the penetration of foreign financial institutions in a host country

positively affects the stability of the domestic banking sector. This evidence concluded that foreign banks can enhance the operations of the banking industry.

Although foreign bank entry can positively affect financial stability as foreign banks often increase their credit at a time of domestic economic gets in worse situations. However, there is some evidence that foreign banks harm the home country's economic conditions. Dani and Arvind (2009) give the opinion that the domestic banking industry can be destabilized by importing economic shocks from foreign banks' home countries or other countries, which those foreign banks also operate in. (Cizikova, 2012) estimated empirically the effects of increasing foreign banks on domestic commercial bank performance in the Baltic countries: Latvia, Estonia, and Lithuania, using a dataset of 46 banks during 1997–2007 using a panel data model. The outcomes show that more foreign bank presence negatively affects incomes, pre-tax profits, and overhead expenses of domestic banks. In the short-term, loan loss provisions also rise, which is a consequence of greater competitive pressure. Unite and Sullivan (2002) examine that the notion of liberalization in the banking sector is to support domestic commercial banks to be more efficient and competitive, and it has functioned well in greater Philippine banks. But foreign bank entry is directly connected with growth in risk, such as loan loss provisions. This is also in line with the argument of Claessens et al. (2001) that local commercial banks are forced to take on less creditworthy clients because of the higher competition brought by foreign bank entry. Lu (2009) found that foreign banks have many positive effects on the banking sector in China, for example, institutional innovation effects, competition effects, technology effects, and human resources effects. Though foreign banks have also brought some negative impacts, such as raising short-term operating costs of domestic banks rapidly and increasing the banking sector's vulnerability, these effects disturb the stable operation of the banking system in China. Hermes and Lensink (2001) analyzed the statistics of local banks in least developed countries and generally found that foreign bank presence has a positive relationship with domestic bank performance in most cases, but also found that it was an inverted U-shaped relationship and recommended that banks in these countries, efficiency and competition effects are productively active only after the degree of foreign bank presence has reached a minimum level.

3.3 Impact of foreign bank penetration on domestic economy

3.3.1 Impact of foreign banks on credit availability

Credit allocation is an important determining factor in the economy. Recently, many economists have extensively estimated the effects of foreign bank presence on credit distribution. Credit availability has a serious effect on the economic process and commercial banks. In the macroeconomic part, monetary policy has a credit scale as the main component. As the financial factor of enterprises, the lending of banks is the key foundation for businesses to access indirect funds in Lao PDR. On the bank side, the core revenue of commercial banks generally comes from lending interest. We conclude that it is imperative to study foreign bank entry's impact on credit availability because reducing credit allocation can have some impact on the overall economy.

There are also two contrasting opinions about the effect of foreign bank penetration on credit accessibility in the domestic banking market. After analyzing domestic and foreign banks' performances in Latin America, Crystal, Dages, and Goldberg (2002) determine that the growth rate of foreign bank loans is higher than the rate of domestic ones. As studied by Claessens et al. (2001), foreign bank presence tends to expand bank credit scale. So, foreign bank entry can be viewed as a positive development in the developing financial system. The foreign bank increases the source of funds and decreases the interest rate of loans as the overhead costs of firms (Beck & Martinez Peria, 2010). Using data from 19 commercial banks from 2001–2009, Ben and Isaiah (2014) find that foreign banks' entry negatively affects the profitability of Kenyan commercial banks, but in the overall view, it can enhance domestic banking efficiency by reducing lending rates and improving credit access to all firms. Claeys and Hainz (2007) analyze a dataset of commercial banks in ten Eastern European nations during the years of 1995–2003 to conclude that the entry of foreign banks not only increases credit scale but also improves the efficiency of credit for the economy as well as private sectors. Taboada (2008) found that reducing government ownership in commercial banks by itself does not affect credit efficiency, but increasing foreign ownership can improve capital allocation efficiency. In the way of lending to more productive firms and industries that rely more on external financing, financial integration allowed capital from foreign banks to flow into the Ghanaian economy,

which raised the accessibility of capital with a lower interest rate, which ensured a lower cost of funds (Acheampong, 2013). Clarke, Cull, and Martínez Pería (2006) combined the surveys of most companies in 35 developing and transition countries and found that greater foreign bank share expands the accessibility of external funds for enterprises, as well as small and medium-sized ones. Giannetti and Ongena (2009) arranged a dataset of around 60,000 unlisted and listed Eastern European companies to evaluate the effects of foreign bank penetration on the financial accessibility of companies. They summarize that companies indirectly gain an advantage from foreign banks' presence as it lowers lending costs and increases firm probability. Until then, they can easily start relationships with banks. It improves accessibility to credit for all firms. Although big companies profit more from foreign banks, smaller firms also benefit. De Haas and Naaborg (2006) determined that foreign lender help small-medium enterprises (SMEs) and even retail markets in Central European and Baltic countries easily access credit.

However, the empirical study on 31 Chinese commercial banks from 2002 to 2009 examined the effects of foreign banks on business structure and credit scale in China. The results show that the entry of foreign banks is not correlated with credit growth but significantly improves the structure of Chinese commercial banks (Xiaoyan & Yong, 2011). Claessens and Horen (2014) provide an inclusive dataset on foreign ownership banks for 5,324 commercial banks in 137 nations during the period of 1995–2009 and conclude that the relationship between credit to the economy and the presence of foreign banks significantly depends on the bank and host country’s characteristics. Definitely, foreign banks only appear to negatively affect credit in poor countries, where credit information is restricted accessibility, particularly when they come from distant countries. A. Berger, Klapper, and Udell (2001) study on the 61,295 companies’ dataset of 115 Argentinian commercial banks and agree that foreign banks have problems in expanding loans to opaque small firms, particularly when they have long distances to their home countries. Moreover, Detragiache, Tressel, and Gupta (2008) also confirm that the credit scale in low-income countries has been decreased by the increase of foreign bank branches. Furthermore, they develop a model employing data from 89 low-income countries and discover that when local banks have less efficient technology than foreign banks, they may lower private credit, resulting in slower credit growth, higher operating costs, and lower welfare in the host country.

The studies on ASEAN banking markets, analyzing individual commercial bank data of five banking markets studied the effect of the entry of foreign banks on lending, especially concerning about credit channeled towards SMEs clients and larger companies, Wattanapruttipaisan (2010) concluded that foreign banks mobilize less capital to SMEs customers, due to these reasons although foreign banks are a greater source of capitals, they have trouble in contacting soft information of small-medium sized enterprises. In contrast, SMEs lack of information and disclosures that firms can use to ensure the stability of business to access the credit of foreign banks.

3.3.2 Impact of foreign banks on economic growth

Even though foreign banks can perform as economic and financial development stimulants, their impact on credit availability and financial stability is still being debated. Yet the study of their effect on economic indicators is also to be discussed. Bruno and Hauswald (2014) study the effects of foreign banks on real economic growth in developing and advanced countries with the cross-section method and discover that foreign banks ease financial restrictions without eliminating economic growth prospects but also increase real growth, particularly in developing countries where firms regularly lack access to alternative sources of capital. Foreign banks stabilize firm performance and stimulate real economic activity during periods of crisis, especially in middle and high-income countries. Theoretically, foreign banks may have positive effects on real output growth both indirectly and directly. By providing supplementary capital, actively lending to efficient firms, and improving risk management, or even directly increasing capital allocation and accumulation that can foster economic growth (Levine, 1996). Wu, Jeon, and Luca (2010) analyzed the dataset on 35 emerging countries in the time period of 1996–2003 by using OLS regression and fixed effects methods and concluded that more foreign bank existence has a positive effect on economic growth. The findings of Caves (1996), De Gregorio (2003) confirmed that foreign direct investment has more effective functions than domestic investment in the way of speeding real GDP growth in Latin American nations and even discovered that foreign direct investment has more effects on the economy of host country than domestic investment three times. Alfaro et al. (2004), Glass and Saggi (1998) and Lensink and Morrissey (2001) also found that economic and financial development were enhanced because of increasing foreign bank presence.

In contrast to those viewpoints, A. N. Berger, Miller, Petersen, Rajan, and Stein (2005) argue against foreign bank entry because foreign lenders have a tendency to "cherry pick" the most profitable customers, neglecting the medium and small. As a result, a greater degree of foreign bank presence may hurt host countries' economic growth because medium- and small-sized companies characterize the main group of total enterprises and create a large number of jobs for citizens. Giannetti and Ongena (2011) also found that foreign banks' branches may concentrate on mobilizing capital for large companies and ignore small firms. With such abandonment, there was concern that foreign bank penetration would harm the financial performance and growth of small and emerging businesses. This may reduce economic growth, particularly in EMs and LICs. Ghosh (2017) studied the effects of banking institutions' liberalization on GDP growth by using a panel dataset of 138 countries during the years 1995 to 2013 and found that a high level of banking sector globalization lowers real economic growth. The result was in line with the studies of Dell et al. (2004), Mian (2006), Sengupta (2007), Detragiache et al. (2008), Acharya and Subramanian (2009), Gormley (2010), and others. They have assumed the apprehensions that foreign institutions may encounter the problem of informational asymmetries in developing and least developed nations, which can obstruct them from lending to small-medium-sized enterprises, which are more informationally opaque, and thus lower real GDP growth. Demirguç-Kunt (1998) analyzed the data of 7900 individual banks in over 80 countries in the period of 1988–1995, and found that foreign banks do not exert a significant impact on economic growth. The findings in the study of Durham (2004) cannot accept the hypothesis that foreign presence has a positive relationship with economic development.

3.4 Summary of literature review

Through many findings, there is a common conclusion regarding the impacts of foreign banks on domestic banks that foreign banks are quite more stable than domestic banks, especially in developing countries. Even in the first period, they can reduce the profitability of the domestic banks, but they serve as an effective competitive force, compelling domestic banks to improve their cost efficiency until they have improvements in profitability and bank value, as there is a positive correlation between

the profitability of local banks and the market share of foreign banks' assets. However, too much foreign bank entry does not contribute to a more stable banking system and can be negative for local commercial banks.

Furthermore, there is evidence that foreign bank entry can ease financial restrictions without eliminating economic growth prospects and stimulate local economic activity since foreign banks can help to alleviate connected-lending problems and improve capital allocation. This leads to more accessible credit to small and medium-sized enterprises, particularly in developing countries rather than advanced economies. However, some studies found that the high level of banking sector globalization lowers real economic growth in both emerging markets and low-income countries and nations with more than 10 percent of foreign banks but not in advanced countries because the high presence of foreign banks reduces private credit flows in host nations, which implies foreign banks face informational bottlenecks that hinder them from lending to a large majority of their potential client-base in host markets.

