The Dynamics of Bank Business Models in the ASEAN Banking Sector

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Chapter 1

Introduction

1.1. Background

Bank business models have become a popular topic, particularly after the global crisis of 2007/2008 in which the banking industry is believed to have played a significant role in the onset of the crisis. Prior to the crisis, there was a rapid shift from a traditional banking business model to a more complex model. In the former model, banks provide loans to firms or individuals and hold these loans in their balance sheets until maturity. This practice is called an "originate-to-hold" model (Ayadi et al., 2016; Llewellyn, 2013). In this model, banks have a higher incentive to manage their credit risk because it is attached to their own balance sheets.

The exponential development in financial innovations, however, has had a significant impact on the banking industry, particularly with regard to credit risk derivatives which are designed to transfer credit risk from the loan to the originator. For example, banks can use securitization to increase their liquidity and to transfer their credit risk to external parties by pooling assets (particularly, loans) and repackaging these assets into interest-bearing securities. The purchasers of the securities, instead of the banks, receive the interest and principal payments from the assets (Jobst, 2008). Accordingly, this activity stimulates a certain moral hazard in the banking sector because banks have less incentives in allocating their credit risk when they select clients since the banks do not bear the risk anymore. This phenomenon has generated a new business model—what is called the "originate-to-distribute" model (Bord and Santos, 2012). Moreover, banks have become more prone to excessive risk-taking without adequate capital and liquidity buffers, specifically, the later issue was not addressed in the Basel regulation prior the global recession.

Another shift in bank business models has been documented by van Ewijk and Arnold (2014): banks have changed their traditional relationship-oriented model (ROM), which is based on deposits and loans, to a transaction-oriented model (TOM), which is based on securities and money-market funding. This transforms the banking system into a more market-centric structure; it means that the banks and the financial markets are more integrated (Boot and Thakor, 2009).

The negative implication of this shift is that if there is a shock in the financial market, the effects can spread to the banking sector immediately (or vice versa). The financial crisis of 2007/2008 can be regarded as evidence of this. Triggered by the collapse of the giant US investment bank Lehman Brothers in 2008, the crisis spread to all the financial sectors—even to the worldwide financial system, thereby creating a global recession. Since then, the banking sector have adjusted their business model again by shifting back to a traditional banking business model (Ayadi et al., 2016; Llewellyn, 2013). In contrast, acknowledging the rapid changes in the banking industries, the financial authorities have also worked extremely diligently to maintain financial stability in the sectors through prudent regulations. In this regard, one can observe how the Basel committee is continuing to improve the Basel frameworks so as to address all these issues.

Therefore, one can observe that the business model in the banking industry has been evolving over time as a response to external and internal pressures. These pressures include the structural changes in the financial system and financial markets, macroeconomic conditions, regional or local banking regulations, competition in banking sectors, financial innovations, technological developments, and business objectives of banks (Llewellyn, 2013). This shift has caused significant changes in the shape of the banking industry; however, it should be noted that all these changes are occurring in developed countries which have a mature financial system and advanced financial markets. It is still not known to what extent the evolution in bank business models and the effects of this change have been applied to developing countries.

1.2. Problem Statement

The bank business model has been evolving, and the impact of this evolution in the banking sector, specifically in advanced economies, is evident. External

and internal factors have been identified as the drivers for this evolution. In contrast, it is still unclear whether the same determinants affect business models in developing countries. Moreover, there is a lack of information about the impact of business models on banking stability and performance in emerging countries. Accordingly, the problem addressed in this study concerns what factors are affecting the dynamics of the bank business model and what the implications of this evolution are for the banking industry in the emerging market that is represented by ASEAN (the Association of Southeast Asian Nations).

1.3. Aims and Objectives of the Study

The purpose of this study is to investigate the determinants of the evolution of business models in the banking industry and the effects of this change on banking stability and performance in ASEAN.

The following are the objectives of this study:

1. To review the literature in order to construct the evolution process of business models in the banking industry.
2. To examine banking market power and its relationship to the evolution of bank business models.
3. To investigate the impact of banking regulation on bank business models.
4. To analyze the relationship between banks' business objectives and the dynamics of bank business models.
5. To explore the impact of bank business models on banking performance and stability.
6. To compare Islamic bank and conventional bank business models with respect to banking efficiency and performance.

