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ภาคการเงินกับการพัฒนาเศรษฐกิจที่สมดุลและยั่งยืน

Financing Thailand for Balanced and Sustainable Growth

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สายกำกับสถาบันการเงิน และ สายนโยบายการเงิน

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บทคัดย่อ

ข้อคิดเห็นที่ปรากฏในบทความนี้เป็นความเห็นของผู้เขียน ซึ่งไม่จำเป็นต้องสอดคล้องกับความเห็นของธนาคารแห่งประเทศไทย

ในทศวรรษหน้า เอเชียมีแนวโน้มจะกลายเป็นศูนย์กลางการขับเคลื่อนเศรษฐกิจโลก โดยไทยจะต้องเผชิญกับความท้าทายและโอกาสจากสภาพแวดล้อมใหม่ การแข่งขันระหว่างประเทศจะเข้มข้นขึ้น ด้านภาคเศรษฐกิจจริง ไทยอาจต้องหันมาพึ่งพาเศรษฐกิจในภูมิภาคและเศรษฐกิจในประเทศเพิ่มขึ้น ส่วนภาคการเงินไทยต้องรับมือการแข่งขันทั้งจากภายในและภายนอก รวมทั้งเงินทุนเคลื่อนย้ายที่ไหลเข้าสู่ภูมิภาคมากขึ้น

ภายใต้การเปลี่ยนแปลงดังกล่าว บทความนี้จึงศึกษาเพื่อตอบคำถามว่า ประเทศไทยควรทำอย่างไรเพื่อให้สถาบันการเงินไทยพร้อมรับมือสภาพแวดล้อมใหม่และสามารถเป็นแรงขับเคลื่อนเศรษฐกิจจริง เพื่อสนับสนุนการเจริญเติบโต ยกระดับการพัฒนาประเทศ และเป็นระบบการเงินที่มีเสถียรภาพ

จากการศึกษา บทความนี้พบว่ามีความจำเป็นที่ไทยควรเร่งดำเนินการ คือ (1) การส่งเสริมให้มีการแข่งขันในระบบสถาบันการเงินไทยเพิ่มขึ้น เพื่อให้ระบบโดยรวมมีต้นทุนในการดำเนินงานลดลง (2) การขจัดอุปสรรคการเข้าถึงแหล่งเงินทุนของธุรกิจขนาดกลางและขนาดย่อม หรือ SMEs (3) การพัฒนาโครงสร้างพื้นฐานที่เอื้อต่อการทำหน้าที่ตัวกลางทางการเงินของสถาบันการเงิน ซึ่งแนวทางข้างต้นนี้ได้กล่าวถึงไว้ในแผนพัฒนาสถาบันการเงินระยะที่สองแล้ว การดำเนินการตามแผนฯ ดังกล่าวจำเป็นต้องอาศัยความร่วมมือจากหน่วยงานที่เกี่ยวข้องทั้งภาครัฐและเอกชนในการผลักดันให้ปฏิบัติตามแผนฯ อย่างเป็นรูปธรรม ซึ่งมีความสำคัญอย่างยิ่งต่อการพัฒนาเศรษฐกิจให้เจริญเติบโตอย่างสมดุลและยั่งยืน

* ผู้เขียนขอขอบคุณผู้บริหารของสายนโยบายการเงิน สายนโยบายสถาบันการเงิน และสายกำกับสถาบันการเงินที่ได้ให้ความรู้ ข้อคิดเห็นและคำแนะนำที่เป็นประโยชน์อย่างสูงต่อบทความ โดยเฉพาะอย่างยิ่ง คุณบัณฑิต นิจถาวร คุณไพบุลย์ กิตติศรีกังวาน คุณจาตุรงค์ จันทวังษ์ และคุณทินันท์ มัลลิกะมาส ที่ได้ให้คำแนะนำที่เป็นประโยชน์อย่างมาก ซึ่งมีส่วนช่วยทำให้บทความมีความสมบูรณ์ยิ่งขึ้น นอกจากนี้ ผู้เขียนยังได้รับความอนุเคราะห์ด้านข้อมูลจาก คุณอนุชิต พำมิตินนท์ คุณอัจฉรา ตั้งวิรุฬห์ และคุณณัฐนันท์ ลิ้มสุขนิรันดร์

บทสรุปสำหรับผู้บริหาร

ท่ามกลางสภาพแวดล้อมทางเศรษฐกิจที่เปลี่ยนแปลง เอเชียมีแนวโน้มก้าวขึ้นเป็นศูนย์กลางการขับเคลื่อนเศรษฐกิจโลก ไทยจะต้องเผชิญความท้าทายต่างๆ ทั้งแรงกดดันจากการแข่งขันระหว่างประเทศ กอปรกับแนวโน้มที่ไทยอาจต้องพึ่งพาเศรษฐกิจในประเทศและเศรษฐกิจในภูมิภาคมากขึ้น รวมทั้งเงินทุนไหลเข้าที่จะส่งผลกระทบต่อเสถียรภาพเศรษฐกิจ ภายใต้บริบทดังกล่าว โจทย์สำคัญคือ ไทยจะรับมือความท้าทายนี้และเปลี่ยนให้เป็นโอกาสในการพัฒนาเศรษฐกิจได้อย่างไร โดยอาศัยความมีประสิทธิภาพของระบบสถาบันการเงินในการสนับสนุนภาคเศรษฐกิจจริง

ระบบสถาบันการเงินไทยได้มีพัฒนาการอย่างต่อเนื่องหลังวิกฤตเศรษฐกิจในปี 2540 ซึ่งได้มีการประกาศใช้แผนพัฒนาระบบสถาบันการเงินฉบับแรก ส่งผลให้มีการควบรวมกิจการและการกำกับดูแลระบบที่มุ่งเน้นเรื่องการบริหารความเสี่ยง อีกทั้งยังมีผู้เล่นจากต่างประเทศเข้ามาในตลาดมากขึ้นเช่นกัน ระบบสถาบันการเงินไทยที่มีความแข็งแกร่งมากขึ้นส่งผลให้เศรษฐกิจได้รับผลกระทบจากวิกฤตการเงินโลกในปี 2551 ไม่มากและฟื้นตัวได้เร็วกว่ากลุ่มประเทศพัฒนาแล้ว

อย่างไรก็ตาม เมื่อพิจารณาในระดับภูมิภาค แม้ระบบสถาบันการเงินไทยจะก้าวหน้าอินโดนีเซียและฟิลิปปินส์ แต่ยังคงตามหลังสิงคโปร์และมาเลเซีย ซึ่งการศึกษาในรายละเอียดพบว่าต้นทุนในระบบสถาบันการเงินไทยยังอยู่ในระดับสูง จะเห็นได้ว่า แม้ไทยมีระดับรายได้จากดอกเบี้ยสุทธิที่ค่อนข้างสูง แต่กลับมีกำไรต่อสินทรัพย์ที่ต่ำ สะท้อนว่าค่าใช้จ่ายในการดำเนินงานอยู่ในระดับสูง ซึ่งสอดคล้องกับการวิเคราะห์โดยใช้แนวคิด Risk-Adjusted Return on Capital (RAROC) ที่บ่งชี้ว่าสถาบันการเงินไทยมีต้นทุนการดำเนินงานและค่าเผื่อความเสียหายจากการปล่อยสินเชื่อ¹ ที่สูง นอกจากนี้ ยังมีอุปสรรคที่ทำให้ระบบสถาบันการเงินไม่สามารถส่งผ่านเงินทุนให้ภาคเศรษฐกิจจริงได้อย่างเต็มประสิทธิภาพ

ระบบสถาบันการเงินยังมีจุดอ่อนด้านการเข้าถึงบริการทางการเงินของภาคธุรกิจ โดยกลุ่มธุรกิจขนาดกลางและขนาดย่อม หรือ SMEs ซึ่งเป็นหัวใจสำคัญในการขับเคลื่อนเศรษฐกิจไทยทั้งในแง่การสร้างมูลค่าเพิ่มและด้านการจ้างงาน กลับสูญเสียความสามารถในการแข่งขันกับธุรกิจขนาดใหญ่ เนื่องจากประสบความลำบากในการเข้าถึงแหล่งเงินทุน จากการวิเคราะห์ฐานข้อมูลงบการเงินธุรกิจจากกระทรวงพาณิชย์ พบว่า ธุรกิจขนาดเล็กและธุรกิจที่เพิ่งเริ่มดำเนินการจะประสบปัญหาดังกล่าวมากกว่า เนื่องจากมีผลการดำเนินการที่ไม่ดีเท่ากลุ่มธุรกิจขนาดใหญ่ ผลจากการศึกษาเศรษฐกิจพบเช่นกันว่า กลุ่มธุรกิจที่ดำเนินการนานกว่า มีการกู้ยืมและมีหลักประกันที่ดี จะสามารถขอเพิ่มวงเงินกู้ได้ง่ายกว่า ผลการศึกษาแสดงว่ายังมีความเหลื่อมล้ำในการให้บริการทางการเงิน ซึ่งถือเป็นอุปสรรคสำคัญต่อการเจริญเติบโตทางเศรษฐกิจที่สมดุลและยั่งยืน และควรได้รับการแก้ไข

¹ Expected Loss

บทวิจยนี้ไดเสนอแนวทางการแกไขและพัฒนาาระบบการเงินไทยใหพรอมรับมือความททายในอนาคต โดยมีสามประเด็นหลักคือ (1) ความมีประสิทธิภาพ (2) การบริการทางการเงินที่ครอบคลุมและ (3) การพัฒนาโครงสร้างพื้นฐานทางการเงิน

การพัฒนาประสิทธิภาพของระบบสถาบันการเงินเป็นสิ่งสำคัญที่จะช่วยลดต้นทุนทางการเงินและสงเสริมการเข้าถึงบริการทางการเงินโดยเฉพาะกับกลุ่ม SMEs หากธนาคารพาณิชย์มีต้นทุนที่สูงจะสงผลให้ส่วนต่างอัตราดอกเบี้ยกวางขึ้น แนวทางที่อาจลดต้นทุนได้แก การสงเสริมการควมรวมกิจการเพื่อใหได้การประหยัดจากขนาด (Economies of Scale) และการลดค่าเผื่อความเสียหายจากการปล่อยสินเชื่อ

การบริการทางการเงินที่ครอบคลุมมีส่วนสนับสนุนการเจริญเติบโตทางเศรษฐกิจที่สมดุล การขจัดอุปสรรคในการเข้าถึงแหล่งเงินทุนของภาคธุรกิจจึงเป็นสิ่งจำเป็นที่ต้องแกไข โดยตองกำจัดความล้มเหลว (Market Failures) ในตลาดสินเชื่อ เช่น สงเสริมใหมีความต่อเนื่องในการประกันสินเชื่อ สงเสริมการพัฒนาข้อมูลสินเชื่อใหครอบคลุมทั้งภาคเศรษฐกิจทั้งในระบบและภาคเศรษฐกิจนอกระบบ และยกระดับใหมีความโปรงใสของข้อมูลเพื่อใหเป็นประโยชน์ต่อการประเมินความเสี่ยง ปรับปรุงสิทธิในการได้รับชำระหนี้และกฎเกณฑ์ต่างๆ เพื่อใหกระบวนการยุติธรรมเอื้อต่อการเจริญเติบโตทางเศรษฐกิจ และสงเสริมความร่วมมือจากภาครัฐและภาคเอกชน โดยภาครัฐตองมีส่วนช่วยประคับประคองและแนะนำภาคเอกชนในการดำเนินธุรกิจ

นอกจากนี้ ภาคการเงินที่มีความหลากหลาย แข็งแกร่ง สามารถรองรับความเสี่ยงได้ และมีความลึกจะสงเสริมให้ระบบการเงินสามารถสนับสนุนภาคเศรษฐกิจจริงได้อย่างมีประสิทธิภาพยิ่งขึ้น

การแกไขปัญหาและพัฒนาาระบบการเงินไทยทั้งมวลที่บทความนี้ได้เสนอไว้ เป็นเรื่องสำคัญที่ต้องเร่งทำ เพื่อให้ระบบการเงินไทยสามารถเปลี่ยนความททายให้เป็นโอกาสเพื่อยกระดับศักยภาพของประเทศ และสนับสนุนการเจริญเติบโตของเศรษฐกิจได้อย่างสมดุลและยั่งยืน

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Financing Thailand for Balanced and Sustainable Growth

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Abstract

The views expressed in this paper are those of the authors and do not necessarily represent those of the Bank of Thailand

As the global economic outlook remains uncertain, there is the need for Asia to step up and take a new position as the driving force of the world economy. This means that Thailand needs to adjust herself to the new challenges of increased bank competition, more capital inflows as well as more domestic funding needs.

