

**THE ROLE OF REGULATIONS ON BANK
MARGINS IN ASEAN COUNTRIES**

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**THE ROLE OF REGULATIONS ON BANK
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by

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LIST OF ABBREVIATIONS

ABIF	ASEAN Banking Integration Framework
AEC	ASEAN Economic Community
BCBS	Basel Committee on Banking Supervision
SSA	South/Southeast Asia
GCC	Gulf Cooperation Council
MARS	Multivariate Adaptive Regressions Splines
EU	European Union
SCP	Structural-Conduct-Performance
ES	Efficient-Structure
HHI	Herfindahl Hirschman index
MENA	Middle East and North Africa
SEA	South East Asian
BM	Bank margins
BS	Bank-specific variables
MS	Market-specific variable
MV	Macroeconomic variables
BR	Banking regulations
FEM	Fixed Effect Model
LSDV	Least Square Dummy Variable
REM	Random Effect Model
GMM	Generalised Method of Moments
AR(1)	Autoregressive model for first order
AR(2)	Autoregressive model for second order
VIF	Variance-inflating factor
SEC	Securities and Exchange Commission
OIC	Office of Insurance Commission

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APPENDIX A LIST OF BANKS

**PERANAN PERATURAN BANK TERHADAP PENETAPAN MARGIN
BANK DI NEGARA ASEAN**

ABSTRAK

Tujuan tesis ini adalah untuk menjalankan penyiasatan empirikal berkaitan peranan peraturan ke atas penetapan margin bank di negara-negara ASEAN dalam tempoh 2009 hingga 2017. Kajian ini membuat perbandingan terhadap kesan pemboleh ubah peraturan serta peraturan modal ke atas margin bank konvensional dan Islam. Akhir sekali, kajian ini menyiasat kesan peraturan Islam ke atas margin bank Islam. Kajian ini menggunakan Kaedah Detik Umum dan Kesan Tetap. Hasil kajian untuk impak peraturan ke atas margin bank menunjukkan bahawa sekatan aktiviti, kekuatan pengawasan, dan pemantauan swasta mempengaruhi margin bank secara signifikan di negara-negara ASEAN. Selain itu, saiz operasi bank, kualiti pengurusan, kecairan dan KDNK dapat membantu mengurangkan margin bank. Tahap penghindaran risiko, risiko kredit, dan risiko kadar faedah menunjukkan impak positif terhadap margin bank. Untuk perbandingan kajian iaitu objektif kedua, hasil kajian mencadangkan ada perbezaan terhadap impak peraturan ke atas margin bank antara bank konvensional dan bank Islam. Sekatan peraturan terhadap aktiviti bank mempunyai pengaruh yang lebih tinggi terhadap margin bank Islam daripada margin bank konvensional. Kuasa penyeliaan mempengaruhi margin bank Islam secara positif, sementara pemantauan swasta memberi kesan negatif terhadap margin bank konvensional. Kesan peraturan modal terhadap margin bank menunjukkan bahawa jumlah nisbah modal pengawalseliaan hanya mempengaruhi margin bank konvensional. Sementara itu, nisbah modal tingkat-1 menunjukkan kesan positif dan

signifikan hanya pada margin bank Islam. Hasil kajian menunjukkan bahawa pengawal selia dapat mengurangkan sekatan aktiviti perbankan dan meningkatkan pemantauan sektor swasta dalam menilai penyata kewangan untuk mengurangkan margin bank di negara-negara ASEAN. Selain itu, pengawal selia dapat memastikan bahawa bank mematuhi standard peraturan modal Basel III untuk mengurangkan margin bank. Manakala, pengawal selia bank-bank Islam dapat memastikan bahawa bank-bank Islam mempunyai peraturan yang berbeza dan menggunakan set nisbah modal mereka sendiri berlandaskan piawaian Syariah untuk meminimumkan risiko, lalu dapat menurunkan margin bank.

THE ROLE OF REGULATIONS ON BANK MARGINS IN ASEAN COUNTRIES

ABSTRACT

The objective of this study is to investigate the role of regulations on bank margins in ASEAN countries during the period from 2009 to 2017. This study also compares the effect of regulation variables and capital regulations bank margins for both conventional and Islamic banks. Lastly, this study examines the effect of Islamic regulations on Islamic banks' margins. This study utilizes the Generalised Method of Moments and Fixed effects. Firstly, the results show that the regulation variables (activity restrictions, supervisory power, and private monitoring) significantly impact bank margins in ASEAN countries. Furthermore, the size of the banks' operation, quality of management, liquidity, and GDP were found to help reduce bank margins. The degree of risk aversion, credit risk, and interest rate risk positively relates to bank margins. Secondly, the comparison of the regulation variables on conventional and Islamic banks margins suggest that the impact of regulations on margins are slightly different between conventional and Islamic banks. Regulatory restrictions on bank activities appear to have a higher influence on Islamic bank margins than conventional bank margins. Supervisory power positively influences Islamic banks' margins, while private monitoring negatively affects conventional bank margins. The impact of capital regulations on bank margins indicates that the total regulatory capital ratio only influences conventional banks' margins. Meanwhile, the Tier-1 capital ratio portrays a positive and significant impact on Islamic banks' margins only. Finally, an analysis of Islamic regulations on Islamic banks suggests that Islamic regulations portray a

negative and significant impact on bank margins. The findings suggest that the regulators could reduce restrictions on banking activities and enhance the monitoring by private sector in assessing financial statements to reduce bank margins in ASEAN countries. Besides that, regulators could ensure that banks comply with the Basel III total regulatory capital standards to narrow bank margins. On the other hand, regulators of Islamic banks could ensure that Islamic banks are governed by separate regulatory regimes and propose their own set of capital ratios following *Shari'ah* standards to minimize the risk, thereby, lower bank margins.