3.5 Contribution of the study

As the literature in this chapter demonstrates the empirical evidence emphasizes primarily on how foreign banks affect domestic bank performance. Is it positive or negative? As the study by Clarke, Cull, and Martínez Pería (2006) from the survey of firms in 35 transition and developing economies, found that greater foreign bank presence improves the accessibility of external financing for firms. However, that paper is not able to examine the impact of a specific country because Claessens and Horen (2014) studied 5,324 banks in 137 countries during the time of 1995–2009 and concluded that the effect of a foreign bank significantly depends on the host country and banks' characteristics. So, this study is based on only one economy to figure out how it affects domestic banks? Moreover, (Acheampong, 2013) investigates the effects of foreign bank entry on Ghanaian banks' performance but only studies domestic bank profitability as a measure of ROA. Hermes and Lensink (2008) analyzed 25 emerging market economies to answer the question: Does financial liberalization influence economic growth? But as we know that any country has specific characteristics, we can modify this concern to study the effect of foreign banks on the Lao economy as the growth rate of credit availability and economic growth. Hence, the findings of this study

can explain regulatory and supervisory measures for central bankers and administrations to ensure economic success by trading off between internal and external policy factors. One such external policy factor is the level of banking globalization. This study can either ameliorate or exacerbate the previous results about the impacts of foreign banks on host economies.

CHAPTER 4

DATA AND METHODOLOGY

4.1 Data and variables

Lao commercial banks are used to be the sample for this study by using both panel datasets and time series. First, the panel data is used in the study of the impact of foreign branches on domestic bank performance, which contains an annual dataset of 27 domestic commercial banks in Lao PDR from the period of 2012 to 2020. The sample of Lao banks contains one largest state-owned commercial bank, two joint-state commercial banks, nine private commercial banks, four foreign subsidiary banks, and 14 foreign commercial bank branches. Among them, 9 banks are introduced as domestic banks (DB), and 18 banks as foreign banks (FB). The sample banks are shown in Table 4.1, which also provides information about the establishment date and type of banks. Foreign bank presence is the main independent variable which is estimated by both numbers and assets. They are shown in Table 4.2.

Table 4.1 List of sample banks

No.	Date of establishment	Domestic commercial banks	Type	Owner
		Domestic Banks (DB)		
1	1-Jan-89	Banque Pour Le Commerce Exterieur Lao Public	DB	State-owned commercial bank
2	31-Mar-00	Lao-Viet Bank	DB	Joint state commercial bank
3	16-Jul-10	Banque Franco-Lao Ltd	DB	Joint state commercial bank
4	17-Jul-89	Joint Development Bank	DB	Private bank
5	2-Jul-07	Phongsavanh Bank	DB	Private bank
6	10-Feb-08	BIC Bank Lao Co., Ltd	DB	Private bank
7	28-Nov-08	INDOCHINA BANK LTD	DB	Private bank
8	22-May-09	ST Bank Co., Ltd	DB	Private bank
9	14-Sep-09	Booyoung Lao Bank Co.,Ltd	DB	Private bank

No.	Date of establishment	Domestic commercial banks	Type	Owner
		Foreign Banks (FB)		
1	8-Jul-08	ACLEDA BANK LAO.,LTD	FB	Subsidiary bank
2	12-Sep-08	SAIGON THUONG TIN BANK LAO CO.,LTD	FB	Subsidiary bank
3	27-Jan-12	VietinBank Lao limited	FB	Subsidiary bank
4	12-Sep-12	Saigon-Hanoi Bank Lao Limited	FB	Subsidiary bank
5	9-Jul-92	TMB BANK PUBLIC COMPANY LIMITED	FB	Foreign commercial bank branch
6	25-Feb-93	Bangkok Bank public co.,ltd Vientiane Branch	FB	Foreign commercial bank branch
7	25-May-93	KRUNG THAI BANK LIMITED VIENTIANE BRANCH	FB	Foreign commercial bank branch
8	23-Dec-93	SIAM COMMERCE BANK LTD VIENTIANE BRANCH	FB	Foreign commercial bank branch
9	18-Apr-94	BANK OF AYUDHYA PCL., VIENTIANE BRANCH	FB	Foreign commercial bank branch
10	4-Oct-95	PUBLIC BANK BERHAD	FB	Foreign commercial bank branch
11	2-Aug-07	Australia and New Zealand Banking Group Limited, Lao Branch	FB	Foreign commercial bank branch
12	25-Feb-08	Public Bank Wattay Branch	FB	Foreign commercial bank branch
13	25-Feb-08	Public Berhad Bank Ltd, Savannakhet Branch	FB	Foreign commercial bank branch
14	24-Jun-09	BANK OF AYUDHYA PCL., SAVANNAKHET BRANCH	FB	Foreign commercial bank branch
15	22-Dec-10	Military Commercial Joint Stock Bank - Lao Branch	FB	Foreign commercial bank branch
16	18-Nov-11	Industrial and Commercial Bank of China Limited Vientiane Branch	FB	Foreign commercial bank branch
17	17-Oct-12	Public Bank, Pakse Branch	FB	Foreign commercial bank branch
18	26-Oct-12	Malayan Banking Public Limited Company Lao Branch	FB	Foreign commercial bank branch

Source: Bank of the Lao PDR.

Table 4.2 Foreign bank presence in Lao banking system

Year	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total number of banks	31	32	37	41	41	42	43	44	44
Number of foreign banks	18	18	22	26	27	27	28	29	29
Foreign bank asset to total bank asset (%)	17.08	17.84	21.13	25.59	27.66	28.32	28.86	28.69	28.69

Source: Bank of the Lao PDR.

Among these 27 Lao banks, we have full information on all commercial banks. The panel dataset is balanced as all sample banks were selected by establishment date from 2012 onward.

Secondly, the time series dataset is used in the empirical tests on the effects of foreign bank penetration on the Lao economy. The dataset includes annual data for variables from 2005 to 2020, gathered from the Bank of Lao PDR and World Bank databases.

The bank data we need to collect includes ROA, TCOST, NPM... (dependent variables) in order to comply with the central bank's supervision of the Lao banking system based on the CAMEL principle, as well as other bank characteristics as independent variables such as SIZE, DER, CASH, EXPA, MKS, and so on. We also require information on other variables that can influence the dependent variables, such as foreign bank presence, macroeconomic environment, and financial development. Obviously, the data used in the empirical model are gathered from bank annual reports and financial statistics of the Lao banking system in order to complete the sample. The variable definitions and the sources of data are shown in Table 4.3.

Table 4.3 Variables and data sources

Variables	Definition of variable	Data Sources
1. Dependent Variables		
1.1.Bank performance		
1.1.1. Capital Strength		
ROE	Return on equity	Bank annual report
1.1.2. Asset quality		
ATR	Asset turnover ratio	Bank annual report
LTA	Ratio of loan to assets	Bank annual report

Variables	Definition of variable	Data Sources
1.1.3. Management ability		
EXR	Operating expenses as a percentage of total revenue	Bank annual report
TCOST	Total cost to total asset	Bank annual report
1.1.4. Earning and Profitability		
NPM	Net profit margin	Bank annual report
ROA	Return on assets	Bank annual report
1.1.5. Liquidity		
ICR	Interest coverage ratio	Bank annual report
LTD	Loan to deposit ratio	Bank annual report
1.1.6. Bank growth		
LOAN	Market share by loan	
1.2.Financial system factor		
CREDIT	Growth rate of credit to economy	Bank of Lao PDR
GDP	Growth rate of GDP per capita	World bank
2. Independent Variables		
2.1.Foreign Bank Presence		
FBA	Total foreign bank penetration asset to total bank asset	Bank of Lao PDR
FBN	Foreign bank number to total bank number	Bank of Lao PDR
2.2.Bank Characteristics		
SIZE	Logarithm total asset	Bank annual report
DER	Debt to equity ratio	Bank annual report
CASH	Cash to debt ratio	Bank annual report
EXPA	Operating expenses as a percentage of total assets	Bank annual report
MKS	Market share by asset	Bank of Lao PDR
2.3.Financial Development		
BANK	Growth rate of total bank asset	Bank of Lao PDR
2.4.Macroeconomic Variables		
INF	Inflation rate	Bank of Lao PDR
INR	Real short-term interest rate	Bank of Lao PDR
GDP	Growth rate of GDP per capita	World bank
3. Dummy Variable		
FB	FB is 1 when the bank is foreign bank, and 0 when is the bank is domestic bank without foreign ownership.	

4.2 Methodology

4.2.1 Impact of foreign banks penetration on domestic banks

The first question that whether foreign bank entry through penetration had some significant effects on domestic bank performance, such as profitability, cost, stability, and efficiency. To address the question, this study uses panel OLS regression and is based on Kocabay (2009), Kim and Lee (2004), Manlagñit (2011) as follows:

$$Y_{i,t} = \alpha_0 + \alpha_1 Foreign\ bank\ presence_{t-1} + \alpha_2 Bank\ Characteristics_{i,t-1} + \alpha_3 Macro_{t-1} + \alpha_4 FB_i + \varepsilon_{i,t} \quad (1)$$

Whereas,

$Y_{i,t}$ is a vector of dependent variables to measure the performance of a bank i in time t, including of ROE, ATR, LTA, EXR, TCOST, NPM, ROA, ICR, LTD, and LOAN to indicate the capital strength, asset quality, management ability, earning efficiency, liquidity, and growth of the bank, respectively.

$Foreign\ bank\ presence_{t-1}$ is a vector of the main independent variable consisting of FBA (foreign bank asset to total bank asset) and FBN (foreign bank number to total bank number) to examine how the relationship between foreign bank presence and domestic bank performances are.

$Bank\ Characteristics_{i,t-1}$ is dataset of banks i at time t-1, including SIZE, DER, CASH, EXPA, and MKS. These variables can obviously affect the bank's performance.

$Macro_{t-1}$ are macroeconomic environmental variables because they may have an influence on bank performance. They are INR (real short-term interest rate), INF (inflation rate) and GDP (growth rate of GDP per capita).

FB_i is a dummy variable, to compare the impact on two different types of banks FB is 1 when the bank is a foreign bank, and 0 when the bank is a domestic bank without foreign ownership.

$\varepsilon_{i,t}$ is the random error term.

α_0, α_1, α_2, α_3 and α_4 are parameters.

4.2.2 Impact of foreign banks on Lao economy

In order to check the effect of foreign branch presence on Lao economy, this study employed the VAR model based on the Granger causality test, which is built based on Kirikkaleli (2016) and used impulse response function to examine the relationship of foreign bank presence by asset (FBA) and determinants of Lao economy, namely CREDIT and GDP whereas the development of banking sector variable (BANK) was used as a controlled variable. We employ the Granger causality to find that whether Y variable Granger causes the X variable and whether X variable Granger causes the Y variable. If the Y variable does not cause X, the parameters of X on the lagged Y are jointly zeros (Granger, 1969). The general equations of the VAR model based on Granger causality test for this study are as below:

$$Foreign\ Bank\ presence_t = \alpha_i + \sum_{t=1}^{n} \beta_i Foreign\ Bank\ presence_{t-1} + \sum_{t=1}^{n} \gamma_i Lao\ economy_{t-1} + \sum_{t=1}^{n} \delta_i Financial\ Development_{t-1} + \varepsilon_t \quad (2a)$$

$$Lao\ economy_t = \alpha_i + \sum_{t=1}^{n} \beta_i Foreign\ Bank\ presence_{t-1} + \sum_{t=1}^{n} \gamma_i Lao\ economy_{t-1} + \sum_{t=1}^{n} \delta_i Financial\ Development_{t-1} + \varepsilon_t \quad (2b)$$

These are the specific equations:

Model 1:

$$FBA_t = \alpha_1 + \sum_{t=1}^{n} \beta_1 FBA_{t-1} + \sum_{t=1}^{n} \gamma_1 GDP_{t-1} + \sum_{t=1}^{n} \delta_1 BANK_{t-1} + \varepsilon_t \quad (2a\text{-}1)$$

$$GDP_t = \alpha_2 + \sum_{t=1}^{n} \beta_2 FBA_{t-1} + \sum_{t=1}^{n} \delta_2 GDP_{t-1} + \sum_{t=1}^{n} \gamma_2 BANK_{t-1} + \varepsilon_t \quad (2b\text{-}1)$$

Model 2:

$$FBA_t = \alpha_3 + \sum_{t=1}^{n} \beta_3 FBA_{t-1} + \sum_{t=1}^{n} \gamma_3 CREDIT_{t-1} + \sum_{t=1}^{n} \delta_3 BANK_{t-1} + \varepsilon_t \quad (2a\text{-}2)$$

$$CREDIT_t = \alpha_4 + \sum_{t=1}^{n} \beta_4 FBA_{t-1} + \sum_{t=1}^{n} \gamma_4 CREDIT_{t-1} + \sum_{t=1}^{n} \delta_4 BANK_{t-1} + \varepsilon_t \quad (2b\text{-}2)$$

$Foreign\ Bank\ presence_t$: is a vector of the main variable specific to FBA (foreign bank assets to total bank assets).