The paper attempts to analyze and provide policy recommendations as to how to deal with the stated challenges and turn them into our advantages by means of efficiently utilizing the financial sector to finance the real sector in order to move the economy forward. Three possible policies worth considering are: (1) commercial banks should be more efficient by means of promoting competition (2) financial access and inclusiveness should be enhanced (3) lending infrastructure and the depth of the financial market should be improved. Although, the essence of these policies is addressed in the phase II of Financial Sector Master Plan, challenges remain as to how to implement them. Furthermore, the co-operation and commitment among concerned parties should not be taken lightly.

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Executive Summary

As the global economic outlook remains uncertain, Asia has to step up and take a new position as the next *growth center*. This new global growth model means that Thailand needs to have an appropriate strategic plan to move the economy forward amidst the changing global environment. The new challenges include more foreign competition and increased capital inflows. The important question is how to deal with these challenges and turn them into our advantages by efficiently utilizing the financial sector to better support the real economy in order to move the country forward.

The Thai banking sector has undergone significant transformation since the financial crisis in 1997. The changes include increased foreign penetration and better regulations and risk management system. The implementation of the financial sector master plan (FSMP) also leads to more competitive environment by creating a level-playing field and encouraging financial institutions to voluntarily undergo consolidation. These policies result in more efficient and resilient financial sector that has proved to be strong and resilient enough to weather the recent global financial crisis.

Although the Thai banking industry has been continually developing, it still performs only moderately well among peers in the region. It is found that the Thai banking system has a relatively high level of net interest margin but low rate of return on asset, suggesting that the operating cost and/or expected loss, as reflected by loan loss provision, may be high. Closer examination using the methodology of risk-adjusted return on capital (RAROC) confirms the hypothesis that banks have high operating cost as well as expected loss. Furthermore, there are some frictions in the system that prevents banks from efficiently intermediating funds to the economy.

For the real sectors, it is found that a large part of Thai firms lack access to credit. The SME sector, which is an important driving force of the Thai economy both in terms of growth and employment, is gradually losing its edges in the competition with larger enterprises due to insufficient access to finance. The financial analysis using data from the Ministry of Commerce confirms that small and start-up companies tend to have difficulty in obtaining credit as a result of poorer performance compared to larger corporations. The regression results also reveal that matured firms with good performance record, low leverage ratio, and sufficient collateral can expand credit limit, while firms with poor credit history receive less bank credit. To promote sustainable economic growth, no economic sector should be left behind especially the small- and medium-sized enterprises so that growth becomes more inclusive.

With the above challenges and the existing frictions, three areas need to be addressed, namely i) efficiency; ii) inclusiveness; and iii) lending infrastructure.

Improving efficiency is vital to reducing the funding cost. The paper finds that banks with high cost usually charge high interest spread. Two possible options to reduce cost are: consolidation (to increase economies of scale) and lower expected loss (which comprise default and recovery).

To achieve inclusive growth, we need to unlock the credit flow by eliminating market failures in credit markets. Specific areas related to SME financing are government-supported credit guarantee schemes on a continuous basis, enhancement of credit information of the credit bureau to include semi-formal and informal sectors, improvement on creditor's right, and public and private sector partnership. Government, in this regard, has a role to play in facilitating the private sector in the process of this experimentation and recovery.

Last but not least, the improvement of lending infrastructure can also help unlock the credit flow. The paper proposes the following three components: i) improving necessary legislations; ii) increasing transparency in credit information; and iii) enhancing financial depth and diversification in the system. These are issues that have been addressed in the Financial Sector Master Plan II.

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1. INTRODUCTION

As the Thai economy has picked up from the indirect unfavorable impact of the latest financial crisis, naturally, the next question to inquire is what should be our medium term plan to propel the economy forward amidst the changed global market structure and investment atmosphere. As Asian countries have seen improvements on their economic performances, the next implication of this development is the increase of capital inflow into the region where it was viewed as the main driver for the next phase of world economic development. The next question is, with the potential increase in capital and the appropriate investment strategies of firms, how we can employ the banks to unwind this imbalance through financing the real sector more efficiently.

Our paper then attempts to analyze and give policy options as to how we should take the changed financial landscape, potential increase in capital inflows and investment incentives and turn it into our best benefit by means of efficiently using the financial sector to finance the real sector in order to move the economy forward. Given the changed global financial landscape and potential capital inflows, we perceive that there are three possible key sets of policies worth considering: i) commercial banks in Thailand should advance towards being more competitive while the banking system should be more efficient; ii) financial access and inclusiveness should be enhanced; and iii) lending infrastructure and the depth of the financial market should be improved.

Given the projection that Asian is the next *growth center* and the new financial landscape, there are many opportunities for the Thai real sector as well as the banking sector. As the Financial Sector Master Plan II (FSMP II) is being implemented, there will be an increased role and entry of foreign banks in the system in the near future. This, together with an increase in capital inflow, means that Thai banks now will have

to be more competitive, efficient, and yet prudent, in utilizing this source of fund. In addition, banks should also extend their services to be more inclusive, as they can use this increase in funding and direct it to the business sector with the highest potential, with good risk management. This, in turn, will generate both profit for the banks and also encourage more investment and production in the sectors where Thailand has a competitive advantage.

Consequently, the sector which deserves much attention is the small and medium enterprises (SMEs) whose growth potential remains promising. Inclusiveness of SMEs can promote economic growth because SMEs can help drive domestic demand (as SMEs accounted for 38 percent of GDP) and increase employment (which SMEs hired about 77 percent of the total workforce)². Since SMEs have had problems obtaining funding from banks, our paper also identify, for each sector, the balance sheet characteristics of firms that *obtain more credit from banks* by means of performing fixed-effect panel data regression on the data set. This dataset is the first of its kind and came from combining the Bank of Thailand's DMS database containing the credit limit and credit classification with the Ministry of Commerce's firm registry balance sheet database. The analysis confirmed a popular belief that default history hurt the chance of getting more credit from banks while characteristics such as the age of firms, having collateral, having high net worth or profitability, had positive impact on credit limit increase. Hence, SMEs in each business sector can use the results as information to what characteristics of their business competitors enable them to obtain more credit from banks.

Finally, there is an existing friction in the lending infrastructure of the Thai financial system which can dampen the financing role of banks to the real sector. This involves three different aspects—legal framework, transparency of information and the depth of the financial system. The legal framework involves improving the

² Office of Small and Medium Enterprises Promotion (2010)

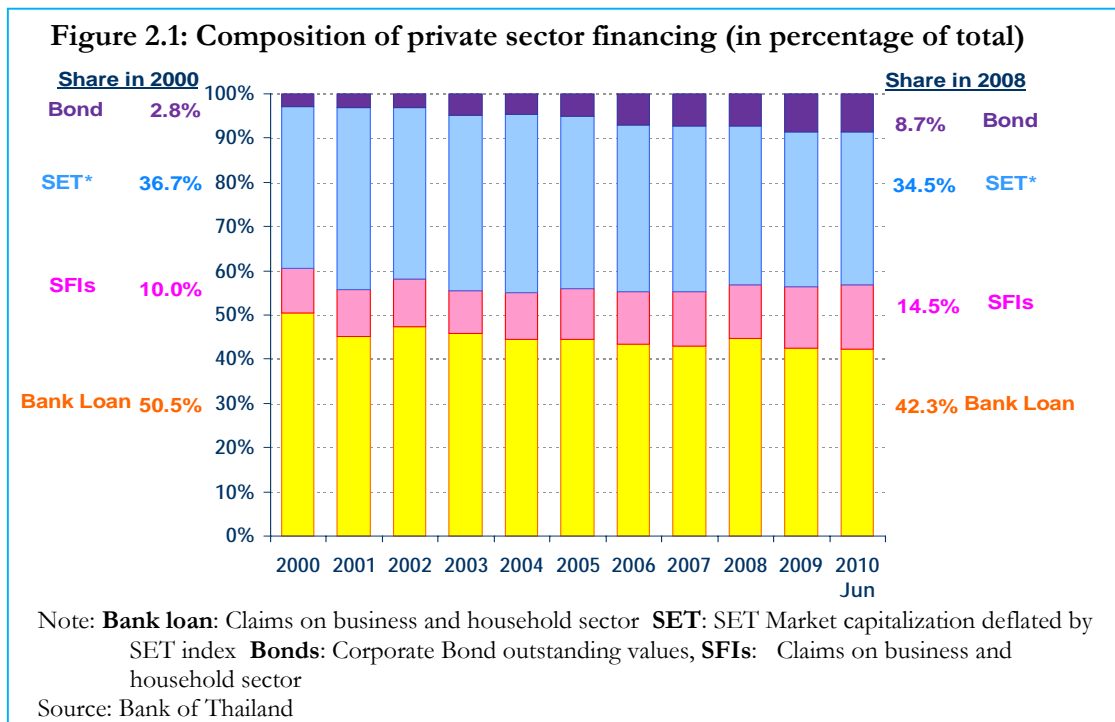
current legal process of settling business disputes and bankruptcy, as well as expanding the types of collateral which can be pledged at the loan application point. Transparency of information means that the role and coverage of credit bureau data should be enhanced and used more efficiently. Finally, enhancing the depth of the financial system can help facilitate lending better, since corporations will have more alternatives to invest. Foreign investment can facilitate the growth of the capital market, especially the equity and bond markets, thereby enhancing the depth and diversification of the financial system as a whole.

This paper is divided into six main sections. The first section provides the motivation and introduction of the paper. The second section outlines the current stage of the Thai banking system, including the cross-country comparison, the competition assessment and efficiency analysis. The third part addresses how to best finance the real sector and increase inclusiveness. This section investigates the potential problem regarding access to credit of SMEs, by considering both the view point of SME entrepreneurs as well as from the banking industry. It also identifies firm characteristics that lead to an increase in bank credit. The fourth section identifies existing frictions and possible areas of improvement regarding the lending infrastructure and the financial system as a whole. The fifth section offers the forward-looking policy recommendations related to financing the real sector. The concluding remark completes this paper.