On the basis of these objectives, the originality of this research can be justified in to two main contributions: conceptual and methodological aspects. The following are the conceptual contributions: First, this study provides the explanation about the relationship between banks' external factors (market power and banking regulation) and bank business models. Second, this thesis shows the link between the objective of cost minimization as internal factor and business model transitions in the banking industry. Furthermore, with respect to the methodological elements, the following are the contributions: First, the

research elaborate three different business model proxies for the analysis. Second, the study use difference-in-differences (DD) analysis for evaluating the impact of business models. Third, this thesis applies reduced k-means clustering for defining the type of business models in the banking industry. Fourth, with respect to the specific context of the ASEAN banking sector, there has been no prior study which examines the relationship of bank business models and banking efficiency by using both non-parametric and parametric measures.

1.4. Context of the Study

ASEAN was founded in 1967 by 5 emerging countries and has since grown to include 10 members: Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei, Vietnam, Laos, Myanmar, and Cambodia (the first five countries listed were the founding nations). Almekinders et al. (2015) have stated that ASEAN countries are characterized by a young and growing population with a high-saving rate; however, in order to advance urbanization and increase connectivity within the region, these countries require large investments. Figure 1.1 describes the significance of ASEAN member states in their regional context based on GDP (Gross Domestic Product) measure.

After the ASEAN Free Trade Area (AFTA) was announced in 1993, the organization declared its commitment in January 2007 to the creation of the ASEAN Economic Community (AEC) by 2015—with the aims to create a single-market window as a highly integrated and cohesive economy. The primary objective of a highly integrated and cohesive economy "is to facilitate the seamless movement of goods, services, investment, capital, and skilled labor within ASEAN in order to enhance ASEAN's trade and production networks, as well as to establish a more unified market for its firms and consumers" (ASEAN, 2015). Figure 1.2 explains the consequences of ASEAN's single market and production base.