CHAPTER 1

INTRODUCTION

1.1. Introduction

The global financial crisis (GFC), which occurred from 2007 to 2008, has severely affected the world's banking system. One of the contributing factors was the improper implementation of the regulation (Hassan and Kayed, 2011), as insufficient regulatory control leads to excessive risk-taking in the banking system. Furthermore, Dietrich and Hauck (2014) clarified that banking regulations are one of the components that can potentially influence the banking system. In the aftermath of the global financial crisis, most countries have strengthened the regulation and supervision of their banking systems to avoid further financial distress. Accordingly, Basel Accord guidelines improvised the standards of banking regulation. The financial institutions implemented the Basel III accord to ensure banks' have adequate capital (Rahman et al., 2018). Cihak et al. (2013) documented the changes in regulation after the crisis regarding capital ratios, reformation of bank governance and bank resolution, and deposit insurance schemes.

Barth et al. (2004) highlighted several banking regulations that potentially influenced the banking system: bank entry requirements, supervisory power, transparency, activity restrictions, and private monitoring. Barth et al. (2012) also stated that the implementation of bank regulations helps to improve the efficiency and stability of the banking system. For example, the relaxations of bank entry can improve borrowers' and savers' welfare by lowering bank margins by reducing the rate of loans and enhancing the rate of deposits (Birchwood et al., 2017). Poghosyan (2013) argued that activity restrictions reflect the regulatory restrictions encountered by banks in the

securities market, insurance, real estate, and non-financial firms' shares owned by banks. Poghosyan (2013) also stated that activity restriction could lower bank margins on a banking system. Chortareas et al. (2012) showed that banking regulations and supervisions also improve banks' functioning as intermediaries. Thus, this has attracted considerable interest among academicians and policymakers due to the role of regulations on the operation of the banking system (Agoraki et al., 2011; Trinugroho et al., 2014; Salike and Ao, 2018).

Suryasnia et al. (2016) highlighted that the ASEAN countries focus on achieving an efficient and stable banking system. Since the ASEAN banking sector is essential in the regional financial market, the ASEAN Banking Integration Framework (ABIF) has been proposed to combine the ASEAN banking sector by 2020, focusing on capitalizing on the economies of scale of a more extensive consumer base (Hamid and Lean, 2016). The ABIF is established as a guideline for ASEAN countries' operational framework in implementing the principles and process of banking integration under the framework of the ASEAN Economic Community (AEC). Besides that, Ernst and Young (2015) reported that ABIF was introduced to enhance competition within the region, giving banks the advantage of economies of scale. Thereby, banks can reduce costs and increase efficiency. Furthermore, ABIF also intended to achieve complete regulatory harmonization of banking regulations in ASEAN countries (Hamid and Lean, 2016). Interestingly, the AEC aims to transform ASEAN into a single market and production base, a highly competitive economic region, a region of equitable economic development, and fully integrated into the global economy (Wijaya et al., 2019). Therefore, the banking sector plays a crucial role in ASEAN countries as they largely depend on banks for external funding.

Besides that, the banking system provides essential financial services that bolster the country's economic growth, in which funds are channelled from lenders to borrowers to ensure a well-balanced growth process (Williams, 2007). The channelling of funds involves the interest paid to the depositor and the interest charged on the borrower by banks, creating a spread called bank margins. Poghosyan (2013) defined bank margins as the difference between the rates of lending and the rates of deposit. Saunders and Schumacher (2000) viewed the bank margins from two perspectives. First is profitability (relatively high margins are associated with the degree of stability of a banking system, as it increases revenues that act as buffers to bank failures) (Bustaman et al., 2017). Secondly, bank margins reflect the cost of a bank's intermediation services on society. For instance, banks mobilize and allocate funds from depositors to borrowers efficiently. Furthermore, effective mobilization and allocation of funds can encourage investments and savings, which are essential for an efficient banking system (Lam and Nguyen, 2018).

1.2 Problem Statement

The main role of the banking system is to improve the efficiency of capital allocation and encourage savings. Bank margins – measured as the difference between the interest income and interest expenses, are indicators used to capture financial intermediation efficiency (Almarzoqi and Naceur, 2015). Bikker and Vervliet (2018) found that profitable banks reduce the risk of bankruptcy. Banks will charge more for lending rates and pay less for the deposit rate to withstand bankruptcy (Mendes and Abreu, 2003). Nevertheless, Ahokpossi (2013) argued that banks would lower the costs of borrowing that will reduce the risk of bankruptcy by ensuring that banks are well-capitalized. In other words, lower margins will also be able to withstand bankruptcy. Besides that, high interest margins reflect the high financial cost for the

borrowers, which eventually leads to a country's declined economic growth (Dabla-Norris and Floerkemeier, 2007). On the other hand, Calice and Zhou (2018) discovered that low interest margins result in high levels of financial development and the use of financial services. Therefore, it is crucial for the banks' intermediation cost to be the lowest possible to achieve greater social welfare (Maudos and Fernández De Guevara, 2004).