2. THE ASSESSMENT OF THE EFFICIENCY AND COMPETITION IN THE THAI BANKING SECTOR

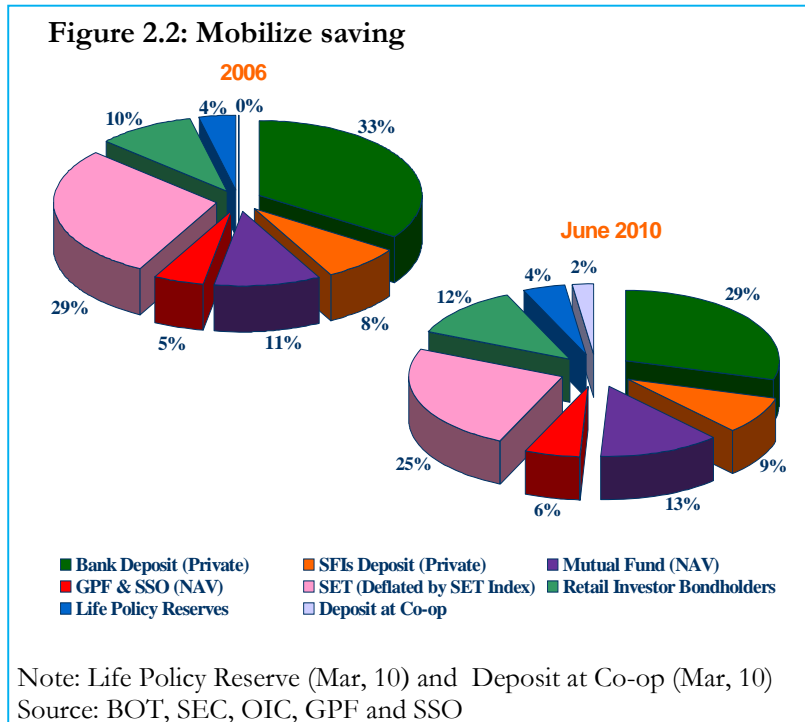
The financial system is a vital factor contributing to economic growth via its function of resource allocation from savers to investors. A country with an efficient and robust financial system will be able to withstand the impact from the shock without distorting economic growth. As for the Thai financial system, after the 1997

financial crisis, the government felt the need to create a better-balanced financial system that would not rely too much on the banking sector. Immediately after the 1997 crisis, banks curtailed their lending operation amid high non-performing loan ratios and recapitalization needs, causing the business sector to face a severe liquidity crunch. This, in turn, intensified the economic slowdown. Hence there were policies implemented to promote a deeper financial market such as tax benefits. As can be seen from the Figure 2.1, the financial sector then started to be more diversified.



The ratios of bank loan to private sectors, stock market capitalization (deflated by the SET index), corporate bond outstanding, and loan from SFIs to total private credit, are used to assess the financial structure. The results shown in Figure 2.1 reveal that although the share of bank loan had declined from 50 percent to a little more than 40 percent over the past decade, Thailand still has a bank-based financial system. Although it is bank-centered, other financial institutions such as capital markets and SFIs are assuming a more prominent role.

The stock market is another main funding source for many firms. Prior to the crisis, the market capitalization of SET accounted for more than 100 percent of GDP.



However, it experienced a sharp drop to a somewhat greater than 20 percent of GDP after the crisis. Since then the SET capitalization has never recovered back to its peak level again. By June, 2010, the SET market cap stood at 65 percent of GDP. Several measures were taken to revive and develop the capital market to make it more attractive

to both issuers and investors. The creation of the Market for Alternative Investment (MAI) in 1999 aimed at creating new fund-raising opportunities for medium enterprises with an access to efficient long-term funding as well as an alternative for investment for investors. Corporate income taxes on firms listed in MAI were reduced from 30 percent to 20 percent. New financial instruments were introduced, such as gold futures, derivative warrants and an exchange-traded fund (ETF). To increase the product variety, investment alternatives and competition, the Capital Market Development Master Plan—the 5-year strategic plan—was introduced in 2009. The plan includes liberalizing the brokerage fee, introducing more products and creating a gate way to the ASEAN capital market integration (with more discussion in Section 4).

The rapid growth of bond market has been a natural outcome of the financial crisis as well as the effort to reduce the reliance on bank intermediation (Ruengviraudh et al, 2006). Although the bond market was established in 1905, the bond market remained quite inactive due to policies prohibiting limited companies from issuing debentures (Disyatat et al, 2003). Hence, the market for corporate bonds was very small. To improve market liquidity, the Stock Exchange of Thailand (SET) launched the Bond Electronic Exchange (BEX) in 2003 (Satsanguan et al, 2009) while individual investors who trade on BEX are exempted from the capital gain tax (Menkhoff et al, 2007). Consequently, the corporate bond share rose from 3 percent in 2000 to almost 9 percent in 2010 Q2.

An increase in SFIs' intermediary roles in recent years was also a result of the crisis. When commercial banks hesitated to lend during economic turbulences, SFIs were then used by the government to stabilize economy via direct lending programs to certain target sectors and underserved segments of the population, notably the lower-income group and SMEs. The ratio of private credit outstanding to total private loan grew from about 10 percent to about 15 percent in the past decade.

Deposit mobilization also shares the similar trend with lending side. Savers now have more choices regarding where to place their savings—either in the deposit institutions or in institutional savings. Although there has been a shift from bank deposits to institutional savings (see Figure 2.2), banks is still a dominant player in the financial market. The rapid increase in the market share of institutional savings is a result of the government policy to encourage long-term savings, such as tax incentives from investing in Retirement Mutual Fund (RMF) or Long Term Equity Fund (LTF), and from paying life assurance premiums.

Having more alternative sources of fund as well as the disintermediation suggests that the financial system has become more diversified than the pre-crisis

period. This more balanced financial structure can therefore contribute to a more stable financial system as well as financial access enhancement.

2.1 THAI COMMERCIAL BANKING SECTOR LANDSCAPE

This section provides an overview of Thailand's commercial banking sector landscape. The Thai banking sector has experienced a lot of transformation due to financial liberalization efforts, induced by the Asian crisis, and to the Financial Sector Master Plan I (FSMP I), introduced in 2004. As a result of these driving forces, the banking sector has gone through more consolidation, increase in foreign penetration and more competition.

2.1.A CONSOLIDATION

The structure of the Thai banking sector appears to be the same overtime when it comes to the number of commercial banks. The number of both Thai and foreign commercial banks is almost the same as it had been pre-Asian crisis. However, the number of financial institutions declined from 183 prior to the crisis to 46 in 2010 Q2 (Table 2.1). After the crisis, a number of weak financial institutions were closed down, merged or being acquired by other financial institutions—either Thai or foreign investors.

Table 2.1: Number of financial institutions, pre-crisis as well as June 2010

Number of Financial Institutions	Pre-crisis (Jan 1997)	Current (June 2010)
Commercial Banks	31	32
Locally incorporated	15	14
Foreign bank branches	16	15
Retail Banks	-	2
Subsidiary	-	1
Finance and securities companies	91	3
Credit foncier companies	12	3
IBF	42	-
SFIs	7	8
Total	183	46

Source: Bank of Thailand

Furthermore, to enhance efficiency and eliminate any regulatory arbitrage, the FSMP I was introduced in 2004. FSMP I measures include the licensing rationalization scheme and the one-presence policy. After the implementation, there were only two main types of Thai financial institutions left—commercial banks and retail banks—and only two types of foreign financial institutions—foreign banks branches and subsidiaries. These policies encouraged financial institutions, such as finance companies and credit foncier companies, to upgrade or merge-and-upgrade to become commercial banks or retail banks. The International Banking Facilities (IBFs) also had to upgrade to become either full branch, subsidiary, or merge with their parents. The IBFs were completely phased out by March 2006 (Nakornthab, 2007). As for the one-presence policy, it required financial conglomerates with more than one types of deposit-taking financial institutions within the group to merge their holdings and maintain only one type of deposit taking institutions; thereby encouraging more consolidation.

These measures eliminated the unlevelled playing field among types of financial institutions, reducing the number of licenses and increasing the scope and the

economy of scale of the banks, and consequently reducing regulatory arbitrage in the system.

2.1.B FOREIGN PENETRATION

Another aspect of the changing financial landscape is an increase in foreign penetration. After the financial crisis in 1997, the family ownership was replaced by the foreign ownership. Foreign investors could enter the Thai banking system by means of acquisition or purchasing stock. At present, four Thai banks are majority-owned by foreign institutions (hybrid banks),³ while some Thai banks recently experienced an increase in foreign participation—either via stake control or as a minority shareholder. For instance, as of March 2010, GE Capital has a sizable stake in Bank of Ayudhya (33 percent), while ING has a sizable stake in TMB (25 percent). For minority shareholders, Bangkok Bank and Kasikorn Bank has the total foreign ownership up to 43 percent and 49 percent, respectively (see Table 2.2).

Table 2.2: Percent of foreign ownership as of pre-crisis and 2010Q2

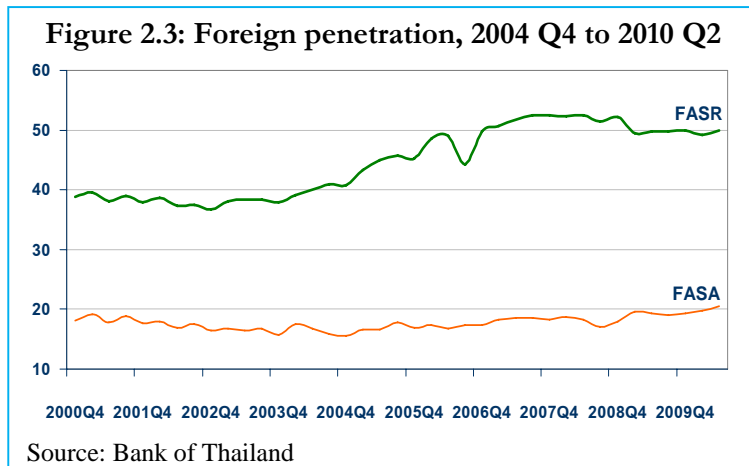
Bank Name	1997 Q3	2010 Q2
ACL Bank	24.94	97.59
Bank of Ayudhya	20.69	47.06
Bangkok Bank	24.19	42.58
CIMBT	26.52	97.16
Kasikorn Bank	24.45	48.61
Krung Thai Bank	15.28	23.91
Siam City Bank	22.65	15.12
Siam Commercial Bank	24.09	35.12
TMB	22.94	41.29

Note: foreign ownership calculated as percent of share hold by foreign investor to total share