Figure 1.1 GDP comparison of ASEAN and its regional neighbors

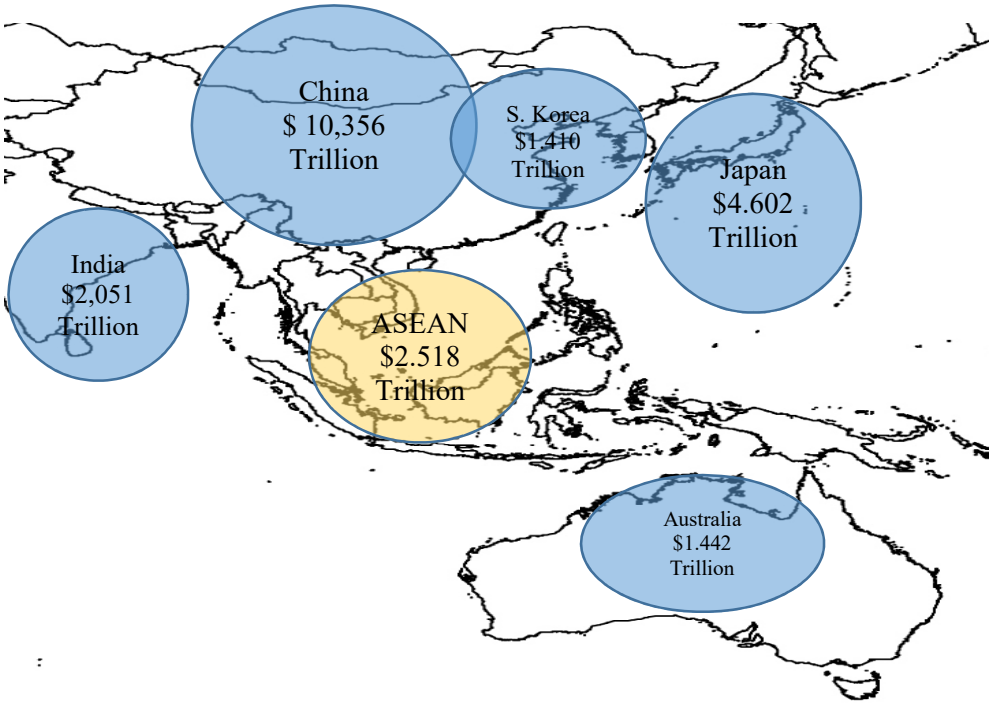
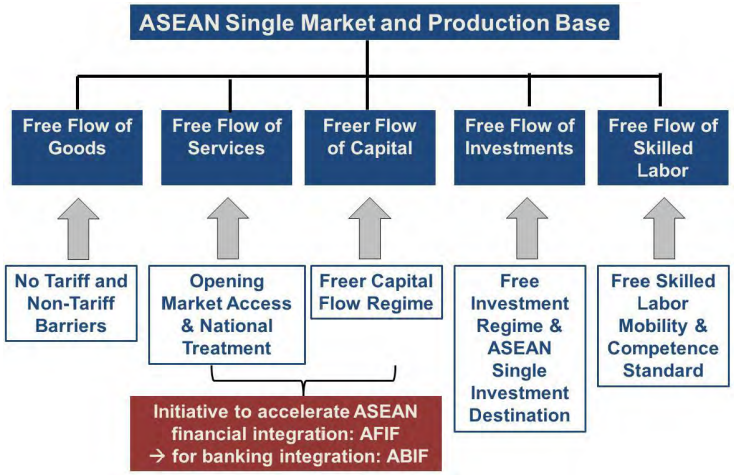
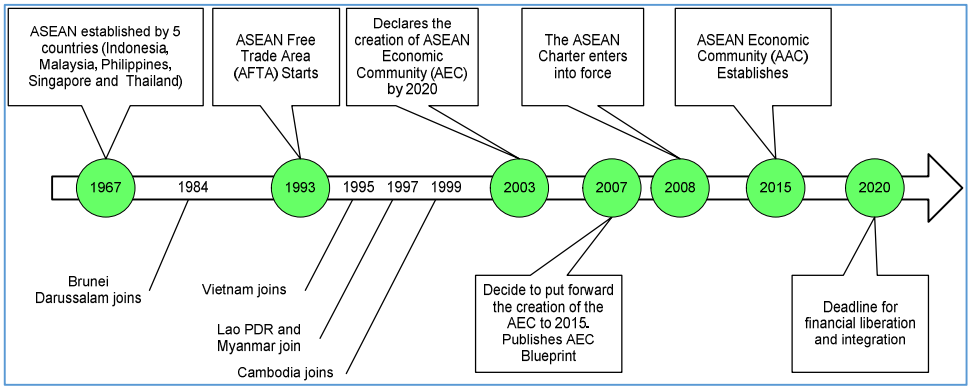


Figure 1.2 ASEAN single market and production base



Accordingly, this declaration led to structural changes in the related sectors in ASEAN countries such as trade, the capital market, banking, and insurance. Particularly in the banking industry, in order to accomplish financial integration, the AEC agreement aimed to ensure its members carried out liberalization in their banking industries: "financial liberalization will be undertaken with greater regulatory cohesiveness to keep requirements for regulatory compliance to a minimum to reduce costs, while remaining prudent" (ASEAN, 2015). Figure 1.3 describes the ASEAN evolution into financial liberalization and integration.

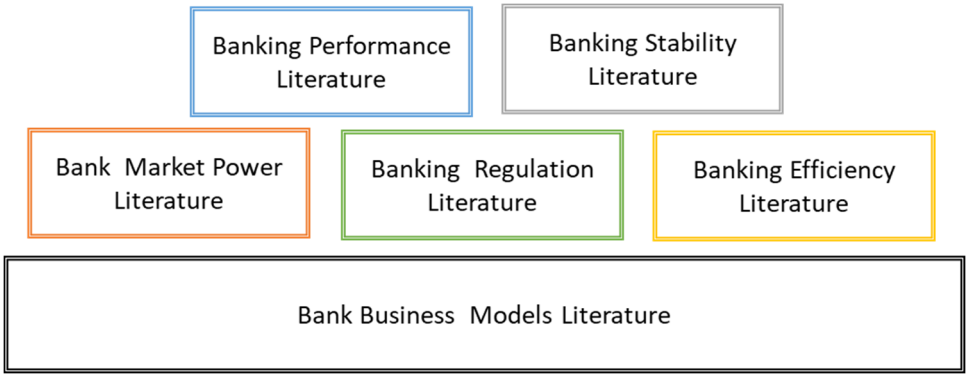
Figure 1.3 ASEAN regional economic integration stages