$Lao\ economy_{t-1}$ is a vector of the main dependent variables consisting of GDP (Growth rate of GDP per capita) and CREDIT (Growth rate of credit to economy)

$Financial\ Development_{t-1}$ is a controlled variable as BANK (development of banking sector).

Where n denotes the numbers of lag

α_{1-4}, β_{1-4}, γ_{1-4}, δ_{1-4} are parameters for estimation.

ε_t is residual term.

CHAPTER 5

EMPIRICAL RESULTS

5.1 Empirical results

The main purpose of this paper is to use empirical models to estimate the impact of foreign bank entry on the performance of domestic banks and the economy in Lao PDR. There are many performance indicators such as ROE, ROA, TCOST, NPM, LOAN, etc. that are examined. The descriptive statistics for the variables are shown in table 5.1 and 5.2 and the results are presented in table 5.6 to 5.11. We also use GDP and CREDIT as indicators for the economy. The descriptive statistics for the variables are shown in table 5.12 and the findings are shown in table 5.15. The main variables are FBN, FBA, and FB—the dummy variable (Ownership) that corresponds to whether the bank has foreign ownership. Banks without foreign ownership play a role as benchmarks.

5.1.1 Impact of foreign banks penetration on domestic banks

This study used empirical models to estimate the impact of foreign bank entry on the performance of Lao domestic banks. There are six performance indicators to indicate – five parts are CAMEL: Capital Strength (ROE), Asset quality (ATR and LTA), Management ability (EXR and TCOST), Earning and Profitability (NPM and ROA), Liquidity (ICR and LTD), and the last one is bank growth (LOAN) are examined. The main variable is FBN and the dummy variable (FB) to figure out the differences between banks with and without foreign ownership.

This study is to analyze bank specific determinants. The regression analysis uses the panel dataset that has been collected from the annual financial report from the Bank of Lao PDR, balance sheets, and income statements through the commercial bank's financial annual report. Panel data is defined as the combination of time series and cross-section data. A unit root test (ADF-Fischer Chi-square) was performed prior to

running the model to determine whether the data are stationary or not. The Unit Root of the panel is provided in the empirical analysis and results as in table 5.3.

Since we use panel datasets in the analysis, hereby the Random effect model is more appropriate than other models based on the Hausman specification test, especially for the model with a dummy variable, which is not effective for the fixed effect model.

First, we have 11 independent variables, but the core variables that we want to see the relationship to the dependent variable are FBA, FBN, and FB (dummy variable), but the problem is that almost all the variables are not significant and R-squared is quite low and some of them are negative. So, I have detected multicollinearity problems using VIF.

After I run the random effect model and there are not any significant variables, I have made the multicollinearity by VIF as shown in table 5-4, then I have removed some variables that have a high Centered VIF, which I have adjusted each equation differently, and every equation needs to remove FBA and LGDP to make them significant.

Furthermore, I also focus on the correlation of the independent variables that I selected for the first time; it shows in table 5.5.

Table 5.1. The summary statistics of dependent variables.

Dependent Variable	ROE	ATR	LTA	EXR	TCOST	NPM	ROA	ICR	LTD	LOAN
Mean	0.0343	0.0686	0.5047	0.6289	0.0538	0.4367	0.0110	1.2567	1.7596	0.0342
Median	0.0452	0.0654	0.5679	0.2746	0.0466	0.4143	0.0100	0.9847	0.7847	0.0115
Maximum	0.9959	0.2235	0.9596	60.9789	0.2197	0.9803	0.0573	31.9366	45.5882	0.3932
Minimum	-9.0200	0.0002	0.0000	0.0072	0.0046	-1.8168	-0.0958	-324.031	0.0000	0.0000
Std. Dev.	0.5955	0.0362	0.2315	3.9336	0.0369	0.2500	0.0164	21.6087	4.4791	0.0672
Skewness	-14.5264	1.0807	-0.6393	14.9935	1.3610	-2.7049	-1.1639	-14.0983	6.3239	3.2960
Kurtosis	221.8361	5.2128	2.4927	229.9856	5.6651	28.7074	12.4253	213.1511	50.1795	14.1706
Jarque-Bera	493,424	96.88	19.16	530,769	146.93	6,987.63	954.33	455,205	24,156	1,703.41
Probability	0.0000	0.0000	0.0001	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Sum	8.3364	16.6644	122.6415	152.8193	13.0801	106.11	2.6661	305.3879	427.5753	8.3006
Sum Sq. Dev.	85.8097	0.3171	12.9738	3744.46	0.3303	15.1265	0.0649	112998.8	4855.09	1.0919
observations	243	243	243	243	243	243	243	243	243	243

Table 5.2 The summary statistics of independent variables.

Independent Variable	FBA	FBN	LSIZE	DER	CASH	EXPA	MKS	INF	INR2	LGDP
Mean	0.2484	0.6270	13.9818	10.2938	1.7917	0.0235	0.0323	0.0321	0.0005	23.4324
Median	0.2766	0.6429	13.9426	3.3330	0.4720	0.0182	0.0112	0.0332	0.0005	23.4836
Maximum	0.2906	0.6591	17.8026	593.4851	228.9202	0.1916	0.3301	0.0637	0.0281	23.6749
Minimum	0.1708	0.5625	11.6097	0.0044	0.0342	0.0004	0.0008	0.0083	-0.0319	23.0448
Std. Dev.	0.0457	0.0355	1.3783	41.0129	14.6850	0.0220	0.0620	0.0179	0.0162	0.2016
Skewness	-0.7281	-0.7109	0.5318	12.2103	15.3220	3.2088	3.2354	0.2604	-0.4370	-0.5884
Kurtosis	1.8165	1.8677	2.8613	170.4243	237.4512	19.4249	13.2058	1.8296	3.5154	2.1450
Jarque-Bera	35.6545	33.4496	11.6466	289851.2	566052.4	3148.51	1478.53	16.6162	8.1069	21.4254
Probability	0.0000	0.0000	0.0030	0.0000	0.0000	0.0000	0.0000	0.0002	0.0174	0.0000
Sum	60.355	152.351	3397.579	2501.393	435.380	5.704	7.849	7.803	0.095	5694.062
Sum Sq. Dev.	0.506	0.305	459.696	407057.4	52186.75	0.118	0.931	0.078	0.049	9.839
Observations	243	243	243	243	243	243	243	243	189	243

Table 5.3 The summary of unit root test results by ADF - Fisher Chi-square

I	Dependent Variable	Definitions	Remark (Unit root test by ADF - Fisher Chi-square)
1	ROE	Return on equity	Stationary at Level
2	ATR	Asset turnover ratio	Stationary at Level
3	LTA	Ratio of loan to assets	Stationary at Level
4	EXR	Operating expenses as a percentage of total revenue	Stationary at 1st difference level
5	TCOST	Total cost to total asset	Stationary at Level
6	NPM	Net profit margin	Stationary at Level
7	ROA	Return on assets	Stationary at Level
8	ICR	Interest coverage ratio	Stationary at Level
9	LTD	Loan to deposit ratio	Stationary at Level
10	LOAN	Market share by loan	Stationary at Level
II	**Independent Variable**		
11	FBA	Total foreign bank penetration asset to total bank asset	Stationary at Level
12	FBN	Foreign bank number to total bank number	Stationary at Level
13	LSIZE	Logarithm total asset	Stationary at Level
14	DER	Debt to equity ratio	Stationary at Level
15	CASH	Cash to debt ratio	Stationary at Level
16	EXPA	Operating expenses as a percentage of total assets	Stationary at Level
17	MKS	Market share by asset	Stationary at Level
18	INF	Inflation rate	Stationary at Level
19	INR	Real short-term interest rate	Stationary at 2nd difference level
20	LGDP	Logarithm of Real GDP	Stationary at Level
21	FB	FB is 1 when the bank is foreign bank	Dummy Variable

Table 5.4 The table of Centered VIF in Multicollinearity test in each equation

	Centered VIF									
Independent variables	Eq 01 ROE	Eq 02 ATR	Eq 03 LTA	Eq 04 EXR	Eq 05 TCOST	Eq 06 NPM	Eq 07 ROA	Eq 08 ICR	Eq 09 LTD	Eq 10 LOAN
FBA	204.90	205.55	205.63	204.90	205.35	205.54	205.41	205.32	205.52	205.47
FBN	30.86	31.02	30.99	30.86	30.97	31.02	30.98	30.96	31.01	31.00
LSIZE	3.20	2.67	2.59	3.20	2.94	2.69	2.88	2.97	2.73	2.81
DER	1.25	1.08	1.07	1.25	1.13	1.08	1.12	1.14	1.09	1.10
CASH	1.05	1.06	1.05	1.05	1.05	1.06	1.05	1.05	1.06	1.05
EXPA	1.08	1.04	1.04	1.08	1.05	1.04	1.05	1.05	1.04	1.04
MKS	2.70	2.28	2.19	2.70	2.51	2.31	2.47	2.53	2.34	2.41
INF	25.79	25.85	25.41	25.79	25.83	25.85	25.84	25.83	25.85	25.84
INR2	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15	1.15
LGDP	91.60	91.85	91.05	91.60	91.75	91.84	91.78	91.74	91.83	91.80
FB	1.28	1.16	1.12	1.28	1.23	1.16	1.21	1.23	1.17	1.20

Table 5.5 The table of Correlation between independent variables.