However, ASEAN countries exhibit high interest margins in contrast to several developed countries. Figure 1.1 presents the percentage of the bank margin in six ASEAN countries against several developed countries. The yearly averages calculate the margins of each country from 2009 to 2017. The graph shows that the bank margin varies across countries between ASEAN and developed countries. Overall, the bank margins in ASEAN countries are higher compared to other developed countries. The graph depicts that Indonesia portrays the highest level of bank margins in the ASEAN countries (6.07%), followed by other ASEAN countries such as the Philippines (3.56%) and Thailand (2.96%). Meanwhile, the highest bank margins recorded in developed countries, only 2.49% in Japan. Although the bank margins decreased in some countries and increased in the ASEAN region throughout the study, it remains high according to international standards.

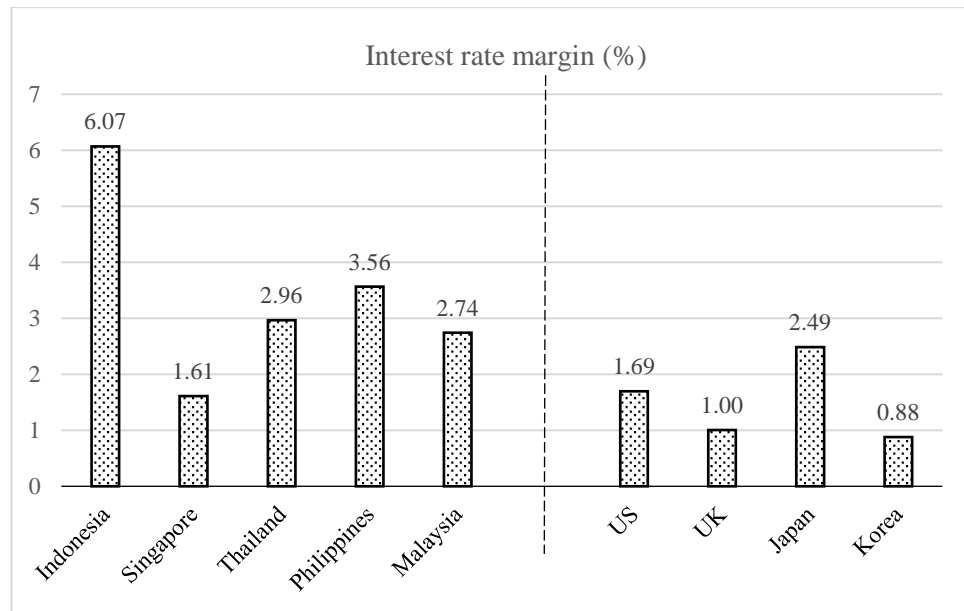


Figure 1.1: The average interest rate margin in ASEAN countries vs. several developed countries

Source: Federal Reserve Economic Data, 2018

Furthermore, an increase in bank margin leads to low deposit and high lending rates, which restricts the expansion of financial intermediation due to high borrowing, which eventually discourages savings in the banking system (Hossain, 2012). Barajas et al. (1999) stated that high bank margins in developing countries are characterized by an inefficient banking system, resulting in an overall welfare loss. Inefficient banks will charge high interest rates to customers to cover up for the cost incurred. Interestingly, bank margins tend to vary over time and economic conditions. Hence, it is essential to determine the factors contributing to high margins in ASEAN countries.

According to various studies, several factors influence bank margins – bank-specific factors, macroeconomic factors, industry-specific factors, as well as regulatory factors (Demirgüç-Kunt et al., 2004; Maudos and Fernández De Guevara, 2004; Hutapea and Kasri, 2010; Kasman et al., 2010; Poghosyan, 2013; Birchwood et al., 2017; Lee and Isa, 2017; Bougatef and Korbi, 2018). Naceur and Kandil (2008) suggested that regulations were among the variables significantly affecting bank

margins, as unnecessary regulations increase the cost of intermediation. Moreover, Demirgüç-Kunt et al. (2004) indicated that bank margin increases due to restrictions on their freedom of entry. Birchwood et al. (2017) also discovered that regulation positively influences the interest margin. The majority of past studies have focused on developed and developing countries rather than ASEAN countries. Agoraki et al. (2011) stated that the regulations implemented in developing and developed countries vary. On the one hand, developed countries are more interested in reducing regulation to increase competition and enhance efficiency. On the other hand, deregulation in developing countries tends to increase stability while reducing risk.

In response to the global financial crisis, there have been changes in the ASEAN banking system, including regulatory reforms in capital requirements, activity restrictions, private monitoring, and official supervision (Lee and Park, 2009). Furthermore, Tongurai and Vithessonthi (2020) highlighted that regulatory changes in the banking sector have important roles in preventing bank failures in the economic sectors of many countries. Hence, this creates a plausible question regarding “*whether changes in banking regulations would impede or enhance banks' margin in ASEAN countries.*” Therefore, this study will investigate the role of regulation on banks' margins in ASEAN countries.

Furthermore, the banking system in most ASEAN countries consists of two types – Islamic banks and their conventional counterparts. In theory, the Islamic banking system operates under different principles compared to the conventional banking system. Since most ASEAN countries practice the dual banking system, the operating system differs from each other. Differences exist in bank margins of both conventional and Islamic banks due to variation in the operation of both banking systems. For example, conventional banks' deposit and loan rates may be set

independently; while, the returns on investments paid and received by Islamic banks are interdependent (Bougatef and Korbi, 2018). Thus, this triggers the question – “*whether the impact of banking regulation on the margins of conventional banks are similar to Islamic banks in ASEAN countries.*” Henceforth, this study would like to compare the role of regulations between conventional and Islamic bank margins.