1.5. Literature Review Framework

This thesis is based on scholarship pertaining to the bank business model. The subsequent literature is related to factors that affect bank business models. In this study, the focus is on bank market power and banking regulation as external factors and banking efficiency as an internal factor that affect bank business models. With respect to the impact of bank business models, the literature survey was extended to the effects of bank business models on bank performance and stability. Figure 1.4 illustrates the empirical review framework of this study.

Figure 1.4 Literature review framework



1.6. Research Questions

The thesis consists of two primary research questions:

1. *How do external and internal factors influence bank business models*?
2. *What are the effects of the dynamics of bank business models on banking stability and performance*?

These research questions are breakdown into more specific research questions in each chapter. Chapter 2 provides basic questions about the bank business models and the contextual relevance of the research. Next, Chapter 3 and 4 are related to the first primary research question with respect to the question about external factors that affect business models. Meanwhile, Chapter 5 is related to the question about internal factors that influence bank business models decisions. Regarding the second primary question about the effects bank business models are addressed in Chapter 3 and 5. In addition, Chapter 5 also provides question about Islamic bank business models. Following are the research questions for each chapter:

Chapter 2: How has the concept of bank business models evolved?
Has the banking industry in emerging countries changed?

Chapter 3: Does bank market power influence bank business models?
What is the relationship between bank business models and banking stability and performance?

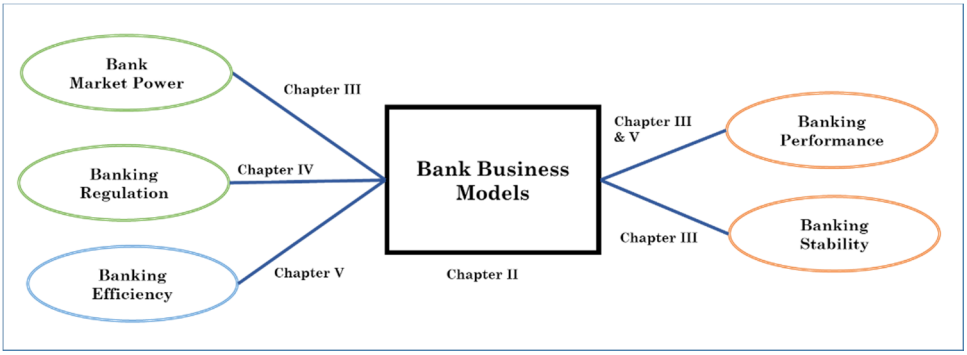
Chapter 4: To what extent does banking regulation affect bank business models?

Chapter 5: What is the relationship between banking efficiency and bank business model transitions?
Do Islamic banks business models differ from conventional banks in terms of efficiency and performance?

1.7. Research Design

In order to address the objectives based on the literature review, the design of this research is based upon the following framework:

Figure 1.5 The framework of the research design



1.8. Data and Research Methodology

1.8.1. Data Collection

In selecting appropriate data, banking sectors in ASEAN member states were chosen for the sample. This sample was chosen at least for several reasons. First, there is limited research into banking business models in emerging economies. Thus, there is a lack of understanding with regard to less developed financial markets in developing countries and their link to bank business models. It should be noted that the data collection excluded Singapore because this country is categorized as an advanced country, and this could lead to a bias in the results. Second, after the Asian financial crisis of 1998/1999, most of the financial authorities in those ASEAN countries affected by this crisis had encouraged the banking industry to favor consolidation; nevertheless, this action also brought new concentration levels in the banking industry. Third, ASEAN

initiated the ASEAN Economic Community (AEC) in 2015, and one of its aims is to create a more integrated banking industry. This commitment significantly impacts banking regulation and structures in this region (see ASEAN Economic Blue Print, 2015). Each country is trying to prepare their top-ranked banks for competition by creating strong state banks in terms of assets and by performing mergers and acquisitions. The last two reasons are expected to give a more detailed picture into the dynamic of market power in the region. In addition, the increase of regulatory concerns and banking structures from limited to more liberalized forms and from low to higher concentration enables banking competition to be stronger and encourages ASEAN banks to adjust their business model strategies as well. Furthermore, the ASEAN integration on the banking industry provides an assumption of homogeneity in the region. This assumption is a necessary for the empirical models in Chapter 4 and Chapter 5.