	FBA	FBN	LSIZE	DER	CASH	EXPA	MKS	INF	INR2	LGDP
FBA	1.0000	0.9466	0.0827	-0.0676	0.0253	0.0661	-0.0129	-0.2692	0.2624	0.8791
FBN	0.9466	1.0000	0.0837	-0.0624	0.0518	0.0547	-0.0088	-0.1393	0.3241	0.8444
LSIZE	0.0827	0.0837	1.0000	0.4145	-0.0988	-0.0728	0.7771	0.0101	0.0204	0.0875
DER	-0.0676	-0.0624	0.4145	1.0000	-0.0456	-0.0276	0.3387	-0.0576	-0.0079	-0.0995
CASH	0.0253	0.0518	-0.0988	-0.0456	1.0000	-0.0508	-0.0469	0.1241	-0.0005	0.0875
EXPA	0.0661	0.0547	-0.0728	-0.0276	-0.0508	1.0000	-0.1839	0.0307	0.0171	0.0856
MKS	-0.0129	-0.0088	0.7771	0.3387	-0.0469	-0.1839	1.0000	0.0057	0.0029	-0.0119
INF	-0.2692	-0.1393	0.0101	-0.0576	0.1241	0.0307	0.0057	1.0000	0.0644	0.1914
INR2	0.2624	0.3241	0.0204	-0.0079	-0.0005	0.0171	0.0029	0.0644	1.0000	0.2642
LGDP	0.8791	0.8444	0.0875	-0.0995	0.0875	0.0856	-0.0119	0.1914	0.2642	1.0000

As we can see, the FBA, FBN, and GDP have a higher correlation with each other, so we must remove them from the equation and focus solely on FBN to determine relationship between domestic bank performance and foreign bank presence.

After removing FBA and LGDP, the remaining independent variables are shown in the table below. The test indicates that the correlation coefficients between independent variables are mostly much lower than 0.7. Except for the LSIZE and MKS, the correlation coefficient is above 0.7 since we have so many dependent variables to estimate. I have selected either MKS or LSIZE to be involved in the equation one by one. Some equations should include MKS and some should have LSIZE to make the result significant.

After detect the multicollinearity, we have done the Wooldridge test for autocorrelation in panel data and the Breusch-Pagan Lagrange Multiplier Panel Heteroscedasticity Test. And the results show that almost every equation has autocorrelation and heteroscedasticity problems. The way of eliminating the autocorrelation and heteroscedasticity problems in our model is by running GLS Random-effects models with robust standard errors clustered.

The model to be fit is

$$y_{it} = \alpha + x_{it}\beta + v_i + \varepsilon_{it}$$

for i = 1, . . ., n and, for each i, t = 1, . . ., T, of which T_i periods are actually observed. The GLS transform is the key to the random-effects estimator. Given estimates of the idiosyncratic component, $\hat{\sigma}_e^2$, and the individual component, $\hat{\sigma}_u^2$, the GLS transform of a variable z for random-effects model is

$$z_{it}^* = z_{it} - \hat{\theta}_i \bar{z}_i$$

Where $\bar{z}_i = 1/T_i \sum_{t=1}^{T_t} z_{it}$ and

$$\hat{\theta}_i = 1 - \sqrt{\frac{\hat{\sigma}_e^2}{T_i \hat{\sigma}_u^2 + \hat{\sigma}_e^2}}$$

Given an estimate of $\hat{\theta}_i$, one transforms the independent and dependent variables, and then the coefficient estimates and the conventional variance–covariance matrix come from an OLS regression of y_{it}^* on x_{it}^* and the transformed constant $1- \hat{\theta}_i$. Specifying vce(robust) or vce(cluster clustvar) causes the Huber/White/sandwich VCE estimator to be calculated for the coefficients in this regression as discussed by Wooldridge (2020), Stock (2008) and Arellano (2005), specifying vce(robust) is equivalent to requiring vce(cluster panelvar).

Clustering on panel variable produces a constant VCE estimator when the disturbances are not identically scattered over the panels or there is serial correlation.

The cluster–robust VCE estimator involves that there are many clusters and the disturbances are unconnected across the clusters. The panel variable must be nested within the cluster variable because of the within-panel correlation that is generally induced by the random-effects transform when there is heteroskedasticity or within-panel serial correlation in the idiosyncratic errors. The empirical results are presented in Table 5-6.

In the bank performance equations (2), (5) and (9), FBN, the main interest of this analysis, have a significant positive coefficient but unfortunately the other ones the FBN do not have significant coefficient. Anyway, some of them even they are insignificant but the effect is consistent with the previous evidences.

1) Capital strength

The first equation is to determine the effect of FBN on domestic banks' ROE. The result shows that FBN has an insignificantly negative relation to ROE. Anyway, the significance of FB with the positive relationship to ROE can tell that if the increase in the number of foreign banks in Laos has a negative impact on the ROE of commercial banks, the impact on banks with foreign ownership (which came into the market before 2013) was smaller than the domestic banks. This finding appears to be consistent with the empirical results of Demirguç-Kunt (1998), which indicate that some income of domestic banks is positively affected by foreign bank entry.

2) Asset quality

To determine the effect of foreign bank numbers on the asset quality of domestic banks, we have estimated two variables: ATR-Asset turnover ratio and LTA-Ratio of loans to assets. The empirical results show that FBN has a positive relationship to ATR, which is significant at a 5% level. Meaning that if the number of foreign banks arise the asset turnover ratio of domestic also increase. Furthermore, the FBN has a negative impact on LTA and FB, but they are not significant.

3) Management ability

To determine the effect of foreign bank numbers on the management ability of domestic banks, we have estimated two variables: DEXR-Operating expenses as a percentage of total revenue and TCOST-Total cost to total assets. The empirical test shows that the FBN has a negative effect on EXR but is not significant, but a positive effect on TCOST with a significant at 10% level. The increase in the number of foreign banks causes the TCOST of Lao commercial banks to increase, but this is not consistent with the hypothesis. There is still some evidence reporting the same results. Another one, the negative FB, indicates that the impact of FBN on foreign banks is smaller than on Lao commercial banks.

4) Earning and Profitability

To determine the effect of foreign bank numbers on the earnings sufficiency of domestic banks, we have estimated two variables: NPM-Net profit margin and ROA-Return on assets. Unfortunately, the effect of FBN on NPM and ROA is not significant, even though the empirical results are consistent with previous evidence. However, as

the number of foreign banks increases, the impact on NPM and ROA of commercial banks in the host country, particularly the impact will be stronger on Lao banks.

5) Liquidity

To determine the impact on domestic bank liquidity, we use ICR-Interest coverage ratio and LTD-Loan to Deposit Ratio as the dependent variables. The FBN has a negative impact on both variables, which supports the hypothesis and is significant at the 10% level for LTD but not for ICR.

6) Bank growth

The variable we use to indicate the bank's growth is LOAN-Bank market share by loan. The empirical result shows that the FBN has a negative relationship to LOAN, especially if the bank is a Lao bank. The result is not significant, but it is still consistent with the previous evidence, which shows that the increase in foreign bank number will decrease the market share by loan of the commercial bank in the host country.

Overall, as the evidence reveals in Table 5.6, foreign bank penetration through the number of branches into the domestic banking market did contribute to reducing the profitability of domestic banks as ROE, ROA, and NPM, but also increased domestic banks' total cost (TCOST), reduced domestic bank liquidity (LTA-Loan to deposit), and limited the domestic banks’ growth as bank market share by loan (LOAN). Furthermore, the FB variable has shown that if the domestic back is 100% Lao bank will have a worse impact from the foreign bank's presence.

Table 5.6 The effect of foreign bank entry through the opening of branches on the performance of domestic banks (2012–2020) (The model after multicollinearity detection, as removing FBA and LGDP)

Equation	1	2	3	4	5	6	7	8	9	10
Bank performance	Capital Strength	Asset quality		Management ability		Earning and Profitability		Liquidity		Bank growth
Dependent variables	ROE	ATR	LTA	EXR	TCOST	NPM	ROA	ICR	LTD	LOAN
FBN	-0.6667	0.087**	-0.8705	1.2996	0.0762*	-0.7401	-0.0478	-20.4552	-45.2586*	-0.1365
	[0.4217]	[0.0395]	[0.6517]	[0.9167]	[0.0459]	[0.721]	[0.0559]	[21.0631]	[27.2659]	[0.1508]
LSIZE	0.0412***	0.0023			0.0016	-0.0495*	0.0025			
	[0.0109]	[0.0027]			[0.0019]	[0.0257]	[0.0036]			
DER	0.003***	0.00003***	0.00003	-0.0001	0.0001***	-0.0006*	-0.00003	-0.0207*	-0.0069	-0.00004
	[0.0001]	[0.00001]	[0.0004]	[0.0005]	[0.00001]	[0.0003]	[0.00002]	[0.0123]	[0.0079]	[0.00005]
CASH	0.000003	-0.0001***	-0.0005***	0.0005***	-0.00004	-0.0001	-0.00001	-0.0067	0.0032	0.00002
	[0.0001]	[0.00002]	[0.0002]	[0.0001]	[0.00003]	[0.0001]	[0.00002]	[0.0048]	[0.0031]	[0.00002]
EXPA	-0.5484*	0.8773***	0.8043	1.5745***	1.1006***	-1.8082***	-0.1105*	-18.5174	6.1511	0.05968
	[0.3203]	[0.0769]	[0.7355]	[0.4833]	[0.1116]	[0.3456]	[0.0594]	[14.1284]	[5.9321]	[0.0452]
MKS			0.4584	0.0922			-0.0331	-11.7105*	40.947	1.0822***
			[0.5459]	[0.0761]			[0.0466]	[6.8925]	[45.3937]	[0.173]
INF	0.3122		-0.7169	-0.9867	-0.1767*	-0.7065	0.0837	-0.0484	-8.3449	-0.0432
	[0.45]		[0.9092]	[0.6197]	[0.0972]	[0.5334]	[0.0531]	[26.0621]	[11.1491]	[0.1083]
INR2	0.1636		0.2983	-0.1689		0.184	-0.0432	6.0447	17.8926	0.0501
	[0.2444]		[0.3521]	[0.6247]		[0.3463]	[0.0532]	[10.3035]	[12.8495]	[0.0372]
FB	0.072***	-0.0083	-0.1193*	-0.0062	-0.0177***	0.0082	0.0091***	0.357	2.0303	-0.006
	[0.0223]	[0.0077]	[0.0704]	[0.0169]	[0.0056]	[0.0757]	[0.0026]	[1.9569]	[2.5894]	[0.0122]
C	-0.1483	-0.0333	1.1278***	-0.8566	-0.0248	1.6678***	0.0014	16.7577	28.2103*	0.0906
	[0.2847]	[0.0426]	[0.4244]	[0.5824]	[0.0378]	[0.4491]	[0.0412]	[14.1671]	[15.8269]	[0.1018]
No. of obs.	189	243	189	189	243	189	189	189	189	189
Adj-R2	0.4739	0.5497	0.1205	0.0937	0.7245	0.2297	0.0651	0.0903	0.0269	0.856

Note: standard errors are in square brackets. The results are estimated via GLS Random-effects models with robust standard errors clustered. The dependent variables are domestic bank performances, while the main independent variable is FBN (foreign bank number to total bank number). For definition of variables, please see Table 2. ∗ Denote significance at 0.1 level. ∗∗ Denote significance at 0.05 level. ∗∗∗ Denote significance at 0.01 level.

However, the results above are based on the multicollinearity detection, which removed FBA and LGDP out of all the equations, but they are significant only for 3 out of 10 dependent variables (ATR, TCOST, and LTD). Anyway, even GDP has a high correlation with main independent variables, because GDP is an essential indicator which should not be ignored in economics research and to make the model have more significant variables, we have rerun the model by specifically modifying the variables in each equation one by one, and the results are shown in table 5.7 below. After adding LGDP, the effects of foreign banks on domestic are unchanged (negative impact is still negative and vice versa). Additionally, there are more significant equations than when running the model without LGDP. As we run the model without LGDP, the FBA has a significant effect on ATR, TCOST, and LTD (only 3 out of 10 equations). But running the model with LGDP shows that the FBA/FBN have a significant effect on ATR, LTA, DEXP, TCOST, NPM, ROA, and LTD (7 out of 10 equations). We have also compared the result with the model without LGDP as presented in table 5.8.