Abdel Reda et al. (2016) highlighted that regulation practices vary from country to country and from bank to bank. For instance, the Malaysian banking system followed the Basel III requirements to comply with the stricter capital and liquidity requirements than other ASEAN countries (Luk et al., 2019). The differences in the minimum level of capital banks operate are due to the rules and regulations used by the banks in each country. For example, higher capital forces banks to absorb losses in default cases. It can also impose constraints on their activities, increasing their risk-taking and lowering their efficiency and profitability (Bitar et al., 2017). Meanwhile, inadequate capital increases the danger of bank failure (Chortareas et al., 2012).

Tabak et al. (2017) also emphasized that international authorities have discussed methods to strengthen the capital structure of banks to prevent conditions that could generate another financial crisis. In light of this, the Basel Committee on Banking Supervision (BCBS) has issued Basel III as a guideline on capital requirement. The proposed guidelines are to ensure that banks have adequate capital to cover risks encountered by banks from their lending activities. Hence, the Basel accords provide proper guidelines for maintaining the optimum level of capital. Accordingly, the new calculation of the capital standards introduced in Basel III will require banks to hold more capital and a higher quality of capital (Lee and Hsieh, 2013). The Basel III accords propose that banks’ capital, also known as regulatory capital, is the proportion of capital to risk-weighted assets. The banks are required to

maintain the level of capital with a minimum of 8% (Basel Committee Banking on Supervision, 2017).

Due to this, vast empirical findings focusing on capital regulation on banks' stability exists (Dietrich and James, 1983; Santos, 2001; Barrios and Blanco, 2003; Li and Mancang, 2012; Distinguin et al., 2013; Dietrich and Hauck, 2014; Ashraf et al., 2016; Deli and Hasan, 2017). Nonetheless, few studies relating capital regulation with profitability exist (Lee and Lu, 2015; Bitar et al., 2017; Zheng et al., 2017). Bitar et al. (2017) and Lee and Lu (2015) asserted that higher capital regulatory requirements have a negative effect on both the efficiency and profitability of a banking system. Rahman et al. (2018) stated that capital regulations help in reducing the intermediation cost by allowing more competition. Afzal and Mirza (2010) and Zheng et al. (2017) suggest that the capital adequacy ratio positively influences the cost of intermediation. The results show that banks' higher capital adequacy ratio raises risk-taking behaviour, thereby increasing the banks' margins. However, in the ASEAN context, Castell et al. (2012) stated that stricter capital regulations could increase bank margins owing to their ability to withstand bankruptcy risks. Furthermore, the authors also stated that adopting minimum capital requirements standards according to Basel III could exert more strain on banks' role as financial intermediaries. Therefore, this study would like to examine "*whether bank margins vary with the standards of regulatory capital requirements as proposed by the Basel III of the conventional and Islamic banking system in the ASEAN context.*" The question of the effectiveness of imposing capital regulation concerning the Basel III guidelines has continued to occupy regulators and policymakers. Therefore, it is important to examine the role of capital regulation on the interest margin of ASEAN countries to provide reasonable suggestions to the

regulators and shareholders of the regulatory framework on capital of a banking system.

Most countries in the world, including the ASEAN region, are adjusting to banks' regulation and supervision frameworks. Islamic banks are also subjected to a similar regulatory framework that has been designed for conventional banks when it becomes implemented in one country (Zins and Weill, 2017). According to Chong and Liu (2009), in practice, the operations of Islamic banks are similar to conventional banks. Therefore, Islamic banks are regulated and supervised in a similar way as conventional banks. For example, Aji Haqqi (2017) states that the regulatory rules for the Islamic banking system in ASEAN countries followed the regulatory rules of the conventional banking system. Both of the banking systems employed a similar set of regulations that the Basel Accord proposed. Nevertheless, the differences between conventional and Islamic banking transactions require an appropriate set of regulations to supervise the Islamic banks' activity. Furthermore, applying the same regulatory framework to Islamic banks could underestimate and even dismiss the types and nature of their specific risks (Ahmed et al., 2016). However, in countries where Islamic and conventional banks operate, Alam et al. (2018) stated that the regulation of Islamic banking is more complex than conventional banks owing to the risk involved in the operation. Moreover, Alexakis and Tsikouras (2009) asserted that due to the nature of Islamic banking, the regulation enforced by conventional banks is inappropriate for Islamic banks. However, the absence of a regulatory and legal framework for Islamic banks would cause problems in the banking system (Ahmad and Hassan, 2009). Hence, this suggests that Islamic banks require a regulatory framework. Islamic banking is different from conventional banking as it is interest-free. Therefore, the role of AAOIFI in Islamic banks is to cater to the differences in Islamic banking operations

and other risk profiles as the existing regulatory framework does not consider the risk or the operations of Islamic banks.