Source: SETSMART

³ Hybrid banks includes UOB (Thai), Standard Chartered (Thai), CIMBT, and ALC

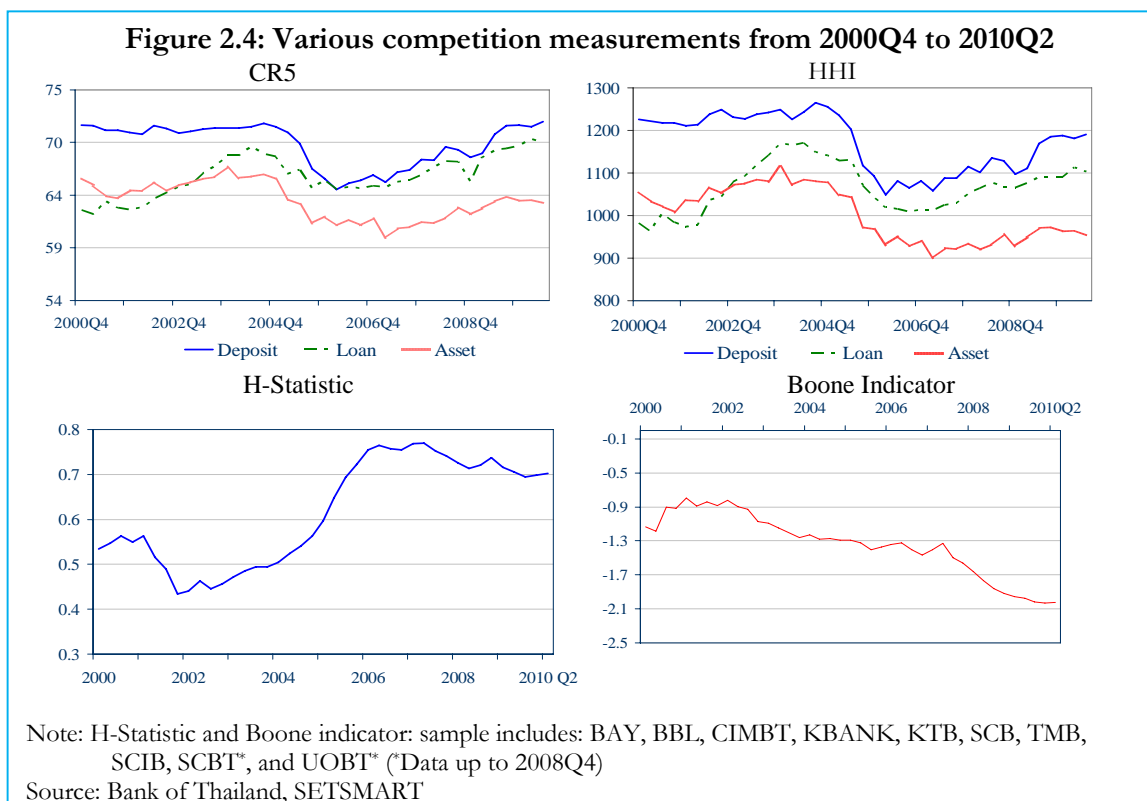
Does more foreign penetration increase foreign presence in the banking sector? The answer to this question lies in assessing the share of banking asset held by foreign investors, as shown in Figure 2.3. The sharp rise in FASR (calculated as the ratio of the sum of each bank's asset multiplied by the percentage of equity held by foreigners to total bank assets) from a little less than 40 percent in 2001 to about 50 percent in 2010 Q2 reflected the fact that most Thai banks now have substantial foreign shareholdings, either in the form of majority ownership, stake control or minority stakes (Herberholz, Sawangngoenyuan and Subhanij 2010a). On the contrary, the FASA (the assets of foreign bank branches and hybrid banks as



a percent of total commercial bank assets) revealed that the assets of foreign banks and hybrid banks remains less than 20 percent of total banking assets, indicating that foreign banks play limited roles in the Thai banking system.

2.1.C COMPETITION

With all the changes in the financial system, does the banking sector become more competitive? Two methods were used to measure the level of competition—structural and non-structural approaches. The structural approach associates competition with bank concentration or efficiency while the non-structural approach considers banks' competitiveness, using industrial organization and game theory



techniques. The structural analysis includes the concentration ratio⁴ (CR5), Herfindahl-Hirschman Index⁵ (HHI) and the Boone indicator,⁶ while the non-structural approach regards the Panzar-Rosse's H-statistic.⁷ Following the

⁴ $CR5 = \sum_{i=1}^5 s_i$ where s_i = market share of firm i

⁵ $HHI = \sum_{i=1}^n s_i^2$ where s_i^2 = the square of market share of firm i ; n is the number of firms in the industry

methodology in Herberholz, Sawangngoenyung and Subhanij (2010b), the H-Statistic and Boone indicator were estimated using 7-year rolling window.

From Figure 2.4 above, CR5, HHI and H-Statistics showed a similar trend that the banking sector became less concentrated or more competitive after the implementation of the FSMP I in 2004. However, the banking sector grew to be more concentrated or less competitive again a few years later during the politically unstable time period. In 2010 Q2, the biggest 5 banks held more than 70 percent of the market share in terms of deposits as well as loans.

In contrast to the above measurements, the Boone indicator, which reflects the competition in the loan market, revealed that the banking sector became more competitive over the entire period studied. While the measurements used to assess competition for the overall banking system indicate that banking sector started to be more concentrate again, the fact that the Boone indicator pointed to more competition may suggest that the loan market itself has become more competitive and some small banks may have gained more competitiveness. For instance, HSBC and Citibank though facing with one branch limitation are starting to compete more in retail markets, such as credit cards (Nakornthab, 2007). Furthermore, the competitive pressure is expected to continuously increase, as the FSMP II should lead to new banks entering the market while existing foreign bank branches will gain the rights to expand their branches and ATMs.

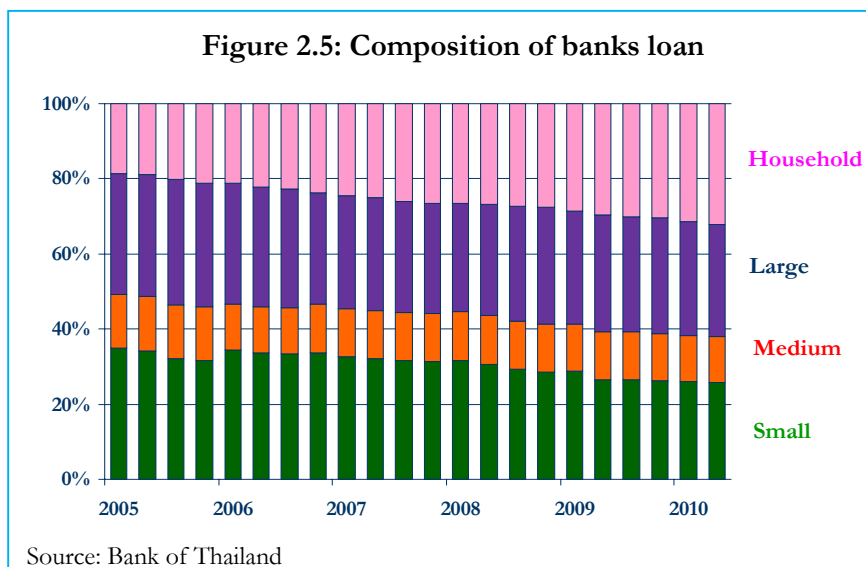
⁶ The Boone indicator is based on the Efficiency Hypothesis, which assumes that bank's performance is driven by its efficiency. Under perfect competition, the more efficient firms gain higher market shares or higher profits.

⁷ The Panzar-Rosse approach, introduced by Panzar and Rosse, (1987) estimates the elasticities (H statistic) of a firm's revenue with respect to input prices. The measure based on the idea that competitive firms are price takers and must pass on the cost to customers, while a monopoly can vary output to maximise profits in the face of higher input prices. The value of H-statistic ranges from $-\infty$ to 1. A negative H-statistics means market is monopolistic whereas a unit of H-statistic means market is perfect competition.

With all the changes discussed above, the Thai banking system has proved to be more healthy and resilient, as can be seen by having the capital adequacy ratio (CAR) of 16.9 percent and the ratio of Tier 1 capital of 13 percent. Bank performance has also improved. As of 2010 Q2, the net interest margin (NIM) slightly increased to 2.9 percent and return on asset (ROA) rose to 1.2 percent while the non-performing loan ratio (NPL), though still moderately high, continued to decline.

2.1.D BANK LENDING BEHAVIOUR

Since the 1997 crisis, banks have changed their business models from lending mainly to large corporations to lending to smaller corporations and households. One of the reasons is the attempt to reduce the vulnerability of the bank since a default from one large borrower can cause a huge damage to the bank. Within a loan portfolio, banks started to lend more to small corporations more than large



corporations, but still the share to large corporate firms remained high. However, the trend started to reverse in 2008 during the economic and political instability. The

proportion of loan to small firms to claims on private sector declined from the peak of 35 percent in 2006 Q1 to 25 percent in 2010 Q2 (Figure 2.5).

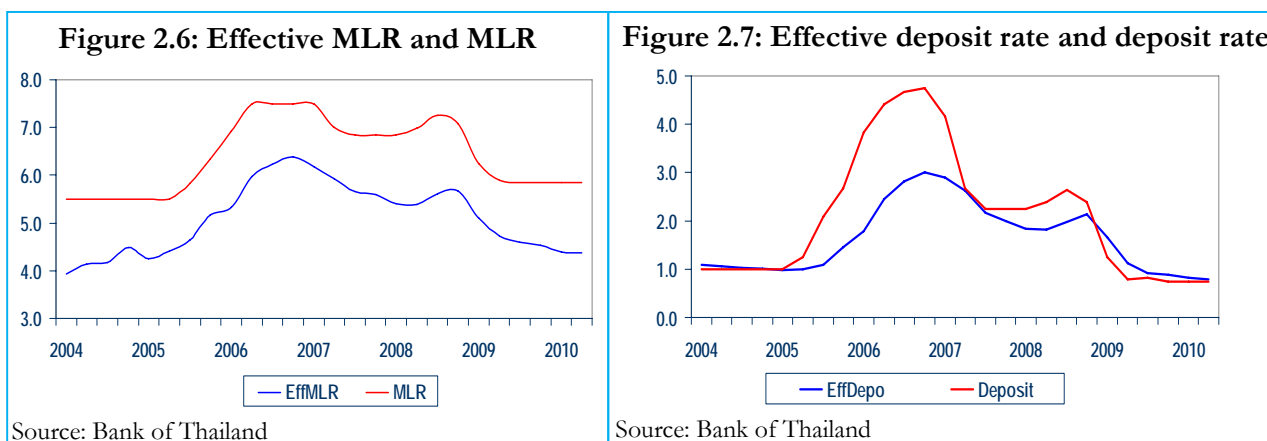
Banks feel that small firms are much more sensitive to economic turbulences; hence, whenever, there is an economic downturn, banks tend to cut loans to small businesses first. Furthermore, banks also expand their clienteles from corporations to households. Lending to households started to gain more momentum overtime. The proportion of consumer loans to banks' loan portfolio rose from 13 percent in 2005Q1 to almost 30 percent at the second quarter of 2010.

2.2 EFFICIENCY ASSESSMENT IN THE THAI BANKING SYSTEM

A more efficient banking system is characterized by a moderate interest spread, more financial access, corporate profitability and incentives to save. A lower loan rate helps improve financial access, since the debt service ratio will be lower, thereby increasing the feasibility of investment opportunities. On the other hand, a higher deposit rate can encourage more potential savers with higher returns. High cost of borrowing has been identified in the survey as one of the obstructions for entrepreneurs to obtain credit from financial institutions. In this section, we aim at providing a cross-country comparison on the cost efficiency of commercial banks in the Association of South East Asian Nations (ASEAN). First, we take a look at the financial performance of banks in the ASEAN region. Then, we will analyze the composition of the interest spread in Thailand. Finally, we provide recommendations on possible options to reduce the spread level.