Furthermore, since the dummy variable (FB) in the table 5-6 some are insignificant, we have run the model separately between the dataset of domestic banks with and without foreign ownership, as present in table 5-9 and 5-10 respectively. And to see the different impacts of foreign bank entry on domestic banks with and without foreign ownership, table 5.11 presents the compared results from the two separated models (table 5.9 and 5.10) to the FB-dummy variables in the model with a dummy and LGDP variable (table 5.7).

With all models we interpreted the results as following:

1) Capital strength

From the first equation to determine the effect of FBN on domestic banks' ROE, the empirical shows that FBN has a negative relation to ROE but is insignificant. The dummy variable (FB) has a positive relationship to ROE, which means that the impact of the increasing number of foreign banks in Laos on ROE of banks with foreign ownership was smaller than the impact on ROE of domestic banks without foreign ownership. This evidence appears to be consistent with the findings of Demirguç-Kunt

(1998), which indicate that there is some evidence that the income of domestic banks is negatively affected by foreign bank entry.

2) Asset quality

To determine the effect of foreign bank entry on the asset quality of domestic banks, we have estimated two variables: ATR- Asset turnover ratio and LTA-Ratio of loan to assets. The empirical results show that FBA has a positive relationship to ATR, which is significant at 10% level. Meaning that if the number of foreign banks arises the asset turnover ratio of domestic also increases. But, the FBN has a negative impact on LTA means that ratio of loan to assets of domestic bank decrease with greater foreign bank entry.

When we separately run the model by bank types (bank with and without foreign ownership), the results show that Lao bank will get into a worse situation even if the impact is positive or negative. Since FBA affect positively on ATR and is smaller for the bank without foreign ownership. While the effect is negative on LTA and seems to be stronger for the bank without foreign ownership.

3) Management ability

The effect of foreign bank entry on the management ability of domestic banks was negative since the empirical test showed that the FBN effect positively on EXR and the FBA effect positively on the TCOST. We can conclude that foreign bank entry, regardless of the number or asset, has a positive impact on domestic banks' operating expenses and total costs.

When we separately run the model, the impact on banks with foreign ownership is stronger than on the Lao commercial banks. This might due to domestic commercial banks' advantage in informational accessibility.

4) Earning and Profitability

NPM-Net profit margin and ROA-Return on assets were used to determine the effect of foreign bank entry on the earning and profitability of domestic banks. The results show that FBN negatively impacts on NPM and FBA effects negatively on ROA as the increase in foreign bank entry affects negatively NPM and ROA of commercial

banks in the host country. Especially if the banks are banks with foreign ownership, the impact will be stronger.

5) Liquidity

The foreign bank number has a negative impact on domestic bank liquidity as ICR-Interest coverage ratio and LTD-Loan to deposit ratio which is consistent with the common results, is significant at 10% level for LTD, but not significant for ICR. The separate models show that the impact on banks with foreign ownership is stronger than on Lao commercial banks.

6) Bank growth

The variable we use to indicate the bank growth is LOAN-market share by loan, the empirical result shows that the FBN has a negative relationship to LOAN especially to the banks with foreign ownership which shows that the increase in foreign bank numbers will decrease the market share by loan of the commercial banks in host country. The result is not significant, but it is still consistent with the previous evidence as Detragiache, Tressel, and Gupta (2008) confirmed that the credit scale in low-income countries has been decreased by the increase of foreign bank branches.

The general conclusion of this model is that foreign bank penetration through the opening of branches in the domestic banking sector did contribute to reduced domestic bank performance through CAMEL and also lower bank growth. The results specifically show that the management ability has dropped as the operating expenses and total cost of domestic banks have increased, while the asset quality, liquidity, and bank growth also declined as the diminution of loan to asset, loan to deposit, and the market share by loan. These all point to the reduction of earning ability as well as the profitability of domestic banks as ROE, ROA, and NPM. The empirical results are consistent with the previous evidence. Cizikova (2012) discovered that the entry of larger foreign banks has a negative impact on domestic banks' net interest income, non-interest income, and pre-tax profits.

Table 5.7 The effect of foreign bank entry through the opening of branches on the performance of the domestic banks (2012-2020) (after adding LGDP as a dependent variable, as GDP has a crucial role in indicating the economy)

Equation	1	2	3	4	5	6	7	8	9	10
Bank performance	Capital Strength	Asset quality		Management ability		Earning and Profitability		Liquidity		Bank growth
Dependent variables	ROE	ATR	LTA	EXR	TCOST	NPM	ROA	ICR	LTD	LOAN
FBA		0.1591*			0.2293**		-0.0796*			
		[0.0953]			[0.0955]		[0.0459]			
FBN	-0.2328		-1.5511***	2.0361*		-2.1041**		-173.3141	-31.0438*	-0.0658
	[0.7408]		[0.5489]	[1.1700]		[1.0336]		[159.7322]	[17.7655]	[0.0708]
LSIZE		0.0006	0.0438	-0.0059	0.0039	-0.0278	0.0036			
		[0.0024]	[0.0393]	[0.0084]	[0.0035]	[0.0468]	[0.0037]			
DER	0.0032***	-0.0001	-0.0001**	0.0001	0.0000	-0.0002**	-0.0001**	-0.0042	-0.0025	0.0000
	[0.0003]	[0.0001]	[0.0001]	[0.0003]	[0.0000]	[0.0001]	[0.0000]	[0.0057]	[0.0017]	[0.0000]
CASH	-0.0001	0.0000	-0.0012***	0.0003***	0.0000	-0.0004***	0.0000	-0.0311	0.0006	0.0000
	[0.0001]	[0.0000]	[0.0003]	[0.0001]	[0.0000]	[0.0001]	[0.0000]	[0.0447]	[0.0030]	[0.0000]
EXPA	-0.4879	0.8376***	1.0243	1.4862***	1.0730***	-1.1731	-0.1000	-11.5291	6.3203	0.0301
	[0.3505]	[0.0829]	[0.7318]	[0.4480]	[0.1180]	[0.7597]	[0.0624]	[34.8600]	[6.5933]	[0.0385]
MKS	0.6090*		-0.3104		-0.1002**		-0.0479	-8.3395	44.7272	1.0371***
	[0.3276]		[0.7156]		[0.0497]		[0.0493]	[10.8629]	[46.7345]	[0.1706]
INF			-0.8500			-1.1219*		-90.9796	-21.7677*	-0.0522
			[0.9271]			[0.6529]		[84.2182]	[13.0946]	[0.1074]
INR2	0.1494	-0.0385		-0.2959	0.0052		-0.0234			
	[0.2550]	[0.0359]		[0.6447]	[0.0436]		[0.0515]			
LGDP	-0.0448	-0.0260	0.1164	-0.1151	-0.0295	0.2758	-0.0020	38.5893	1.6900	-0.0007
	[0.1040]	[0.0245]	[0.1336]	[0.1263]	[0.0224]	[0.1947]	[0.0161]	[35.5541]	[1.2236]	[0.0052]
FB	0.0449**	-0.0098	-0.0638	-0.0148	-0.0183***	0.0301	0.0097***	-1.6482	2.3647	-0.0045
	[0.0199]	[0.0084]	[0.0704]	[0.0229]	[0.0055]	[0.0897]	[0.0025]	[2.3475]	[2.6951]	[0.0110]
C	1.2129	0.6182	-1.8041	1.4445	0.6236	-4.2722	0.0265	-789.6607	-20.8244	0.0622
	[2.0858]	[0.5598]	[2.5417]	[2.6506]	[0.5182]	[4.4301]	[0.3438]	[731.8796]	[20.8809]	[0.1564]
No. of obs.	189	189	243	189	189	243	189	243	243	243
Adj-R2	0.4141	0.5648	0.1886	0.0897	0.7143	0.1053	0.0628	0.0264	0.0257	0.8682

Note: standard errors are in square brackets. The results are estimated via GLS Random-effects models with robust standard errors clustered. The dependent variables are domestic bank performances, while the main independent variables are FBA (foreign bank asset to total bank asset) and FBN (Foreign bank number to total bank number). For definition of variables, please see Table 2. ∗ Denote significance at 0.1 level. ∗∗ Denote significance at 0.05 level. ∗∗∗ Denote significance at 0.01 level.

Table 5.8 The comparison of the results between the models with and without LGDP as an independent variable.

Equation No.	**Dependent Variables**	**The model without LGDP as an independent variable**		**The model with LGDP as an independent variable**			**The results after adding LGDP into the model compares to the model without LGDP**
		Independent Variable	**Dummy Variable**	**Independent Variable**		**Dummy Variable**	
		FBN	**FB**	**FBA**	**FBN**	**FB**	
1	ROE	-0.6667	0.0720***		-0.2328	0.0449**	the same (negative)
2	ATR	0.0869**	-0.0082	0.1591*		-0.0098	the same (Positive and significant)
3	LTA	-0.8704	-0.1192*		-1.5511***	-0.0638	the same (negative) but become significant
4	DEXR	1.2996	-0.0061		2.0361*	-0.0148	the same (Positive) but become significant
5	TCOST	0.0761*	-0.0176***	0.2293**		-0.0183***	the same (Positive and significant)
6	NPM	-0.7401	0.0082		-2.1041**	0.0301	the same (negative) but become significant
7	ROA	-0.0477	0.0090***	-0.0796*		0.0097***	the same (negative) but become significant
8	ICR	-20.4551	0.3569		-173.3141	-1.6482	the same (negative)
9	LTD	-45.2586*	2.0302		-31.0438*	2.3647	the same (Negative and significant)
10	LOAN	-0.1365	-0.0059		-0.0658	-0.0045	the same (negative)

Note: After adding LGDP, the effects of foreign banks on domestic banks are still the same. Additionally, there are more significant equations than when running the model without LGDP. As we run the model without LGDP, the FBN has a significant effect on ATR, TCOST, and LTD (only 3 out of 10 equations). But running the model with LGDP, FBA/FBN significantly affects ATR, LTA, DEXP, TCOST, NPM, ROA, and LTD (7 out of 10 equations).

Table 5.9 Impact of foreign bank entry on domestic banks with foreign ownership.