Alam et al. (2018) highlighted that Islamic regulations are significant to the profitability of Islamic banks in the South/Southeast Asian (SSA) region as opposed to the Gulf Cooperation Council (GCC) countries. The SSA region has already implemented a suitable regulatory framework in the Islamic banking system without adjusting the regulatory framework. The authors justified that Islamic regulations imposed in the SSA region are the significant factors contributing to the profitability of Islamic banks. The results from the SSA region and GCC countries indicate that the impact of regulation is different in each region. Hence, this creates a plausible question of “*how Islamic regulations affect Islamic bank margins in the ASEAN region.*” Therefore, this study considers Islamic regulations to understand further whether implementing a regulatory framework on Islamic banks could play a significant role in bank margins in the ASEAN region.

1.3 Objectives

This study comprises four objectives. The objectives of this study are:

- 1) To examine the role of banking regulations on bank margins in ASEAN countries.
- 2) To compare the differences on the effect of banking regulations on the margins of conventional and Islamic banks in ASEAN countries.
- 3) To examine the impact of capital regulations on bank margins of conventional and Islamic banks in ASEAN countries.
- 4) To investigate the impact of Islamic regulations on Islamic banks’ margins in ASEAN countries.

1.4 Research Questions

- 1) What is the role of banking regulations on bank margins in ASEAN countries?
- 2) Is there any difference in the effect of banking regulations on margins of conventional and Islamic banks in ASEAN countries?
- 3) Does capital regulations influence the bank margins of conventional and Islamic banks in ASEAN countries?
- 4) What is the impact of Islamic regulations on Islamic banks' margins in ASEAN countries?

1.5 Contributions of the Research

This research will deviate from earlier works in this subject in the following ways:

- 1) This study contributes to the literature by examining the role of regulations on margins of Islamic and conventional banks in ASEAN countries, as empirical evidence on the impact of regulations on bank margins in a dual banking system is limited. This study utilizes a richer dataset that focuses on after the global financial crisis period for ASEAN countries. The findings of this research will provide useful insights to regulators in formulating the necessary banking regulations and policies that would enhance the efficiency of the banking system and reduce bank margins.
- 2) The link between capital regulations introduced by Basel III and bank margins is still ambiguous, particularly in the dual banking system. Evaluating the impact of capital regulations on bank margins is important to foster efficiency in the ASEAN banking sector. The bank capital level reflects the strength of

the financial intermediaries, external ratings, and the investor's perceptions. For example, the strict requirement of banks' capital to increase the banks' ability to absorb shocks could lead rise in capital cost, which eventually increases the cost of intermediation. Therefore, this study empirically examines the effect of stricter capital regulation on bank behaviours to provide insight on the impact of capital regulation under Basel III on bank margins. This study also could provide policy recommendations to regulators on the role of capital regulations in reducing bank margins in the ASEAN banking system.

- 3) This study will bridge a significant gap in the literature by analyzing the impacts of Islamic regulations on the margins of Islamic banks in ASEAN countries. Islamic banks' margins may respond differently to the regulatory framework that is specialized for Islamic banks. The results will highlight policy implications to the regulatory authorities to design appropriate regulatory frameworks in the dual banking system to lower financial intermediation costs.

1.6 Scope of the Study

This study will investigate the determinants which influence banks' margins among ASEAN countries. The chosen sample consists of conventional and Islamic banks in four ASEAN countries: Malaysia, Indonesia, Singapore, and Thailand. The sample of this study focuses on ASEAN countries where the banking system operates in a dual banking system that is conventional and Islamic banks over the period from 2009 to 2017. The ASEAN countries are chosen as the ASEAN banking system has undergone reform in the regulation after the crisis.

1.7 Definition of Key Terms

The definition of each term is based on the operational meaning of each variable for this study.

Table 1.1: Definition of key terms

Terms	Definition
Bank Margins	The difference between lending and deposit rates (Birchwood et al., 2017).
Activity restriction	The restriction of activities imposed on banks.(Barth et al. 2013).
Supervisory power	The ability of supervisory authorities to obtain information from banks and take an assortment of actions to change the behaviour of banks (Barth et al. 2013).
Private monitoring	The ability of private investors to monitor and exert effective governance over banks (Barth et al. 2013).
Capital regulation	The amount of capital banks must hold and the stringency of regulations.

1.8 Organisation of the Study

Chapter 1 describes the overview of the study and elaborates on the issues to be considered. This chapter discusses the research motivation, identified the research objectives and questions and highlights the importance of the research and scope of the study.

Chapter 2 expands on the earlier literature on the cost of financial intermediation from both a conventional and an Islamic point of view. This chapter reviews the theoretical models, the extended theoretical model and empirical evidence explaining the factors that explain the financial intermediation costs in the banking system and highlights the gaps in the literature.

Chapter 3 describes the methodology adopted in the study. This chapter elaborates model specifications, estimation approach, variables description, as well as

sample selection.

Chapter 4 discusses the empirical results of the estimations to address the four research questions. Furthermore, the empirical findings will highlight the factors that potentially influence the bank margins in both conventional and Islamic banks in ASEAN countries.

Chapter 5 summarizes the results and deduces the implications of the findings. This chapter provides policy recommendations, identifying research limitations and suggesting areas for future research studies.

Finally, this study provides references followed by Appendix.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theory and the empirical studies on the determinants of bank margins in developed and developing countries. This chapter is divided into four parts. The first section explains the banking system as well as the differences between conventional and Islamic banks. The second section describes the theoretical framework followed by the empirical review on the determinants of bank margins. The last section discusses the research gap of the study.

2.2 Banking system

The banking system plays an essential role in supporting the growth of an economy. There are two types of banking systems, which are conventional and Islamic. Conventional and Islamic banking systems operate differently. The following section discusses an overview of both banking systems.