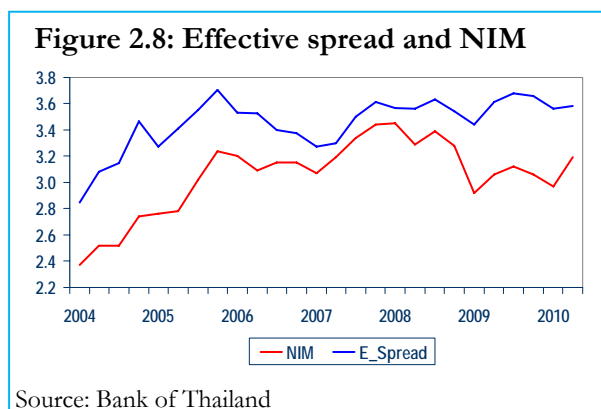
2.2. A HOW TO MEASURE EFFICIENCY

In the case of Thailand, the general public normally considers the difference between the minimum loan rate (MLR) and the deposit rate as a measure of bank



efficiency. In reality, commercial banks do not always charge their borrowers at MLR. For large corporations, banks are likely to charge below MLR as well as lower transaction cost, because of the fierce competition for this type of borrowers. At the same time, banks also differentiate the interest rates they pay on their deposits. On some occasion, larger-sized deposits are preferred by banks due to lower transaction cost, leading to higher deposit rate receipt.

Hence, we need to look at the net interest spread or effective interest spread which better reflects the actual interest earnings and interest expenses of banks. Net



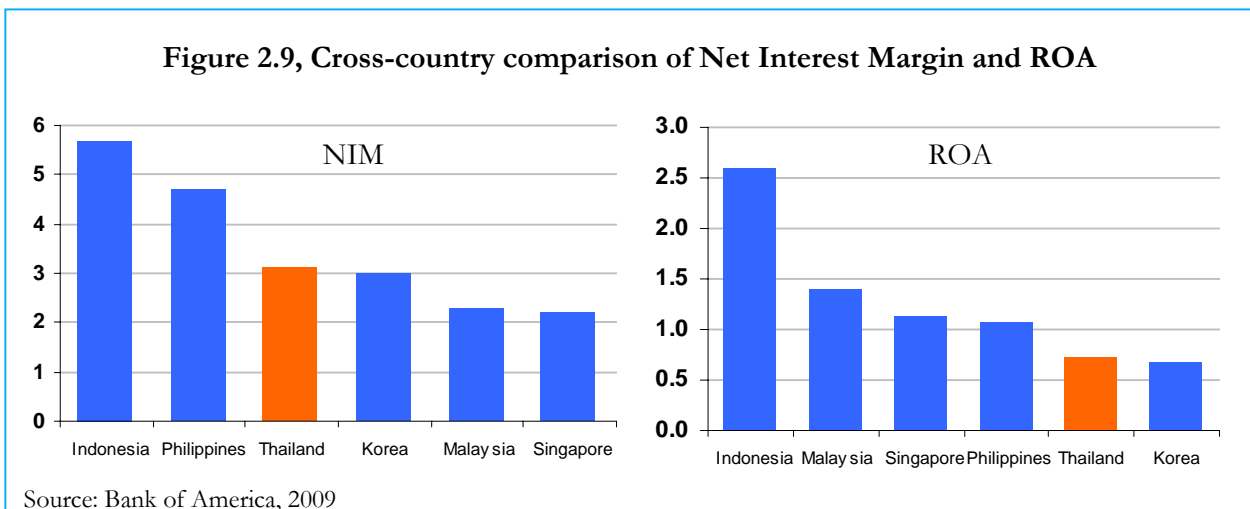
interest spread is the difference between the effective lending rate and the effective deposit rate. The effective loan rate is computed by dividing the interest income from loans by the average amount of loans during the period. Similarly, the effective deposit

rate is calculated by dividing the interest expenses on deposit by the average amount of deposits. Figure 2.6 exhibits the effective loan rate for Thai banks, which has always been below MLR. This means that the majority of the loan portfolios consist of large companies who are charged at a rate lower than MLR.

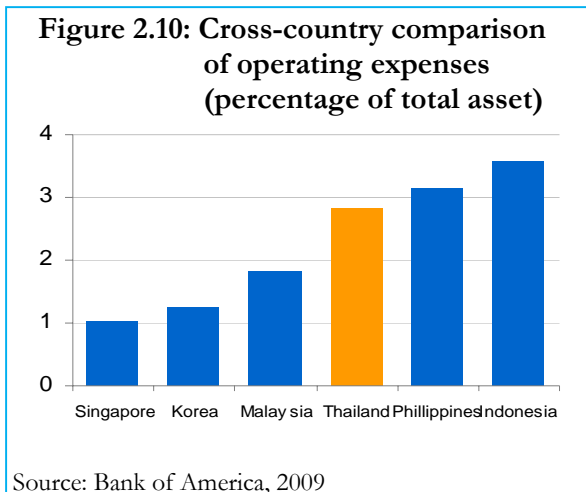
Another commonly-used measure of efficiency is net interest margin (NIM). NIM is calculated by dividing net interest income by the average amount of earning assets. The difference between NIM and effective interest spread is that NIM does not compensate for the fact that the volume of loans and the volume of deposits can be different. Nevertheless, as can be seen in Figure 2.8, NIM is highly correlated with net interest spread.

2.2.B CROSS-COUNTRY COMPARISON OF NET INTEREST MARGIN

Thai banks' net interest margin ranks in the middle among neighboring countries, but it is consistently above those of Singapore and Malaysia, even though the return on asset (ROA) is lower. According to Figure 2.9, net interest margin for Thai banks averaged about 3 percent during 2007-2009—the third highest among the ASEAN5 countries. It is worth noting that banks with higher net interest margin do

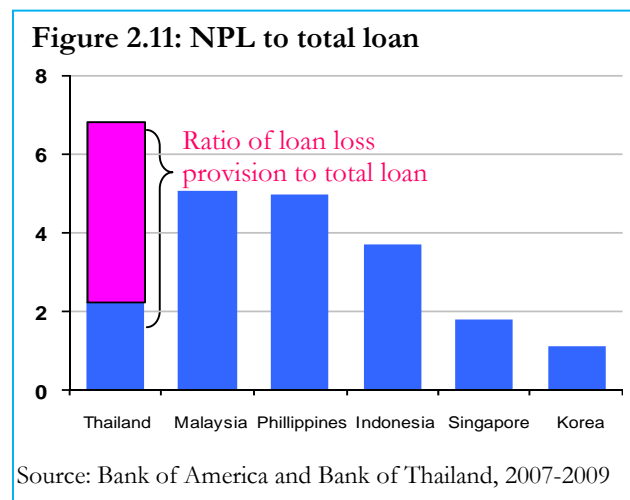


not always end up with higher net profits, as measured by ROA. While Indonesia registers the highest rate of return on asset, thanks to their highest net interest margin, ROA for Thailand and the Philippines are no higher than those of Singapore and Malaysia, even though the levels of net interest margin for the former group are higher than the latter.



Although the non-interest income as a share of operating income for Thai banks is relative low, the non-interest income share in terms of total assets remains high, implying that higher costs are the main factor constraining ROA. For example, the share of Thai banks' non-interest income as a percentage of total operating income is about 30 percent, whereas the share of Singapore is 35 percent. When considering a proportion of average asset, Thai banks' non-interest income remains high at about

1.4 percent, whereas the share for Singaporean banks is less than 1 percent due to their lower base. This implies that high cost is a very important factor in constraining the ROA of Thai banks.



1.4 percent, whereas the share for Singaporean banks is less than 1 percent due to their lower base. This implies that high cost is a very important factor in constraining the ROA of Thai banks.

Empirical evidence also shows that Thai banks have higher operating expenses than peers. Commercial

banks in a less-developed financial system tend to have higher operating expenses than in more-developed countries, since they typically operate at a smaller scale, with narrower scope and under lower competition. Banks in such system have high costs

of retail operations because they tend to have low usage of direct channeling and internet banking. For the case of Thailand, high operating costs may be a result of high level of non-performing loans (NPLs), leading to banks having longer special loan work-out units. Generally, these units are rather costly, as they involve negotiations with borrowers and sometimes litigation fees.

NPLs in Thailand also impose significant costs on banks, thus further lowering bank profitability. In addition to high administrative costs of managing non-performing loans mentioned previously, banks must also set aside provisioning when their loans become past due for more than three months. Although, the level of non-performing loans in Thai banking system has come way down from its peak in 1998 to a single-digit number, it remains the highest in the region. It is notable that a significant portion of the non-performing loans has been fully provisioned but Thai banks choose to keep them on the balance sheet, instead of writing them off for legal and tax reasons.

2.2.C DECOMPOSITION OF THE INTEREST SPREAD OF THAI BANKS

The interest rate spread roughly represents the gross profit of a bank. By nature of the banking business, especially Thai banks, the most significant way to earn revenue is from the interest revenue from loans. Therefore, banks need to charge high interest rates on loans to cover all operating costs as well as the risk associated with the loan. In this section, we attempt to determine which cost component is considered excessive.

Table 2.3: Loan pricing (risk-adjusted return on capital)

Lending Rate	5.85%		
Deposit Rate	0.81%		
Spread	5.04%	504 bps	share of spread
<i>Operating Cost</i>		<i>155 bps</i>	<i>30.8</i>
<i>Expected Loss</i>		<i>160 bps</i>	<i>31.7</i>
<i>DI Fee</i>		<i>40 bps</i>	<i>7.9</i>
<i>Tax</i>		<i>58 bps</i>	<i>11.5</i>
<i>Net return</i>		<i>91 bps</i>	<i>18.1</i>

Note: Operating Cost = (Wages + Premises Expenses + CCEO)* (Net Interest Income/Total Income)

Source: Bank of Thailand, 2010 Q2

To provide an illustration of the relative importance of each composition of the interest spread, we apply the concept of loan pricing based on the risk-adjusted rate of return on capital (RAROC) on the empirical data published

by the Bank of Thailand (BOT). RAROC is a risk-based pricing model which has been increasingly used by Thai commercial banks. It decomposes interest spread into cost of fund, operating costs, expected loss and required return on capital.

Table 2.3 exhibits our RAROC estimates as well as all the relative terms of each cost component to spread for the period 2010 Q2.⁸ We first estimated the effective spread by calculating the effective loan rate and the effective deposit rate. This yields an effective spread of 504 basis points to be decomposed to be (i) operating cost,⁹ (ii) expected loss,¹⁰ (iii) deposit insurance fee and (iv) taxes.¹¹ The residual is therefore net return on loans to shareholders.¹² From the table, it can be seen that the expected

⁸ We assume the opportunity cost of reserve requirement to be negligible at low interest rate as it is estimated to increase by six basis points for each one-percent increase in deposit rate.

⁹ This is estimated by multiplying operating expenses (excluding deposit insurance fee and special business tax) by the proportion of net interest income as a percentage of total operating income.

¹⁰ This is estimated by using the latest available data on the probability of default which was 3.34 percent for 2007 and assume a loss given default rate of 50 percent.

¹¹ Taxes are estimated from the sum of special business tax on interest revenue and corporate income tax on post-provision profit.