Equation	1	2	3	4	5	6	7	8	9	10
Bank performance	Capital Strength	Asset quality		Management ability		Earning and Profitability		Liquidity		Bank growth
Dependent variables	ROE	ATR	LTA	EXR	TCOST	NPM	ROA	ICR	LTD	LOAN
FBA		0.1411			0.2430*		-0.1101*			
		[0.1396]			[0.1416]		[0.0623]			
FBN	0.4854		-1.4524**	3.0993*		-2.3442		-265.3973	-37.6101*	-0.0977
	[0.3846]		[0.6591]	[1.7296]		[1.4773]		[241.3800]	[20.0054]	[0.0912]
LSIZE		0.0064	0.0513	-0.0016	0.0063	-0.0045	0.0026			
		[0.0042]	[0.0379]	[0.0113]	[0.0039]	[0.0618]	[0.0048]			
DER	0.0030	-0.0013***	-0.0032	-0.0015	-0.0006	-0.0012	-0.0003	0.2311	-0.1771*	0.0004
	[0.0043]	[0.0003]	[0.0071]	[0.0037]	[0.0005]	[0.0048]	[0.0003]	[0.2926]	[0.1054]	[0.0014]
CASH	-0.0001	-0.0001*	-0.0011***	0.0003**	0.0000	-0.0006***	0.0000	-0.0450	-0.0007	0.0000
	[0.0001]	[0.0000]	[0.0002]	[0.0001]	[0.0000]	[0.0002]	[0.0000]	[0.0523]	[0.0030]	[0.0000]
EXPA	-0.4700	0.8647***	1.0237	1.3329***	1.1191***	-0.9863	-0.0976	3.8183	7.9542	0.0431*
	[0.3456]	[0.0801]	[0.7071]	[0.5070]	[0.1377]	[0.8865]	[0.0601]	[43.7799]	[5.6769]	[0.0232]
MKS	1.4579***		-0.1518		-0.0888		-0.0188	-40.5250	120.3148	0.8673
	[0.5076]		[1.6724]		[0.1435]		[0.1148]	[35.9138]	[100.9515]	[0.6151]
INF			0.2964			-1.0700		-117.1447	-20.1933*	0.0061
			[0.8855]			[0.8757]		[121.5943]	[11.6986]	[0.0707]
INR2	-0.1260	-0.0108		-0.7723	0.0655		-0.0516			
	[0.3038]	[0.0493]		[0.9174]	[0.0574]		[0.0774]			
LGDP	-0.0693	-0.0245	0.0386	-0.2410	-0.0412	0.3181	0.0137	59.5939	1.8884	-0.0068
	[0.1077]	[0.0371]	[0.1629]	[0.1854]	[0.0310]	[0.3232]	[0.0190]	[53.6167]	[1.8095]	[0.0050]
C	1.3548	0.5053	-0.2326	3.6588	0.8467	-5.3997	-0.3107	-1225.7960	-19.67862	0.2191
	[2.3135]	[0.8321]	[3.1923]	[3.8279]	[0.7132]	[7.0928]	[0.4079]	[1104.7400]	[35.2685]	[0.1446]
No. of obs.	126	126	162	126	126	162	126	162	162	162
Adj-R2	0.5231	0.6100	0.2139	0.0990	0.7369	0.0362	0.0211	0.0414	0.1302	0.6529

∗ Denote significance at 0.1 level. ∗∗ Denote significance at 0.05 level. ∗∗∗ Denote significance at 0.01 level.

Table 5.10 Impact of foreign bank entry on domestic banks without foreign ownership.

Equation	1	2	3	4	5	6	7	8	9	10
Bank performance	Capital Strength	Asset quality		Management ability		Earning and Profitability		Liquidity		Bank growth
Dependent variables	ROE	ATR	LTA	EXR	TCOST	NPM	ROA	ICR	LTD	LOAN
FBA		0.1552**			0.0898		0.0353			
		[0.0790]			[0.1024]		[0.0796]			
FBN	-1.7991		-1.2961	-0.0322		-1.3749*		4.0753	-7.3910	-0.0019
	[2.1125]		[1.2518]	[0.4027]		[0.7573]		[6.9971]	[5.8708]	[0.1713]
LSIZE		0.0028	-0.0026	-0.0009	0.0007	-0.0789**	0.0110***			
		[0.0047]	[0.0370]	[0.0112]	[0.0058]	[0.0392]	[0.0038]			
DER	0.0029***	-0.0001	0.0001	0.0002	0.0001*	-0.0001*	-0.0001***	0.0003	-0.0001	0.0000
	[0.0002]	[0.0000]	[0.0001]	[0.0002]	[0.0000]	[0.0001]	[0.0000]	[0.0010]	[0.0003]	[0.0000]
CASH	-0.0108***	-0.0013	-0.0333***	-0.0078	-0.0070***	0.0146***	0.0040***	2.1645***	0.7082***	-0.0005
	[0.0040]	[0.0011]	[0.006]	[0.0056]	[0.0013]	[0.0044]	[0.0015]	[0.1514]	[0.0489]	[0.0006]
EXPA	-0.4559	0.5571***	0.6673	2.0034**	0.6651***	-2.3515***	0.0114	-52.6667	-14.6944	-0.0263
	[0.5973]	[0.2212]	[2.0024]	[0.8363]	[0.2044]	[0.7917]	[0.1045]	[47.0604]	[17.5502]	[0.1693]
MKS	0.1512***		-0.0188		-0.0779		-0.1014***	-6.7393	-3.0128***	1.0481
	[0.0544]		[0.5098]		[0.0621]		[0.0346]	[7.2303]	[2.6999]	[0.0170]
INF			-2.9819			-0.8006		-30.3574	-15.8194	-0.1723
			[2.1743]			[0.7756]		[32.6335]	[13.2386]	[0.3149]
INR2	0.7290*	-0.0592		0.7188	-0.0789		0.0235			
	[0.4375]	[0.0566]		[0.5504]	[0.0689]		[0.0268]			
LGDP	0.0262	-0.0459	0.2251*	0.0752	-0.0020	0.2374*	-0.0474**	1.8866**	2.1933	0.0104
	[0.1980]	[0.0287]	[0.1251]	[0.0788]	[0.0334]	[0.1318]	[0.0243]	[0.9065]	[1.7181]	[0.0124]
C	0.5849	1.0622*	-3.7403	-1.7881	0.0759	-3.0641	0.9488*	-43.5941**	-44.94889	-0.2340
	[3.472]	[0.6280]	[2.5230]	[1.5929]	[0.7320]	[2.7946]	[0.5065]	[21.0073]	[35.5557]	[0.3297]
No. of obs.	63	63	81	63	63	81	63	81	81	81
Adj-R2	0.5085	0.3532	0.2689	0.1648	0.5	0.5247	0.3719	0.5419	0.5461	0.9579

∗ Denote significance at 0.1 level. ∗∗ Denote significance at 0.05 level. ∗∗∗ Denote significance at 0.01 level.

Table 5.11 The comparison of the impact of foreign banks on domestic banks with and without foreign ownership through the model by a dataset of all banks with FB as a dummy variable and separate datasets of two bank types (banks with and without foreign ownership

Dependent Variables	The model with dataset of all bank			The model with dataset of banks with foreign ownership		The model with dataset of banks without foreign ownership		Results	The comparison of the impact of foreign banks on domestic banks with and without foreign ownership (summarized based on the significant equation)
	Independent Variable		Dummy	Independent Variable		Independent Variable			
	FBA	FBN	FB	FBA	FBN	FBA	FBN		
1. Capital Strength									
ROE		-0.2328	0.0449**		0.4854		-1.7991	FBN negative to ROE	Impact on Lao bank is stronger (FBN is insignificant)
2. Asset quality									
ATR	0.1591*		-0.0098	0.1411		0.1552**		FBA positive to ATR	Impact on Lao bank is smaller
LTA		-1.5511***	-0.0638		-1.4524**		-1.2961	FBN negative to LTA	Impact on Lao bank is stronger
3. Management ability									
DEXP		2.0361*	-0.0148		3.0993*		-0.0322	FBN positive to DEXP	Impact on Lao bank is smaller
TCOST	0.2293**		-0.0183***	0.2430*		0.0898		FBA positive to TCOST	No conclusion*
4. Earning and Profitability									
NPM		-2.1041**	0.0301		-2.3442		-1.3749*	FBN negative to NPM	Impact on Lao bank is smaller
ROA	-0.0796*		0.0097***	-0.1101*		0.0353		FBA negative to ROA	No conclusion**
5. Liquidity									
ICR		-173.3141	-1.6482		-265.397		4.0753	FBN negative to ICR	Impact on Lao bank is smaller (insignificant)
LTD		-31.0438*	2.3647		-37.6101*		-7.391	FBN negative to LTD	Impact on Lao bank is smaller
6. Bank growth									

Dependent Variables	The model with dataset of all bank			The model with dataset of banks with foreign ownership		The model with dataset of banks without foreign ownership		Results	The comparison of the impact of foreign banks on domestic banks with and without foreign ownership (summarized based on the significant equation)
	Independent Variable		Dummy	Independent Variable		Independent Variable			
	FBA	FBN	FB	FBA	FBN	FBA	FBN		
LOAN		-0.0658	-0.0045		-0.0977		-0.0019	FBN negative to LOAN	Impact on Lao bank is smaller (insignificant)

Note: FB = 1 when bank with foreign ownership and 0 when bank without foreign ownership.

* Cannot conclude because in the model with dummy shows significant negative FB means that the impact on Lao bank is stronger than on a foreign bank. While the model run by bank with foreign ownership, the FBA positively affects TCOST with a coefficient of 0.2430, while it is only 0.2293 in the model by all banks, which means that the impact on Lao bank is smaller.

** Cannot conclude because the model with a dummy produces a significant positive FB, indicating that the impact on the Lao bank is greater than on the bank with a foreign ownership. While the model by bank with foreign ownership, the FBA affects negatively on ROA with a coefficient of -0.1101 (-0.0796 by all banks' data model), which means that the impact on Lao bank is smaller.

5.1.2 Impact of foreign banks on Lao economy

This model is to detect whether there is a relationship between the foreign bank presence and the Lao economy using the VAR Granger causality model and impulse response function. The variables to be performed in the VAR Granger causality test have to test unit root to have them as stationary variables because if the time series variables are not stationary, the Wald ($\chi 2$) test statistic will be worthless and the VAR model will not be effective.

Descriptive statistics for all variables for this model as FBA, GDP, CREDIT, and BANK are presented in Table 5.12. For the FBA variable shows variation from 0,0958 to 0,2906 and ranging from -0.0103 to 0.0687, from -0.0614 to 0.7166, and from 0.0652 to 0.4880 for the GDP, CREDIT, and BANK variables respectively. Table 5.7 also shows statistics about the distribution of the variables by using kurtosis, skewness and the Jarque-Bera test. Whereas the CREDIT and BANK variables are positively skewed, while FBA and GDP variables are negatively skewed. Furthermore, the result of the Jarque-Bera test provides the distribution of GDP variable is normal, but the null hypothesis that FBA, CREDIT, and BANK have a normal distribution cannot be rejected with a $\chi 2 = 1.6821$ (p-value = 0.5572), $\chi 2 = 1.0468$ (p-value = 0.5925), $\chi 2 = 0.9429$ (p-value = 0.6241) respectively.

Table 5.12 Descriptive statistics for the variables of FBA, GDP, CREDIT and BANK

	FBA	**GDP**	**CREDIT**	**BANK**
Mean	0.2047	0.0535	0.2781	0.2323
Median	0.1942	0.0576	0.2526	0.2161
Maximum	0.2906	0.0687	0.7166	0.4880
Minimum	0.0958	-0.0103	-0.0614	0.0652
Std. Dev.	0.0673	0.0187	0.2297	0.1253
Skewness	-0.0659	-2.6605	0.5737	0.4401
Kurtosis	1.6821	9.7455	2.4966	2.2003
Jarque-Bera	1.1695	49.2105	1.0468	0.9429
Probability	0.5572	0.0000	0.5925	0.6241
Sum	3.2754	0.8558	4.4489	3.7170
Sum Sq. Dev.	0.0679	0.0052	0.7914	0.2354
Observations	16	16	16	16

Note: The data is based on 16 observations (2005-2020)

Source: the financial statistic reports, the Bank of the Lao PDR

Before performing the VAR models, the stationarity of time series variables is detected by the ADF unit root test. The results of the unit root tests are shown in the following Table 5.13. Thus, the first differences of FBA, CREDIT and BANK variables were used in the VAR models, while the second difference for GDP variable. As for determining the optimal lag length for the VAR models, I have tested the VAR lag order selection best VAR model and the results suggest using lag 2 in the model as in table 5.14.