2.2.1 Overview of Conventional Banking

The conventional banking system operates based on interest where the conventional banks charge interest rates to the debtors and pay a certain amount of interest to the depositors (Hanif, 2011). The conventional bank operations involve *riba* as its main operation is lending money by charging interest rates. The rates of interest are predetermined in advance. Hence, banks invoice depositors for their deposits at low interest rates and then sell them to borrowers at a higher interest rate (Masruki et al., 2010).

2.2.2 Overview of Islamic Banking

The financial transaction of Islamic banking is based on *Shari'ah* contracts. There are few restrictions imposed by *Shari'ah*: prohibitions on the charging of interest, prohibition of gambling (*maisir*), and speculative behaviour based on uncertainty, known as *gharar* (Aladin, 2015; Youssef and Samir, 2015; Imam and Kpodar, 2016).

Maisir is a form of gambling that involves the acquisition of wealth by chance of winning. It is prohibited because the agreement between both parties involves certain immoral and undue benefits based on false hopes in a contract (Youssef and Samir, 2015). *Gharar* is prohibited to avoid unnecessary risk-taking (Imam and Kpodar, 2016). According to the *Shari'ah*, banks are not allowed to participate in ambiguous and uncertain transactions. Iqbal (2013) relates the asymmetric information, which leads to conflicts as a form of *gharar*. The prohibitions of *gharar* reflect the information disclosures between contracting parties involved in Islamic financial contracts (Benamraoui and Alwardat, 2018). The term of the contracts should be clearly defined. Furthermore, *Shari'ah* principles suggest that both banks and customers share complete information so that the profit and loss will be equally shared. *Maisir* and *gharar* involve uncertain outcomes in the transactions.

Riba is prohibited as it is exploitation for either consumption or production (Ebrahim & Joo, 2001) since it operates as interest-bearing transactions. *Riba* is an extra payment of specific interest of the loans (Beck et al., 2013). Chapra (2008) explains that *riba* is the loan paid along with interest by the borrower to the lender to extend maturity loans. There are two types of *riba* transactions that is *riba al-nasi'ah* and *riba al-fadl*. *Riba al-nasi'ah* or *riba* in loan contract is known as evident *riba* while

riba al-fadl or *riba* in sale contract is known as hidden *riba* (Osman Salleh et al., 2012). *Riba al-nasi'ah* is a form of interest for delayed payments of the loans. The term *nasi'ah* originates from *nasa'a* which reflects deferment or postponed (Chapra, 2008). Hence, it relates to interest charges on loans. It is interest on money lent by the creditor to the debtor on the outstanding debt for every late due repayment of loans. Pre-determined or pre-agreed interest over the original loans is considered *riba*. Next, *riba al-fadl* is a form of interest excess in counter value in a trade. *Riba al-fadl* reflects extra interest placed in one of the values in a transaction. Basically, *riba* is associated with loans, capital markets, saving and fixed deposits (Akhter, 2015).

2.2.3 Differences of the Conventional and Islamic Banking Systems

There are several differences between both conventional and Islamic banking systems. The modes of operation and function of conventional banks are entirely based on manmade principles based on interest, while Islamic banks' functions and operating modes follow the principles of *Shari'ah*. However, the prohibition on interest charges and payment in Islamic banks leads the Islamic banks to differ significantly from conventional banks in terms of the underlying contracts and mechanisms used. The differences also can be explained in terms of the financial transactions of both banks. The financial transactions are divided into two sides: (a) assets and (b) liabilities. The financial transactions of Islamic banks of the asset side can be categorised into two types: mark-up financing and profit and loss sharing (PLS).

The mark-up financing includes *Murabahah* (trade with mark-up), *Ijarah* (Islamic leasing), *Salam* (sales with immediate cash payment and deferred delivery), and *Istisna* (sales with a deferred cash payment). *Murabahah* is a contract between a bank and a client for the sale of commodities at a price agreed by both parties (Tatiana

et al., 2015). The banks obtain the profits of the resells goods. Nevertheless, banks will bear all risk of damage until the customer receives the goods. The concept of *Murabahah* offered by banks is letters of credit, financing, commodity financing, credit facilities, and others (Mat Isa et al., 2012). Next, *Ijarah* is a lease transaction that involves an agreement by which banks purchase equipment upon customers' request and rent it to the customer (Iqbal, 2013). The duration of the lease and rental fee of the asset are pre-agreed by both of the parties. Furthermore, in a conventional lease transaction, all the risks and rewards are borne by the customers. In contrast, in Islamic banks, the banks bear risks and rewards (Iqbal, 2013).

The profit-sharing model is the deposit model developed in the Islamic market, also known as the two-tier *Mudarabah* model (El-hawary et al., 2007). In the *Mudarabah* model, the allocation and the mobilization of funds are based on profit-sharing where the benefit and losses are shared among the depositor and the bank. The profit-loss sharing comprises *Musharakah* (joint venture) and *Mudarabah* (trustee finance). In the *Musharakah* contract, the customer and banks are required to sign a partnership agreement where the profit and losses are shared (Tatiana et al., 2015). The contract of *Mudarabah* is the agreement signed by the customers and banks on the proportion of income distribution, and the losses will bear by banks. In a nutshell, the depositors of Islamic banks are considered investors or partners as the bank's profit from allocating deposit funds is shared between bank and customer. In contrast, a pre-determined fixed interest rate remunerates the principal and interest on deposits placed in conventional banks (Bougatef and Korbi, 2018). Besides that, the risk-taking of conventional and Islamic banks are different (Qian and Velayutham, 2017). Conventional banks focus mainly on debt-based which allows for risk transfer.