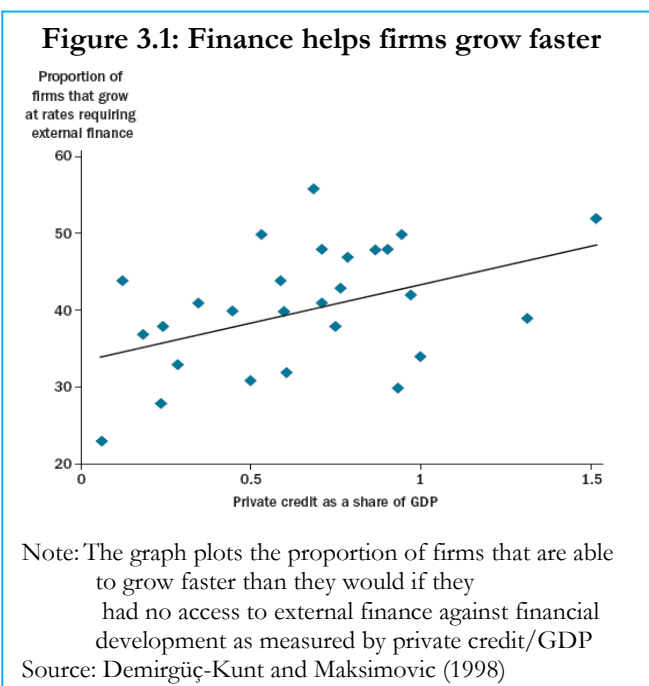
¹² Only credit risk has been decomposed from our estimate of RAROC. Other risks such as liquidity have not been decomposed. The estimate has not also taken into account the return from investing the required capital in, for example, in a risk-free asset.

loss and operating costs registered the highest shares when it comes to RAROC decomposition.

3. ENHANCING THE INCLUSIVENESS AND FINANCIAL ACCESS IN THE BANKING SYSTEM TO IMPROVE FINANCING OF THE REAL SECTOR

Today, inclusive economic development is a widely accepted objective for any country. In this context, access to finance is necessary to not only the growth of firms but also to the growth of an overall economy. At the centre of this is the role played by financial institutions. However, much attention has focused on the depth and efficiency of financial sectors, instead of on building a more inclusive financial system—an important ingredient of the well-functioning economy. Without the inclusive financial system, small enterprises will have to rely on their personal wealth or internal resources to become entrepreneurs.

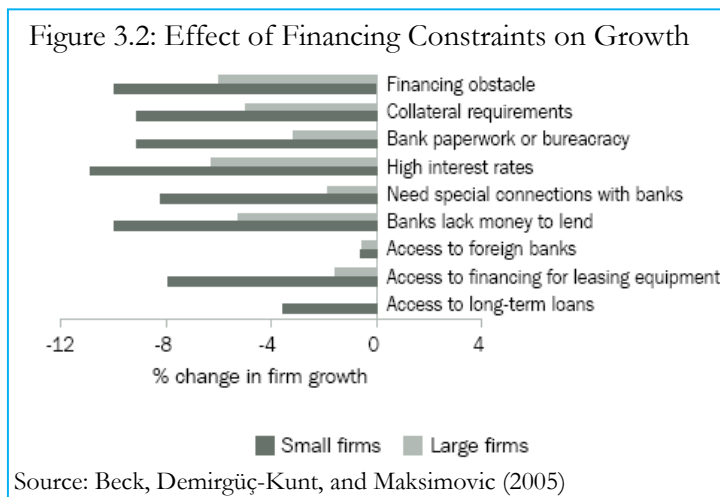
3.1 FINANCIAL ACCESS AND ECONOMIC DEVELOPMENT



Access to external finance and the ability to undertake profitable investment opportunities are crucial for the success of any new business and for economic development and growth (Levine, 2005). Modern development literatures highlight the important role of access to finance. Lack of finance is often associated with persistent income inequality, and

slower growth. A lot of the cross-country evidence found that developing the financial sector and financial access¹³ were likely not only to accelerate economic growth, but also to decrease poverty and income inequality (World Bank, 2008).

One of the important channels through which finance promotes growth is via the provision of credit to the most promising firms (Figure 3.1). Access to credit may affect economic growth by facilitating the entry of new firms (Klapper, Laeven and Rajan, 2004). Start-ups or smaller firms are usually the most dynamic and innovative. Therefore, providing financial services to these firms mean a country can reap the benefit of diversifying into new areas of unexplored comparative advantage. The lack of access to finance for a majority of firms should be taken as a priority because it reinforces the vicious circle of poverty and inequality. Liquidity constraints obstruct potential entrepreneurs from starting businesses (Evans and Jovanovic, 1989) and reduce growth rates, especially in small businesses (Demirguc-Kunt, Beck and Maksimovic, 2004).



A good reputation, such as a long credit history, mitigates the adverse selection problem between borrowers and lenders. Worldwide, SMEs tend to report financing as a major obstacle compared to large firms (Ayyagari, Demirgüç-Kunt, and

Maksimovic, 2006). In addition, financing constraints appear to hit the smaller firms harder than large ones. Complaints about finance are associated with a 10 percentage point reduction in growth for small firms, compared to an average decline of 6

¹³ Financial access means an absence of obstacles to the use of these services, whether the obstacles are price or non-price barriers to finance.

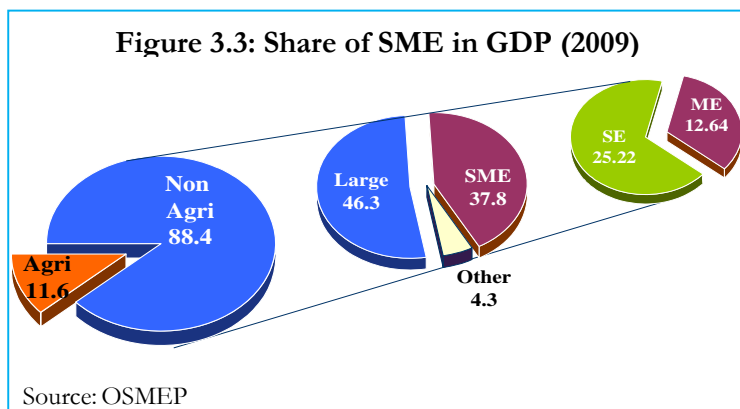
percentage points for large ones (Beck, Demirgüç-Kunt and Maksimovic 2005 and Figure 3.2).

In summary, lack of access to finance is often the main culprit contributing to both persistent economic inequality and slow economic growth. Research indicates that access to finance promotes more firm start-ups; and it is smaller firms that are often the most dynamic and innovative (World Bank 2008). Therefore, there is still much room to incorporate the issue of SME financial access to be part of the sustainable economic development.

3.2 SME IN THAILAND: SIGNIFICANCE

The important role that SMEs play in the development process is now in the forefront of the policy concern in both developed and developing countries. SMEs are considered to have a crucial role in an economy, e.g. the encouragement of entrepreneurship; the immediate impact on employment creation; a significant contribution to exports and trade. The development of SMEs is also seen as a catalyst in achieving wider socio-economic objectives, including poverty alleviation.

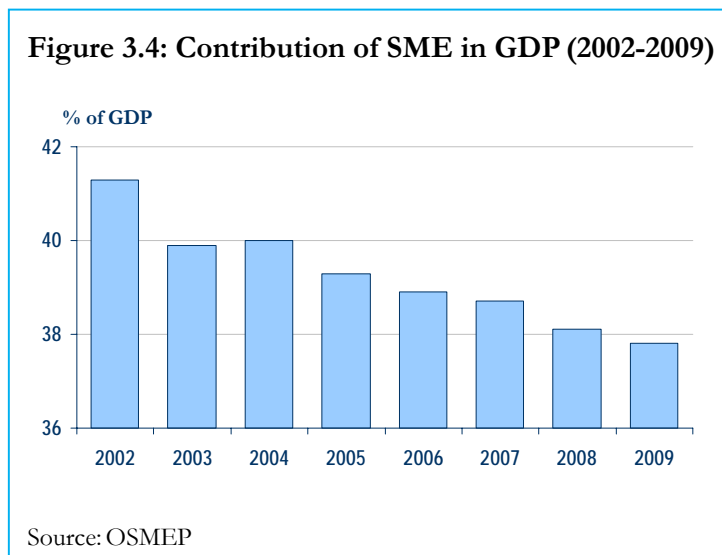
The term SMEs covers a wide range of definitions and measures, varying from country to country. Although there is no universally agreed definition of SMEs, some of the commonly used criteria are the number of employees, value of assets, value of sales and size of capital. In Thailand, according to the Ministry of Industry, SMEs



refer to enterprises with a fixed capital (excluding land and properties) of less than 200 million baht and employees less than 200 people (see also Table 3.3)

SMEs sector is an important driver of the Thai economy, both in terms of economic growth and employment opportunities. SMEs make up a large proportion of all business registrations in Thailand, accounting for 99.8 percent of the total number of enterprises in (OSMEP 2010). In 2009, the number of small enterprises (SEs) stood at 2,884,041 entities and medium enterprises (MEs) at 12,065, while large enterprises only accounted for 4,653 firms. The largest portions of SMEs engage in trade and maintenance businesses (47.3 percent), followed by the service sector (33.6 percent) and the production sector (18.9 percent), respectively.

In terms of employment, SMEs indeed play an important role in providing employment for the economy, accounting for 9,701,354 employees, or about 78.2 percent of total employment in Thailand. SMEs contribution to GDP is also significant, with 3,417,860.7 million baht, or about 37.8 percent of GDP in 2009. Small enterprises (SEs) contributed about 2,300,195.7 million baht or 25.4 percent of GDP, and medium enterprises (MEs) contribute 1,117,665 million baht or 12.3 percent of GDP (Figure 3.3).



Since 2002, however, the share of SMEs contribution has been on a decline (Figure 3.4). Evidence showed that service sector accounted for the largest part of SME's contribution to GDP in 2009, followed by the production and trade and maintenance sectors. Furthermore, SMEs played an

important role in Thailand's export, accounting for 30.6 percent of the total export value.

As discussed earlier, success or failure in obtaining finance is more important and has a direct impact on the fate of SMEs, which primarily depend on loans from financial institutions, than on the fate of major companies, which have access to various forms of financing, including the issuance of shares and/or bonds. Across the world, younger firms are found to rely less on bank financing and more on informal financing. However, it is also found that younger firms have better access to bank finance, relative to older firms, in countries with stronger rule of law and better credit information (Chavis, Klapper and Love, 2010). SMEs in Thailand, especially small and start-up firms, still face a number of challenges, one of which is the lack of adequate financial access, making it challenging for them to realize their maximum potential, which can contribute enormously to economic development. The following sections discuss these problems and provide some recommendations.

3.3 IDENTIFYING PROBLEMS OF ACCESS IN THAILAND

In theory, there are reasons why the availability and costs of credit may be more adverse for smaller firms. First, the costs associated with loan appraisal, monitoring, and collection are not trivial. This implies that it is better for banks to provide larger amounts of credit to a larger enterprise than small amounts of credit to many smaller firms. Second, smaller firms are usually less able to provide collateral when applying for loans, so the costs associated with the possible bankruptcy increase, further reducing incentives for banks to lend to smaller firms. Thirty-one percent of firms around the world report access to finance as a major constraint to current operations of the firm, with 40 percent of the firms are under three years of age (World Bank, 2010).