Table 5.13 The ADF test statistic (at 1% level) of the variables

Variables	Definitions	ADF test statistic (At 1% level)	Remark
CREDIT	Growth rate of credit to economy	-3.8648	Stationary at 1st difference level
GDP	Growth rate of GDP per capita	-4.3259	Stationary at 2nd difference level
FBA	Total foreign bank penetration asset to total bank asset	-3.8335	Stationary at 1st difference level
BANK	Growth rate of total bank asset	-5.6695	Stationary at 1st difference level

Table 5.14 VAR Lag Order Selection Criteria for model 1 and 2

VAR Lag Order Selection Criteria						
Endogenous variables: DFBA GDP2 DBANK (model 1)						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	68.4550	NA	0.0000	-10.9092	-10.7879	-10.9541
1	88.6713	26.9550	0.0000	-12.7785	-12.2936	-12.9581
2	117.4996	24.0236*	0.0000*	-16.0833*	-15.2347*	-16.3975*
Endogenous variables: DFBA DCREDIT DBANK (model 2)						
Lag	LogL	LR	FPE	AIC	SC	HQ
0	42.3141	NA	0.0000	-6.0483	-5.9180	-6.0751
1	59.3214	23.5485*	0.0000	-7.2802	-6.7587	-7.3874
2	73.8285	13.3911	0.0000*	-8.1274*	-7.2148*	-8.3150*

*Indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

This paper employed the VAR-based Granger causality test to examine the ordinary relationships between FBA and Lao economy variables (GDP and CREDIT) and BANK was used as a controlled variable. The results present their short-run relationships as in Table 5.15 below.

Table 5.15 The results of VAR Granger Causality/Block Exogeneity Wald Tests for equation (2a) and (2b)

Model	Independent variable	Granger Cause	dependent variable	DF	$\chi 2$	P-value	Decision		
							1% level	5% level	10% level
1	FBA	→	GDP	2	0.2517	0.8818	×	×	×
	GDP	→	FBA	2	195.3017	0.0000	✓	✓	✓
2	FBA	→	CREDIT	2	3.4863	0.1750	×	×	×
	CREDIT	→	FBA	2	16.5806	0.0003	✓	✓	✓

The first model (1) is to test whether FBA Granger causes GDP or GDP Granger causes FBA. the result of the first model in Table 5-15 also shows that GDP Granger causes FBA at the 1% level with a $\chi 2 = 195.3017$ (p-value = 0.0000). This implies that the changes in domestic GDP significantly led to changes in FBA. However, the null hypothesis that FBP does not Granger cause GDP cannot be rejected with a $\chi 2 = 2.4197$ (p-value = 0.2982). This concludes that changes in FBA do not significantly cause a change in GDP in Laos. This is probably according to the dominancy of domestic commercial banks in the Lao banking market, even the foreign bank market share by assets is around 28.7%. Therefore, the domestic banks' dominancy in the banking sector is likely to minimize any reaction by FBA in the host market.

In the model (2) the result shows that but there is the existence of causality from CREDIT to FBA with a $\chi 2 = 16.5805$ at the 1% level, but the null hypothesis that FBA does not granger cause CREDIT cannot be rejected with $\chi 2 = 3.4863$ (prob = 0.1750). In other words, FBA does not lead to a change in domestic credit availability, but domestic credit availability leads to a change in foreign bank assets in the country. The presence of causality domestic credit availability to foreign bank penetration asset is not shocking because most foreign banks in Laos can move their capital from home countries to contribute as the credit availability to host countries when they see the demand of credit accessibility. Fundamentally, in the more competitive market seem to

leads Credit availability in a market and this result also turn to increase foreign bank penetration asset whenever foreign banks invest in a host country, domestic banks seem to revise their management and investment approaches and expected to invest in their home country, more than in foreign countries, to keep their market share as high as possible so as to be competitive compared to the foreign banks. Credit availability in a market specifies a country's financial development, which is one of the primary factors that leads foreign banks to select a host country to participate in. Thus, the financial development change in Lao PDR leads to foreign penetration change in the Lao banking market.

Moreover there was significant Granger causality from GDP and CREDIT to FBA at the 5% and 1% levels, as shown in the table, However, the lack of causality from FBA to the domestic economy is not consistent with our hypothesis for this study. There are also previous empirical findings that the foreign bank penetration asset does not lead the domestic economy, as Giannetti and Ongena (2011) found that foreign banks' branches may concentrate on mobilizing capital for large companies and ignore small firms. Such that abandonment, the apprehension that foreign bank penetration may be harmful to the financial performance and growth of small to medium enterprises, which has the potential to significantly reduce economic growth. Ghosh (2017) studies the effects of banking institutions' liberalization on GDP growth by using a panel dataset of 138 countries during the years 1995 to 2013 and finds that a high level of banking sector globalization lowers real economic growth. The result was in line with the studies of Dell et al. (2004), Mian (2006), Sengupta (2007), Detragiache et al. (2008), Acharya and Subramanian (2009), Gormley (2010), and others. They have assumed the apprehensions that foreign institutions may encounter the problem of informational asymmetries in developing and least-developed nations, which can obstruct them from lending to small-medium-sized enterprises, which are more informationally opaque, and thus lower real GDP growth.

In addition, we used the impulse response function to examine how foreign bank entry and the Lao economy interact over time. Figures 5-1 to 5-4 report the response of Lao economy variables to the FBA, and vice versa.