The empirical investigation in this study was accomplished by using a data panel from unconsolidated balance sheets and income statements from the Bankscope-Bureau Van Dijk database for the period 2002–2015. This panel data consists of commercial, investment, mortgage, saving and Islamic banks. Both listed and unlisted banks were considered in the sample. Meanwhile, the common variables for countries were collected from world development indicator of the World Bank, world development indicator of the International Monetary Fund (IMF), from central banks in ASEAN countries, and from heritage foundations. In the first stage of data collection, the banking data from the ten ASEAN member states was gathered, which resulted in 489 banking sample with 3440 observations; however, it should be noted that there are missing data and outliers in the sample. Therefore, in the next stage, data filtering was performed to screen the data.

However, the application of the data in the study depends on the objectives of each empirical investigation as well as the methodology employed. In Chapter 3 and Chapter 5, all the sample data for the analysis is used, while for Chapter 4 the data is restricted to 2002–2012.

In addition, in some cases, Eurozone banking sectors datasets are used if it is necessary to make data comparisons to more advanced economies. The Eurozone banking sectors datasets consist of 11 countries: Austria, Belgium, France, Germany, Italy, Latvia, Luxembourg, Netherlands, Portugal, Slovakia, and Spain.

1.8.2. Methodology

The empirical investigation for the bank business models is constructed by using three different proxies: income and funding activities (Demirgüç-Kunt and Huizinga, 2010; Köhler, 2015); banks' diversification indexes (Curi et al., 2015; Elsas et al., 2010); and multidimensional approaches by using reduced k-mean clustering (De Soete and Carroll, 1994). In Chapter 3, the income and funding activities is applied to calibrate the business model so as to examine the relationship between bank market power and banking business models as well as the impact of banking business models on banking stability and performance. In the calibration of the market power, the Lerner index (Berger et al., 2009; Turk Ariss, 2010) is used for the measure. For the banking stability measure, the Z-index, risk-adjusted return on equity (RROE), and risk-adjusted return on assets (RROA) are used as proxies (see Köhler, 2015); meanwhile, for banking performance, the standard performance measures of return on equity (ROE) and return on assets (ROA) are used. In the estimation procedure, the fixed effects model is used for the unbalanced panel data. Furthermore, to account for the endogeneity problem, the system generalized method of moments (system GMM) is incorporated into the analysis (Arellano and Bover, 1995; Blundell and Bond, 1998). In the analysis for Chapter 3, all the bank sample data is used; this comprises 278 banks and 1968 observations from 2002 to 2015.

In Chapter 4, the bank diversification index is used as a business model proxy for our examination (Curi et al., 2015; Elsas et al., 2010). Difference-in-differences estimation from Besley and Burgess (2004) as well as Imbens and Wooldrige (2007) are used to investigate the impact of banking regulations on business models in the banking sector. The impact of the adoption of the Basel II framework in the ASEAN region is analyzed. In this study, the Cambodian and Vietnamese banking sectors are used as control groups (the countries which have not adopted the Basel II framework), while for the treated groups, the banking sectors of Indonesia, Malaysia, the Philippines, and Thailand are used (the countries which have implemented the Basel II framework). The study period for this empirical investigation is 2002–2012.

In Chapter 5, a multidimensional business model proxy is performed by using reduced k-means clustering (see De Soete and Carroll, 1994); this allows one to perform clustering and dimensional reduction simultaneously. For the

banks' business objectives, cost efficiency and return on equity (ROE) are used as measures. For the banking cost efficiency, non-parametric and parametric approaches are used for developing the cost-efficiency scores. Data envelopment analysis (DEA) is selected for the non-parametric approach, while for the parametric approach stochastic frontier analysis (SFA) is used (Casu et al., 2004; Resti, 1997; Vander Vennet, 2002; Weill, 2004). In estimating the association between banking efficiency and bank business models, the multinomial logistic regression model is employed. In this empirical examination, the unbalanced panel data from 2002 to 2015 is employed.