In Thailand, only 40 percent of Thai domestic companies (consisting mainly of small firms) gain access to credit, when compared to 58 and 86 percent of Thai export and multinational companies, respectively. While the level of access is lower for the

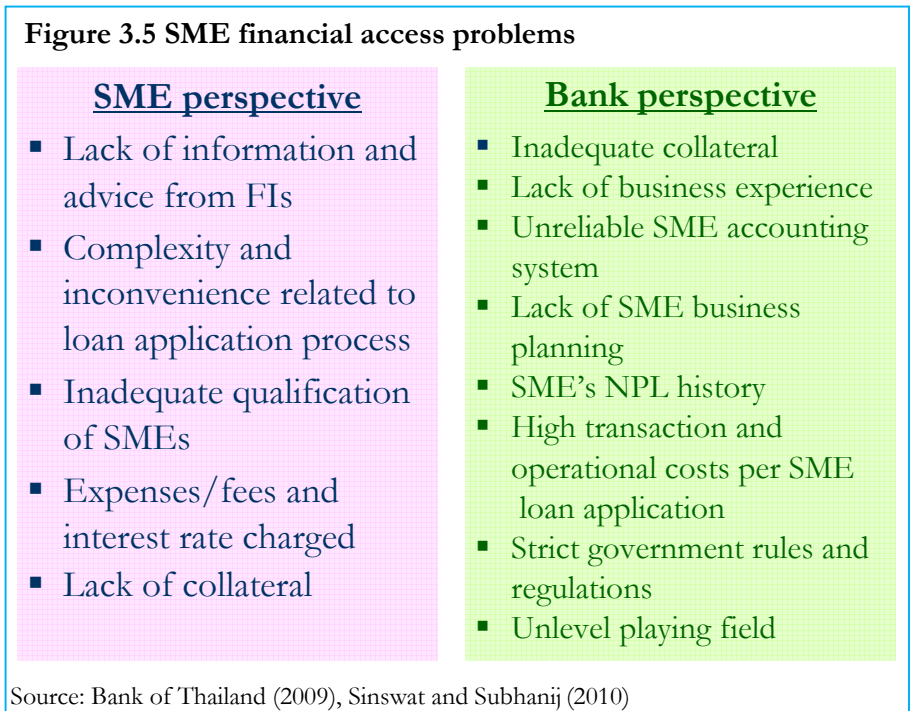
Thai domestic firms, these firms perceive that credit from banks are more important to them than large firms, due to lack of alternative source of funding (Table 3.1).

Table: 3.1: Credit access of firms				Table: 3.2: Access to financial services of Thai exporters			
Financial services	% of Access/(Level of importance)			Financial services	% of Access/(Level of importance)		
	Thai company (export)	Thai company (domestic)	Multinational company		Small	Medium	Large
% Credit access	58	40	86	% Financial access	100	100	100
Current	(4.2)	(4.0)	(3.4)	Level of importance	(4.4)	(4.4)	(4.5)
Next 5 year	(4.3)	(4.4)	(4.0)	% Credit access	58	83	91
				Level of Importance	(4.2)	(4.4)	(4.1)

Note: Thai company (export) is a company that has > 50% Thai shareholders and export
 Thai company (domestic) is a company that has > 50% Thai shareholders and sell locally
 Multinational company is a company that has < 50% Thai shareholders
 Source: Bank of Thailand (2009)

Note: Small firm = asset excluding land <50 Mil Baht
 Medium firm = asset excluding land 50-200 Mil Baht
 Large firm = asset excluding land >200 Mil Baht
 Source: Bank of Thailand (2009)

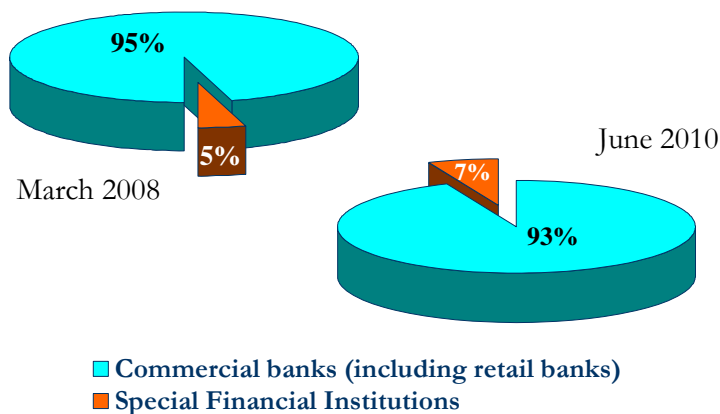
Similarly, only 58 percent of small Thai exporters receive credit from banks, as compared to 83 and 91 percent of the medium and large firms, respectively (Table 3.2). Past study indicates that higher financing constraints also reduce the likelihood



of starting a business, especially in poorer regions (Paulson and Townsend, 2004). In terms of funding sources, most of the entrepreneurs in Thailand use their own funds or their family's fund to start and operate their businesses. Few

entrepreneurs apply for loans from financial institutions and tend to use the overdraft (O/D) as cash flow and long-term loans as investment funds for setting up their businesses (OSMEP, 2009). From the banks' perspectives, the main obstacles for lending to SMEs include: (i) inadequate collateral; (ii) lack of business experience; (iii) lack of business planning; (iv) firm's NPL history; (v) high transaction and operational costs per SME loan application; (vi) strict government rules and regulations regarding loan loss provision and credit history in credit bureau; and (vii) unlevelled playing field among different types of financial institutions (Figure 3.5). At the same time, SMEs find it difficult to get access to credit from banks due to a number of factors. From the SMEs' point of view, it has been reported that lack of information and advice from financial institutions, complexity and inconvenience related to loan application process, inadequate qualification of SMEs, expenses/fees and interest rates charged, and insufficient collateral are the main obstacles in obtaining bank finance (Bank of Thailand 2009; Sinswat and Subhanij, 2010). In terms of business operations, it is also found that only about half of the SMEs have business plans, and most of which are short-term in nature (OSMEP, 2008).

Figure 3.6: SME loan share classified by types of institutions



Source: Bank of Thailand

As a result of the increased competition in the Thai banking sector and especially in the large business segment, banks currently turn to SMEs as important future business clients. Banks are generally keen to lend

to SMEs, as they realize that SMEs loans provide higher return when compared to the loans to large corporations. However, as past surveys indicate, there are still large

gaps between funds provided by financial institutions and SMEs' funding needs. The gap is mainly a result of information asymmetry and high transaction costs associated with SME financing. Financial institutions often consider SMEs as high risk borrowers due to lack of transparency in their accounting practices and inadequate loan document, making it difficult to assess their potential. With these perceived high risk, commercial banks require high value of collateral and charge high interest rates, worsening the borrowing situation of SMEs (Bank of Thailand, 2009). If we look at loans extended to the SMEs sector, we can see that commercial banks play a critical role, with the share of lending to SME of over 90 percent of the total loan to this sector (Figure 3.6). Commercial banks, therefore, can become key players in SMEs financing. At the same time, specialized financial institutions can also play a complementary role by paying attention to small or start-up enterprises that are not the target of commercial banks.

3.4 FIRMS CHARACTERISTICS AND PERFORMANCE

3.4.A CHARACTERISTICS ANALYSIS: MINISTRY OF COMMERCE DATABASE

In order to investigate the problem of SMEs financial access in detail, the paper utilizes the database from the Ministry of Commerce. The database covers all enterprises registered with the Department of Business Development and have submitted their annual financial statements to the Revenue Department. The data includes firms' characteristics such as firms' age, location, economic sector, and their financial statement over the period of 1999 to 2008.

Table 3.3: Criteria for classifying SMEs

Type of Business	Small Enterprise		Medium Enterprise	
	Employee (persons)	Fixed Asset* (million baht)	Employee (persons)	Fixed Asset* (million baht)
Manufacturing	not over 50	not over 50	51-200	more than 50-200
Services	not over 50	not over 50	51-200	more than 50-200
Wholesales	not over 25	not over 50	26-50	more than 50-100
Retail and unclassified business	not over 15	not over 30	16-30	more than 30-60

*Fixed asset excludes land.

Source: Ministry of Industry, 2002.

The paper classifies firms into three groups according to the criteria defined by the Ministry of Industry as shown in Table 3.3. The criteria are based on the number of employees and fixed asset. An enterprise is categorized as an SME if it has employees less than 200 and fixed capital less than 200 million baht depending on the economic sector, as mentioned previously.

It is worth noting that the paper adopts a slightly different SME definition mentioned above due to the data limitation that cannot distinguish land and premises from total assets. Hence the item property, plant and equipments is used as a proxy for fixed asset. Furthermore, as the paper focuses on private sector, firms that are in financial sector, public administration sector and international organizations are omitted from the sample. The paper also limits to only active firms, excluding firms that are inactive, dissolved or being sued.

To fully comprehend the difficulties from obtaining loan by SMEs, this section will start with an exploration of firms' characteristics, and then the analysis of corporate financial structure and their performances.

3.4.B OVERVIEW OF FIRMS IN THAILAND

In terms of the number of firms, small enterprises account for approximately 98 percent of firms. Medium firms account for somewhat more than one percent while large corporations contribute less than a hundredth of total firms. Over the sample period, the number of small enterprises has increased, on average, faster than that of the medium and large corporations. Interestingly, over the same period, the share of assets held by SMEs is shrinking while the assets held by large corporations expands to be more than half of total firms' asset value shown in Figure 3.7. This does not mean that SMEs are getting smaller in term of asset values, but rather implies that these enterprises could not expand their business at the same speed as the large corporations do.

Regarding the types of registration, around 70 percent of the firms are registered as company limited, while 30 percent are limited partnership and only 0.1 percent are listed companies. The number of company limited has gained some popularity lately.

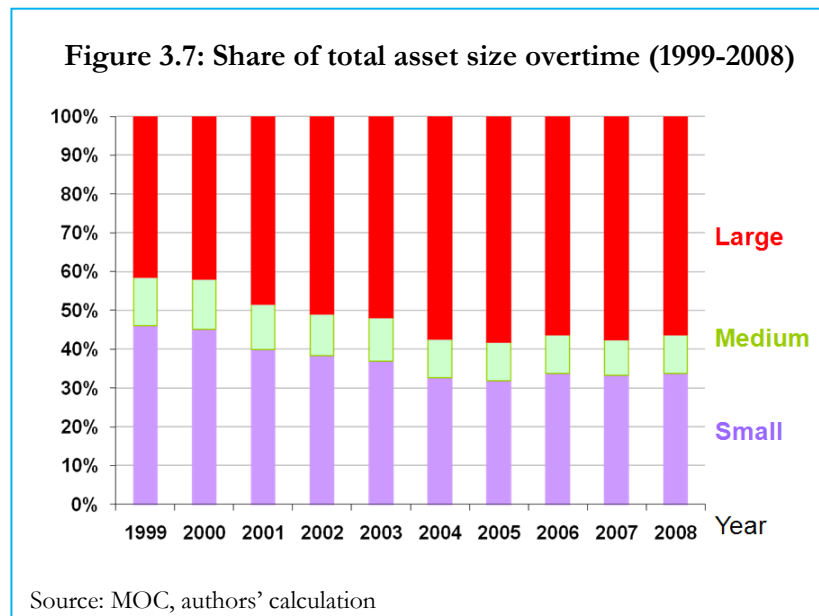
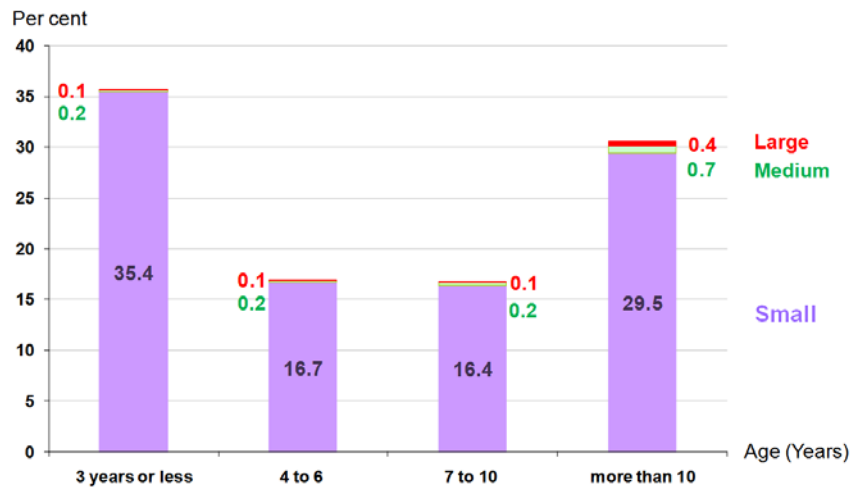