Depositors transfer the risk to the bank, ensuring a pre-determined risk and a return with the bank.

Islamic banks' liabilities side includes demand deposits and investment accounts (El-hawary et al., 2007). The demand deposits or saving based on the principle of *Wadiah* (trust or safe-keeping), is responsible for protecting and safe-keeping depositors' assets (Kassim, 2016). Meija et al. (2014) emphasize that in *Wadiah*, the banks guarantee the repayment of the depositors' funds. On the other hand, Islamic banks act as fund managers in investment accounts, while depositors are considered investors or investment account holders. The investment accounts are based on the principle of *Mudarabah* and *Musharakah* (Belkhaoui et al. 2020). In *Mudarabah*, the clients make the deposits, and profits and losses will be shared between both bank and client. Furthermore, in *Mudarabah*, the return of the invested capital and profits investment are not fixed because the return depends on the banks' ex-post profit, unlike conventional banking, where the capital is guaranteed (Saeed et al. 2020). In *Musharakah* accounts, a bank acts as the depositor's partner, and profits are shared in a predetermined ratio between the bank and the depositors. However, losses are borne by the partners in proportion to their capital contribution (Rashid, 2019).

In many countries, Islamic banks adopt the Basel regulatory framework designed for conventional banks. One of the regulations is activity restrictions. The restrictions on banking activities are usually associated with the risk of not having enough cash reserves to meet the demands of depositor withdrawals, which eventually increases costs and leads to higher margins (Thi et al., 2020). Conventional banks practice the restrictions on banking activities as proposed by Basel Committee on Banking Supervision (BCBS). Similarly, Islamic banks also practice restrictions on

banking activities. However, Islamic banks' activities that are allowed must follow two contracts: transactional contracts and intermediation contracts that address the diverse risk susceptible to Islamic banks (El-hawary et al., 2007). Beck et al. (2013) argue that Islamic banks are less likely to participate in riskier activities.

As for the information disclosures, both conventional and Islamic banks proposed the importance of the disclosing information to the public by the private sector. Islamic banks pointed out the information disclosures as one of the essential elements to protect depositors' investment (Errico and Farahbaksh, 1998). The regulations regarding the disclosure of financial information are important for financial and operational activities. The disclosure of the financial information to the investor will provide a better quality of information regarding the operations and financial activities of both conventional and Islamic banking systems. Thereby, increase the opportunity for investment activities, and banks will not have to charge higher interest rates to the depositors.

Moreover, Errico and Farahbaksh (1998) state that the calculations of the capital adequacy ratio of Islamic banks should have been reviewed by considering the differences between deposit accounts in conventional banking and investment accounts in Islamic banking. El-hawary et al. (2007) discuss that the framework for capital adequacy, asset quality, and management of investment accounts, earnings quality, and liquidity management of banks of Islamic banks should be tailored following the standards established by the Basel Committee. There are few efforts taken by Accounting and Auditing Organisation for Islamic Financial Institutions (AAOIFI) in creating accounting and auditing regulations, standardizing *Shari'ah* interpretations and establishing capital adequacy ratios tailored specifically for Islamic banks (El-hawary et al., 2007). Besides that, Hassan and Dicle (2005) state that the

capital for Islamic banks, as per AAOIFI descriptions, is susceptible to three different types of risks: commercial risk, fiduciary risk, and displaced commercial risk. Accordingly, the AAOIFI provides a statement on calculating the capital ratio for Islamic Banks by considering the displaced commercial risk (Karim, 2001). The statement proposes that Islamic banks must pay a rate of return to profit sharing investment account holders to avoid the withdrawal of the investment by investors. Hence, banks can raise the deposit rates and reduce the lending rates reducing the bank margins.

In addition, recent national and international reforms implemented in bank regulation and supervision, Basel III, have huge implications for Islamic banks. Accordingly, the Basel framework covers the risks that potentially harm the banking system's operation, such as credit risk, market risk, and operational risk. However, the Basel III framework does not consider risks susceptible to Islamic banks, such as *Shari'ah* compliance risk and displaced commercial risk (Abdel Megeid, 2017). The higher complexities of Islamic banking in risk encounter result in another separate set of regulations explicitly designed for Islamic banks. Thereby, the Islamic banks are subjected to two sets of regulations to reduce the risk faced to lower the bank margins. However, some conventional banks are allowed to offer Islamic banking products and services through an Islamic window to increase the competition in the banking system (Alam et al., 2018). Mejia et al. (2014) explain that an increase in competition will lower the cost of financing for financial products that follow *Shari'ah* standards, which could favorably affect the margin of the banking system bank.