1.9. Thesis Structure

The organization of the thesis is as follows:

Chapter 2 – A Literature Survey on Bank Business Models and ASEAN Banking Industry

In Chapter 2, the first section provides a thorough review of literature that is related to banking business models. The review starts with the conceptual evolution of bank business models from the strategic group hypothesis to the business model based on banking activities. This first section also describes the types of bank business models in the existing literature. The second section of this chapter describes the development of banking sectors in ASEAN region.

Chapter 3 – Empirical Evidence on the Market Power, Business Models, and Banking Stability and Performance in the ASEAN Countries.

This chapter investigates the association of market power on banking business models to understand how the market structure could affect the behavior of business models in the ASEAN region. The analysis follows the work of Köhler (2015) for the business model definition, wherein income and funding activities represent bank business models.

Chapter 4 – The Implication of Banking Regulation on Bank Business Models: The Case of ASEAN banking industry

This Chapter focuses on the impact of banking regulations on the bank business models and banking stability in the ASEAN banking sectors. The focus

is on the implications for the adoption of the Basel II framework in the banking sectors in developing countries.

Chapter 5 – The Dynamics of Bank Business Model Transitions and Efficiency: Empirical Evidence from ASEAN Banking Sector

This chapter sheds light on whether a particular business model is superior to others. Evidence is also provided that the transitions of business models in the banking sectors are associated with the chosen banks' business objectives.

Chapter 6

Conclusion and Limitations

6.1. Conclusion

This chapter contains a summary of the conclusions and main findings of this study and discusses its limitations. The bank business model and its related topics have been widely studied by researchers over the past decade—especially after the onset of the global crisis in 2007/2008. Recent interest has focused on the advanced economies such as US banking markets and European banking systems. Nevertheless, to the best of our knowledge, no empirical work to date has been undertaken that relates to the study of bank business models in emerging economies.

This thesis has, therefore, aimed to fill this gap by investigating the external and internal factors that affect bank business models as well as the impact of bank business models on banking performance and stability in the ASEAN banking industry. The bank business models are measured using three different proxies: (1) the combination of non-interest income share and non-deposit short-term funding share; (2) the banking diversification index; and (3) a multidimensional measure using reduced k-mean clustering. We use data from the banking sectors of six ASEAN member states, in the period 2002–2015.

The general findings of this thesis are as follows. Firstly, we find strong evidence that external factors and internal factors affect bank business models in the ASEAN banking sectors to a significant degree. In this thesis, we focus on two external factors—market power and banking regulation—and one internal factor—cost minimization as banks' business objectives—. With respect to market power, it is found that banks with higher market power tend to diversify their income channels and funding resources rather than using interest-based income and customer deposit funds. This study also shows that bank income

structure is affected by international banking regulation. For the internal factor, this study finds that there is significant evidence that banks' business objectives drive the dynamics of business model transitions in the banking industry. Secondly, regarding the impact of business models on performance and stability, this study concludes that diversifying bank income structure increases banking stability and profitability. Each chapter in this thesis can be summarized in more detail as follows:

In Chapter 3, the relationship between market power and bank business model is investigated by decomposing bank business model in the more detailed banking accounts. We find that banks with strong capitalization are capable of translating their market power so as to generate profit by diversifying their income from non-interest income activities. This chapter shows that in the ASEAN region, banks with strong market power tend to use trading and derivatives as alternatives to interest-based activities. The reason for this is that the financial authorities do not require them to reserve more capital in these activities since this was not an obligation in either Basel I or Basel II before the global financial crisis.

With regard to bank funding, the findings of this study show that banks that possess market power are associated with higher funding sources from deposits from banks and non-deposit short-term funding. In this setting, an escalation in market power increases incentives for banks to establish long-term relationship with new creditors and this relationship could create higher funding for the banks. Banks' capacity to lend and invest may be higher in lower competition environments because less competitive market reduces the possibility that banks can recover the cost involved in the building and nurturing long-term relationship with the creditors.