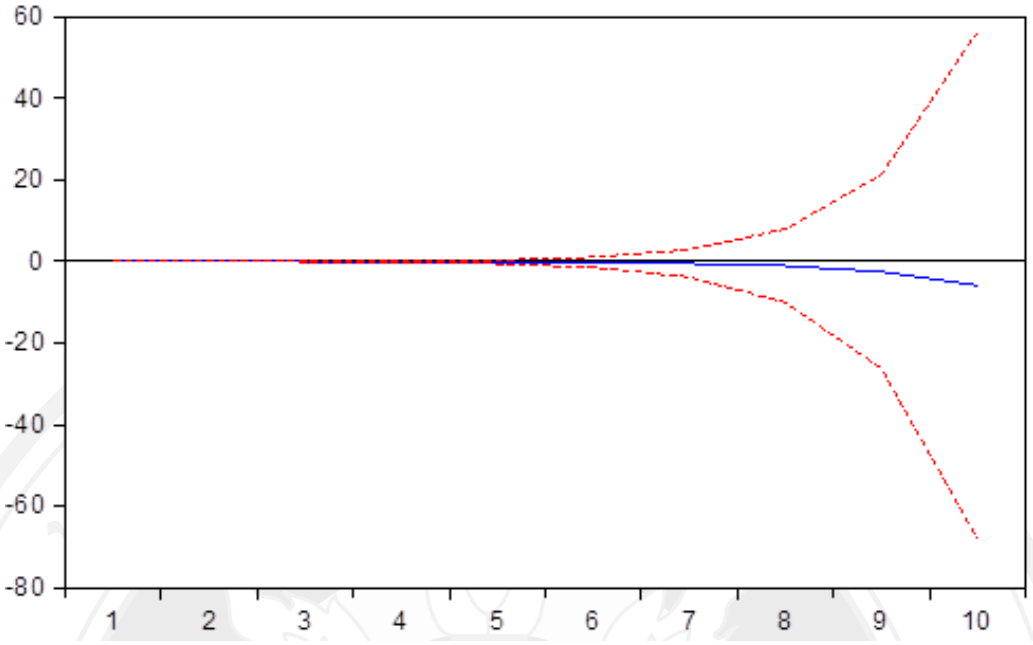

Figure 5.1 Response of GDP2 to DFBA

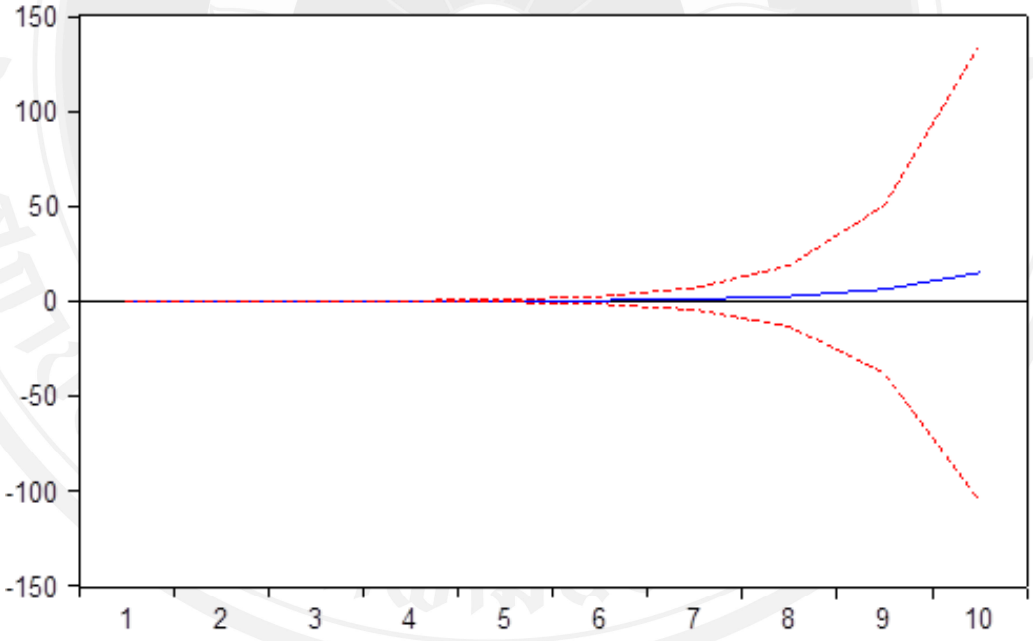

Figure 5.2 Response of DFBA to GDP2

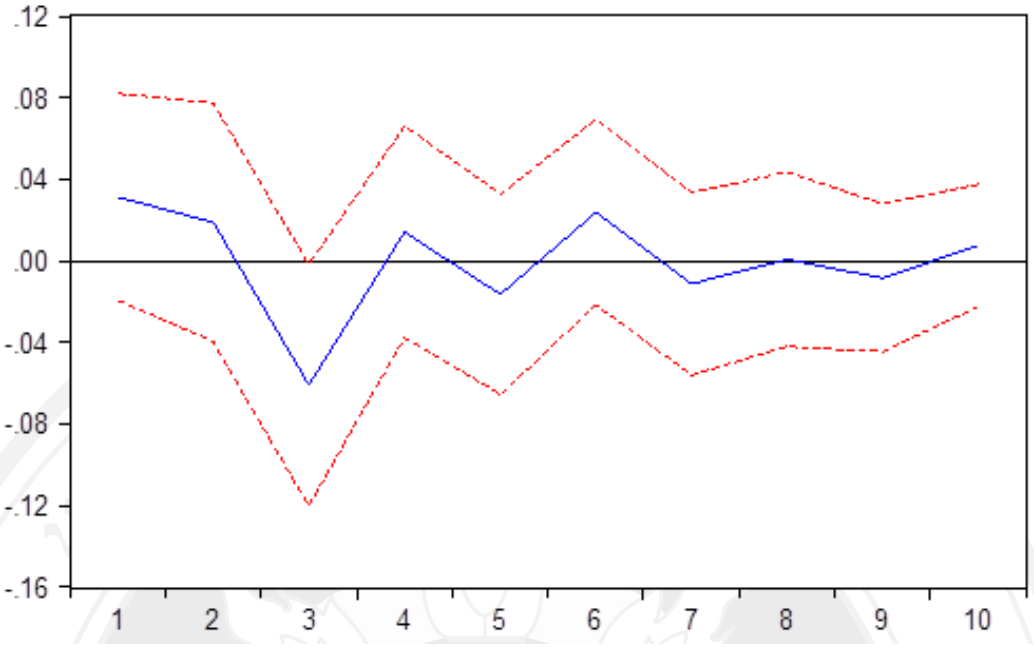

Figure 5.3 Response of DCREDIT to DFBA

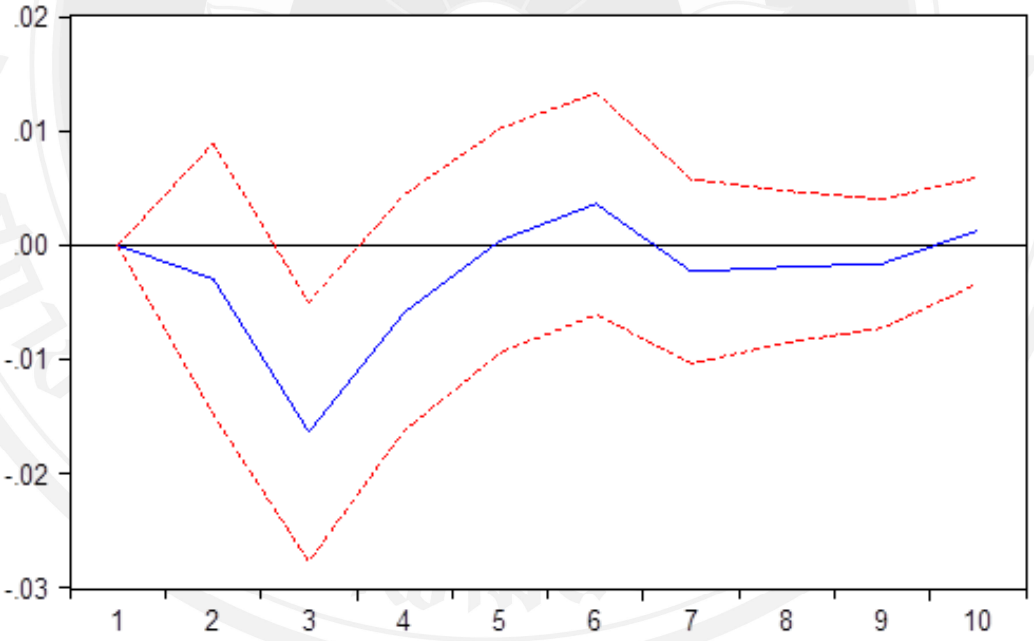

Figure 5.4 Response of DFBA to DCREDIT

As seen in Figure 5.1 to 5.4, the findings from the generalized impulse response functions using a ten-year period, Figure 5.1 illustrates that the response of GDP2 to DFBA is negative, but the effect of shocks exists after the 5th period. Thus, in Lao

PDR, rising foreign bank assets contribute to lower growth rate of GDP in long run. Figure 5.2 displays that the reverse line is positive after the 5th period. Therefore, rising GDP in Laos leads to a rise in foreign bank penetration assets. However, the significant surprise occurs after the 5th period. As they are in long run, if the regulation or trend in the market has changed during these 5 years, the effect can be different.

In figure 5.3 and 5.4, present that the response between DFBA and DCREDIT is fluctuating over time. In the short run, especially in the first three periods, they are likely to have a strong negative response to each other before turning up again and tend to have smaller effect in the long run.

Even the empirical finding from VAR Granger Causality can be interpreted as meaning that rising foreign bank entry does not increase GDP growth and credit growth in Lao PDR, but GDP growth and credit growth still have causality with foreign bank entry, which means that however they are still related to each other. So, the figures by impulse response function can tell us the reflection of them as foreign bank entry has no impact on GDP growth in the short run, but increasing foreign bank penetration assets can contribute to lower growth rate of GDP in the long run. In terms of credit availability growth rate, in the short run, especially in the first three-year period, they are likely to have strong negative responses to each other before turning up again and seem to be more stable in the long run. Stable growth rate can tell that the scale of credit does not have a tendency to expand because it might take long term until domestic banks renovate and develop themselves to be more competitive, while the foreign banks still face the asymmetric information market in Lao PDR, which these can be principal obstacles in releasing credit.

CHAPTER 6

CONCLUSIONS

6.1 Conclusion

This study has examined the effects of foreign bank penetration on the performance of commercial banks operating in Lao PDR and the effects on Lao economy. To determine the effect to the domestic banks' performances, on the basis of previous literature, we have chosen the performance indicators as Return on equity (ROE), Asset turnover ratio (ATR), Total cost to total asset (TCOST), Net profit margin (NPM), Return on assets (ROA), Loan to deposit ratio (LTD), Interest coverage ratio (ICR), etc. are examined, which reflect the CAMEL: Capital Strength, Asset quality, Management ability, Earning and Profitability, and Liquidity of the banks in aspects of performance. The main independent variables are: foreign bank asset to total bank asset (FBA), foreign bank number to total bank number (FBN), and a dummy variable as ownership structure of banks (FB), which was divided into two important measurements-banks without foreign ownership (Lao banks) and banks with foreign ownership (foreign bank branches) and to determine the effect on the Lao economy, we have indicated by the VAR granger causality and impulse response function analysis of these variables: Total foreign bank penetration asset to total bank asset (FBA), GDP per capita growth rate (GPD), credit to the economy growth rate (CREDIT), with total bank assets growth rate (BANK) as a controlled variable.

The analysis for the impact on bank performance was based on bank-level data and ordinary macroeconomic data during 2012-2020. The general conclusion of this study is that foreign bank presence through the opening of branches in the domestic banking market did contribute to reduce domestic bank performance through CAMEL and also lower bank growth. The results specifically show that the management ability has dropped as the operating expenses and total cost of domestic banks have increased, while the asset quality, liquidity, and bank growth also declined as the diminution of

loan to asset, loan to deposit, and market share by loan. All these can point to the reduction of earning ability as well as the profitability of domestic banks as ROE, ROA, and NPM. Nevertheless, the FB variable that we have run in both the model with and without the GDP variable, and even run the model separately by two bank types, has shown the indeterminate answer that if the domestic banks with or without foreign ownership have been impacted more by foreign bank entry, this might happen because of the insufficient data.

For the effect of foreign bank presence on Lao economy, the dataset was collected from the Bank of Lao PDR for the time period covering 2005–2020. The VAR granger causality result indicates that changes in foreign bank asset percentage (FBA) do not lead to changes in domestic GDP and growth rate of credit to the economy (CREDIT) but the changes in domestic GDP and growth rate of credit to the economy (CREDIT) significantly lead to change in foreign bank asset (FBA). This is probably according to the dominance of domestic commercial banks in Lao banking market especially state-owned commercial banks (BOL, 2018b), which make foreign banks do not have impact on host GDP and credit growth as the finding of Kirikkaleli (2016). Even the foreign banks in Laos can move their capital from home countries to contribute as the credit availability in host countries, but if foreign bank penetration asset is over the optimal level, they could not foster economic growth (Ghosh, 2017).

Anyway, the VAR Granger causality study seems to be such a short run maybe we need more time to see the real effect on the host country, so we have analyzed the impulse response function to analyze how the foreign bank entry and the Lao economy react to each other over time. The result from the impulse response function reflects that foreign bank presence has no effect on GDP growth in the short run, but growing foreign bank assets can contribute to lower growth rate of GDP in the long run. In terms of credit availability growth rate, in the short run, especially in the first three-year period, they are likely to have strong negative responses to each other and seem to be more stable in the long run, which stable growth rate can tell that the scale of credit does not have a tendency to expand. This might due to foreign banks have become great competitors to domestic banks, it might take long term until domestic banks renovate and develop themselves to be more competitive, but still not competitive enough to

push the credit growth. While the foreign banks still face the asymmetric information market in Lao PDR, which these can be principal obstacles in releasing credit in Laos.

We summarized the results as follows: The change in GDP growth and financial development in Lao PDR leads to a foreign penetration change in the banking market. Greater foreign bank presence causes lower domestic financial institutions' roles in the Lao banking market since the Lao economy motivates them to invest in mostly as substitution rather than for complementary reasons, making the competition stronger, which causes lower incomes, profits, liquidity, and growth. Anyway, domestic banks will remain playing a critical role in the financial system in a host market as they focus to invest in the home market rather than overseas as there is no Lao commercial banks have operated branches abroad, but revise their management and investment strategies to be more international so as to keep competitive against the foreign banks (BOL, 2018b). Furthermore, foreign banks still have asymmetric information problems in their loan expansion. Dell et al. (2004), Mian (2006), Sengupta (2007), Detragiache et al. (2008), Acharya and Subramanian (2009), Gormley (2010) have assumed that foreign institutions may encounter the problem of informational asymmetries in developing and least developed nations, which can obstruct them from lending to small-medium-sized enterprises which lower real GDP growth. So, these might lower the growth rate of GDP in Lao PDR in the long run.

6.2 Limitation of this study and recommendation for future research

The limitation of this study is the shortage of data resources and time, most of statistical data in Laos are annual record so our dataset is quite narrow, but we can try to explore the relationship and the effects of foreign banks on different variables that reflect the performance of the Lao banking sector. However, these results can contribute to Lao banking managers and policymakers modifying the existing supervision on banking sector especially on financial integration as well as foreign bank entry as for Lao PDR there is a commitment to liberalize the banking sector under the ASEAN Framework Agreements on Services (AFAS) through the abolition of the limitation on the number of ASEAN foreign employees or event foreign banks who come to the commercial banking system. With the ASEAN Banking Integration Framework (ABIF) as a guideline, it requires member states to have mutual negotiations to establish a

foreign branch between them according to the capacity and the selection criteria of each host country in order to maintain stability in the financial system of ASEAN members. So, this study can be used as a new reference to release any regulations on foreign bank penetration to keep domestic banks competitive in the market and can adopt some new directions from foreign banks such as digital banking, risk management, liquidity, and asset management, etc.

For further research, more data could be collected, possibly both by time and by number of banks, with more specific data to forecast some essential policies for the banking sector in Lao PDR, such as the degree of openness to foreign investment in the banking market or set higher foreign bank entry criteria for some time to protect domestic banks while still integrating into the international banking market. Another recommendation of the research is to generate further study on the differences in bank performance between domestic and foreign banks to estimate the influence of ownership structure more in depth, such as by dividing the ownership by the percentage of foreign investor owners or by bank structural change. This may provide a micro perspective analysis on the impact of bank ownership structure on the bank financial performance.

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