Ibrahim (2019) states that Islamic banking usually is subject to the same banking regulations practiced by conventional banks. Hence, Islamic banks in most countries adopt the conceptual regulatory framework of the Basel Committee on

Banking Supervision (BCBS), which is designed for conventional banks (Mejia et al., 2014). However, the differences between the Islamic and conventional banking systems in mitigating risks suggest that conventional banks' regulatory framework is not appropriate for Islamic banks because Islamic banks operate differently. For instance, Alam et al. (2018) argue that Islamic banks are exposed to severe market and operational risks that are difficult to mitigate due to complex structures of Islamic banking products suggesting more regulations in practice for the Islamic banking system. However, Saeed et al. (2020) state that excessive regulations may increase the cost of intermediation. Besides that, Islamic banks are also subject to an additional layer of supervision, that of the *Shari'ah* Supervisory Boards (SSB), whose primary task is to ensure that the bank is operating within the framework of the banks (Alexakis and Tsikouras, 2009). The SSB is composed of qualified scholars appointed by shareholders and responsible for monitoring all Islamic banks' financial contracts, transactions, and activities on behalf of shareholders, stakeholders, and clients to ensure banks followed *Shari'ah* standards (Zeineb et al., 2018). The existence of the SSB will reduce the information asymmetry as the assessment by the scholars helps limit the moral hazard (Aljifri & Khandelwal, 2013). Hence, the lower the moral hazard, the lower the bank margins (Rogers, 2016).

2.3 Bank Margins

Bank margin refers to the difference between interest income and interest expenses divided by total assets (Saunders and Schumacher, 2000). The bank margins reflect the level of financial intermediation efficiency of the banking sector. Due to the different operations in conventional and Islamic banks, the bank margins view of both banks would differ. For instance, Islamic banks will respond differently following the *Shari'ah* standards. In accordance with *Shari'ah* rules, Islamic banks prohibit interest.

The bank margins of Islamic banks will be calculated at the end of the period. Islamic banks generate profits via equity financing or debt-based financing. The debt-based products of Islamic banks follow *Murabahah* and *Tawarruq* contracts, while equity-based products follow *Mudarabah* and *Musyarakah* contracts. Hutapea and Kasri (2010) classified the deposit and financing rates into ex-ante and ex-post, where ex-ante is debt-based and ex-post is equity-based. However, Islamic banks are not allowed to have predetermined rates to pay the return or profit to depositors (Fianto et al., 2018). Since Islamic banks are not allowed a predetermined interest rate, Islamic banks will invest deposits according to Islamic contracts. Meanwhile, the margins of conventional banks are known as ex-ante as the banks are allowed to predetermine their interest rates such as the deposit and credit rates.

2.3.1 Theory of Bank Margins

Bank margin refers to the difference between banks' lending and deposit rates (Birchwood et al., 2017). Bank margins can be viewed in two perspectives: profitability reflecting banks' stability and cost of intermediation, indicating the efficiency of a banking system. Initially, there are two theoretical models that reflect bank margins. Firstly, the hedging hypothesis and the second model were developed based on the microeconomic of the banking firms. The first model discusses the actual banks' portfolios on how the banks manage the risks suffered by their shareholders. Meanwhile, the second model explains the necessary condition required for the existence of financial intermediation. Samuelson (1945) proposes that interest rate has a significant relationship with bank margins. Two groups of the main literature on bank margins postulate two major approaches to modeling the bank margins, namely, firm-theoretical and dealership model. Figure 2.1 displays the theoretical model of bank margins.

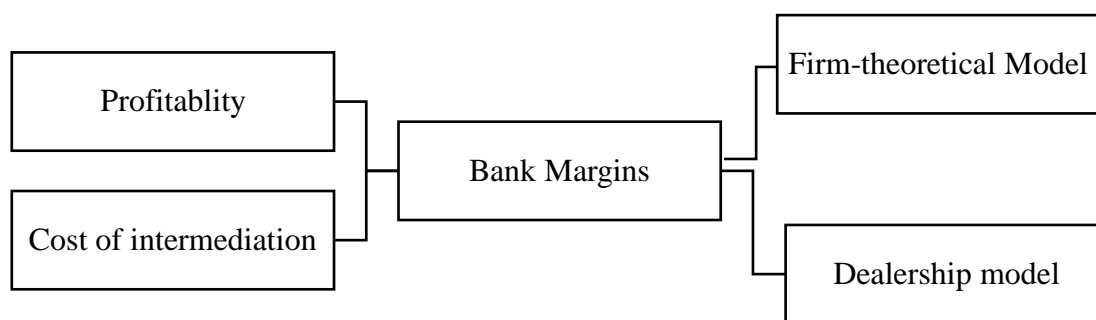


Figure 2.1: Theoretical model of bank margins

2.3.1.1 Firm-theoretical Model

The firm-theoretical model is known as the deposit rate-setting model of banks' behaviour. Klein's (1971) and Monti's (1972) work were the earliest references on banks' interest rate setting behaviour. Monti and Klein's model proposes that banks maximize profits by setting the loan and deposit markets price Klein (1971) states that any banking firm model must explain the process that determines the price charged for the deposits. The model views the banking firm in a static setting where demands and supplies of deposits and loans are assumed to be set by banks simultaneously.

Few researchers have extended the Monti and Klein's model for estimating the bank spread. First, Zarruk (1989) extends the model by introducing a model of the optimal spread between loans and deposits under uncertainty and risk aversion. In the model, the bank becomes a rate setter in the loan market, which follows Monti and Klein's model, and a new variable, the rate of interest on deposits, is introduced. The risk aversion coefficient indicates that banks that operate with a smaller spread than the risk-neutral banks have a greater size or scale of operation for risk aversion cases. Then, Wong (1997) extends the banking firm model under multiple sources of uncertainty and risk aversion, which are credit and interest rate risk as well as the