Related to banking stability, this study finds evidence that in the ASEAN banking sector, non-interest income increases banking stability. This finding corresponds to the fact that the ASEAN banking sectors are dominated by the retail-oriented banks. They rely heavily on interest income, therefore diversifying their income into non-interest income might benefit them.

In Chapter 4, the effects of the Basel II regulation on the banking business model in ASEAN member states are highlighted. By performing difference-in-difference analyses, this study finds that the banking business models are affected

by the adoption of Basel framework; however, not all of the facets of business models are influenced. Our findings show that the Basel framework only impacts the income diversification. Under Basel II regimes, banks tend to diversify their income to non-interest-based activities because these business model activities do not require the banks to hold any additional regulatory capital.

On the other hand, we find no evidence for its impact on the two other measures (funding and assets diversification). The funding diversification index is not affected by the implementation of Basel II is because the banking sectors in the ASEAN region rely on the customer deposit as the traditional funding sources. It is supported by the fact that most of banks in the ASEAN region focus on the retail sector. Regarding the assets diversification which is not affected by the Basel II, it is because the share of assets that changes from traditional earning assets to non-traditional assets are relatively small.

In Chapter 5, the relationship between bank business models and banking efficiency is evaluated. Three distinct business models are identified: namely, the retail bank, the investment bank, and the wholesale-funded bank. Our findings also show that the retail bank model is superior compared to two other business models based on the cost efficiency scores.

Related to the fast-growing business model in the region—namely, Islamic banks—this type of model enjoys a higher cost efficiency but is less profitable when compared to conventional banks. Most Islamic banks benefit from sharing operations with the parent company and thereby minimizing costs. This strategy suppresses the cost of physical capital for Islamic banks. Furthermore, in the ASEAN region, Islamic banks have a lower labor cost than conventional banks. These factors contribute to the greater efficiency of Islamic banks relative to conventional banks. However, the poor quality of asset in Islamic banks prevent to gain higher profitability due to bank focus on reducing bad loans rather than increasing growth.

With respect to the dynamic transitions of bank business models, our findings reveal that cost minimization as a bank business objective is significantly associated with business model transitions. From an economic perspective, our findings imply that banks shift to traditional activities to achieved cost minimization. Therefore, if banks focus on the traditional activities that they do best, they can presumably achieve their objective of minimizing costs.

6.2. Limitations

This study has been conducted within certain boundaries that naturally limit the analysis. The analysis is based on the ASEAN member states as a representation of developing countries and regional economic integration; conversely, it must be pointed out that there are many developing countries in other continents that are also undergoing regional economic integrations. Further study could, thus, be carried out to improve the robustness of the analysis by increasing the number of sample countries that perform regional economic integration: for example, in Africa, Central European countries, or in South America.

Regarding the bank sample types, this thesis has been focused only on the classification types based on the Bankscope database categorization. Meanwhile, not all bank types in the ASEAN countries are recognized by this database such as cooperative banks in the Philippines or rural banks in Indonesia and Philippines. Moreover, our banking sample was dominated by the commercial banks because the other types of bank in Bankscope database are limited. A further investigation using all the types of banks in the region may increase the robustness of the research analysis.

Another limitation lies in the definition of bank market power in Chapter 3. Our empirical study uses the Lerner index for the proxy of market power that only considers price and marginal cost, while the ideal market power is also determined by market entry/exit barriers, heterogeneous banking product/services, market imperfection (asymmetry/incomplete information), and many other aspects. Accordingly, future research should address this issue to attain more precise measures of bank market power.

In Chapter 3 and Chapter 4, we employs fixed effect methods using mean-deviated regression models which is provided in the STATA 14 program that we use for the analysis. This methods account for controlling individual heterogeneity (to cope "omitted variables" problem) due to our sample depart from multi country banking sectors (Baltagi, 2005). However, this method has a disadvantages such as in the process of removing the individual effects, the transformation also removing all time invariant variables in the models, including

country and bank type variable. It means that the deeper analysis cannot be performed regarding these variables.

In Chapter 5, we use the cross country frontier to estimate the cost efficiency score by assuming that all countries have the same production technology in their banking sectors. This assumption neglects the fact that each country could have different types of production function. However, the limitation on the banking data and the SFA method that we use in this study prevent us to conduct the calculation of efficiency scores using countries production frontier.

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