Figure 3.8: Percentage of firms classified by group of age (Average of 1999-2008)



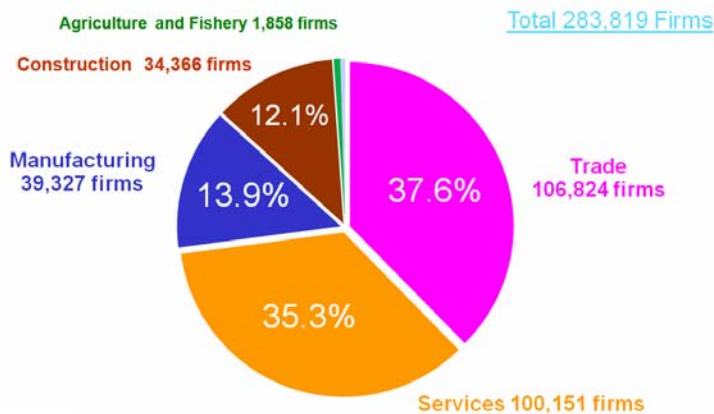
Source: MOC, authors' calculation.

Apart from being small, firms are either an infant firm or matured firm. By dividing these firms into four age groups, it is found that around one third of the sample are young firms with age of three years or less, whilst another one third have been operating for more than ten years (Figure 3.8). The U-shape of firm age

distribution implies that a lot of SMEs experience difficulties after operating for three years. A closer examination reveals that as age increases, the firms become larger.

With regards to the economic sector, a large number of firms are in trade, services and productions sectors. In 2008,

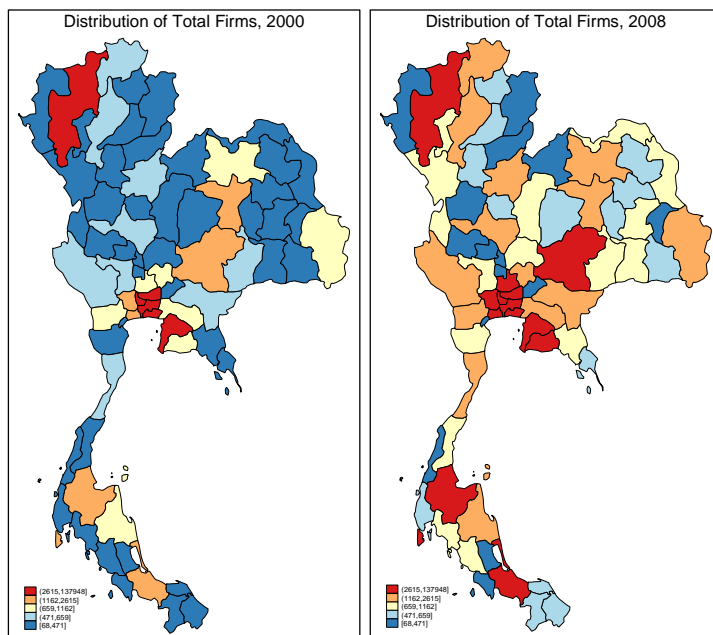
Figure 3.9: Number of firms classified by economic sectors (2008)



Source: MOC, authors' calculation.

approximately, 37 percent of firms were in wholesale and retail sector, 35 percent provide services of which 21 percent were in real estate services, 14 percent were in manufacturing, and 12 percent were in construction business.

Figure 3.10: Distribution of firms in Thailand



Source: MOC, authors' calculation

When it comes to the firms' location, Figure 3.10 depicts various colors which represent the density of the firm's population. The red area represents a province with high density. Figure 3.10 reveals that most of the firms located in big cities, notably such as Bangkok, Chonburi, and Chiang Mai, that have better infrastructures.

Furthermore, the number of firms in each province increases over time. The figure shows similar pattern for the distribution of SMEs population.

In short, the stylized facts demonstrate that a majority of the business in Thailand are small enterprises. These firms tend to be start-up companies with the age of three years old or less. Most of the firms are in trade, services and production sectors, and are located in big cities regardless of the firm size.

3.4.C FIRMS' CAPITAL STRUCTURE

The firms' leverage measured by debt-to-equity ratio is used to analyze the firms' capital structure. The ratio of zero means firms employ no debt while the ratio of unity means the firms use the same portion of debt as equity. The ratio greater than one reflects highly leveraged firms or firms that rely a lot on external funding.

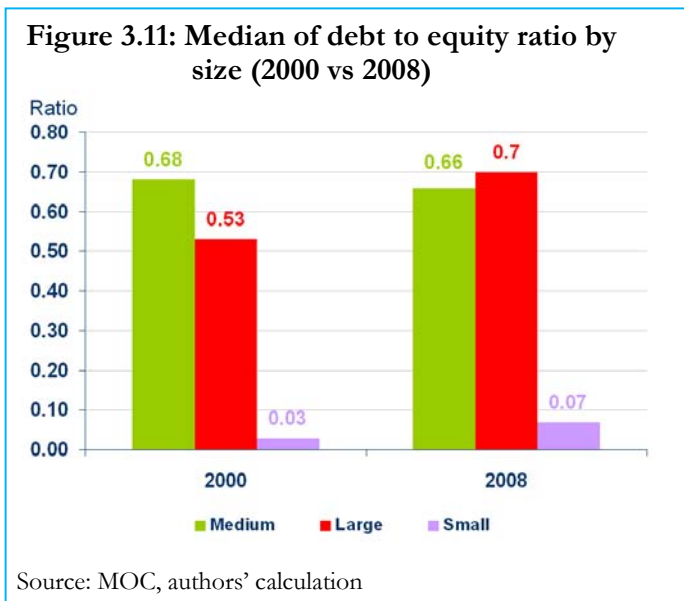
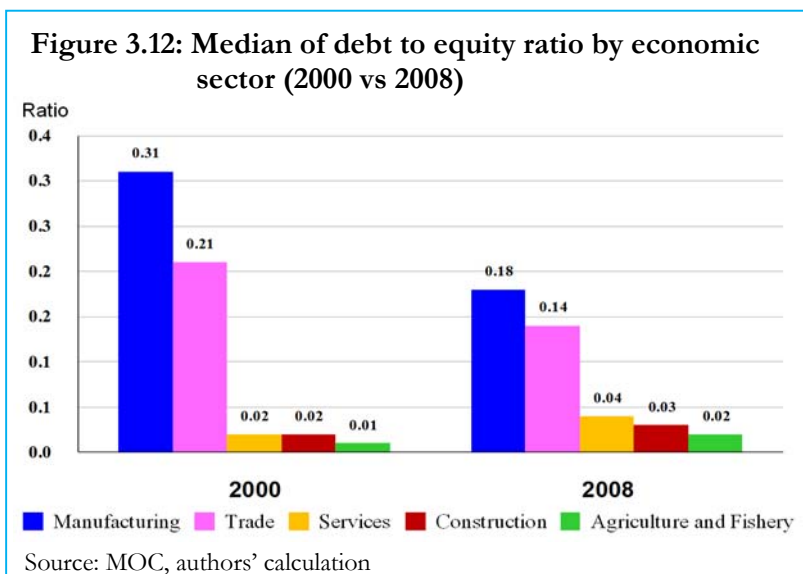


Figure 3.11 depicts the distinction between a smaller firm and a larger one. The larger one tends to be more leveraged than the smaller firm. Two possible explanations are that small firms neither have demand for external funding nor access to external funding. When compared across time, small firms tend to be more leveraged in 2008

than in 2000, signifying some improvements in financial access.

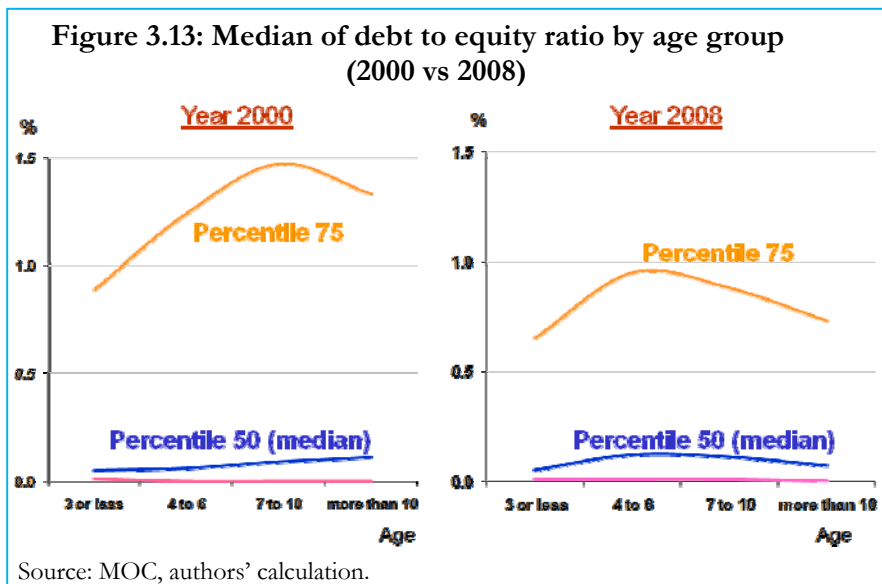


The capital structure varies across the business sector as shown in Figure 3.12. Firms in the low-risk business sector tend to have a high portion of debt than the firm in the high-risk

sector. For instance, manufacturing firms tend to be more leveraged than firms in agriculture and fishery. The firms with ratio less than unity reflect that they may be forced to use their own fund.

We then examine how firm age relates to the ability to obtain external funding. In Figure 3.13, the sample is divided according to the percentile of debt-to-equity and plotted against the firm age. The hump shape of the 75th percentile line suggests that the younger firms and the older firms tend to utilize internal funding while the middle-age firms tend to use more debt. The diminishing debt-to-equity ratio suggests that older firms tend to have more alternative to finance their business other than using debt, such as listed in stock exchange or issuing corporate bonds.

Furthermore, when compared over time, the peak of the hump was at the age of 7 to 10 years for the data of the year 2000 and at a younger age for the data of the year 2008. This difference suggests that firms have gained access the financial market sooner. This may be due to the introduction of MAI and tax benefits from listing the



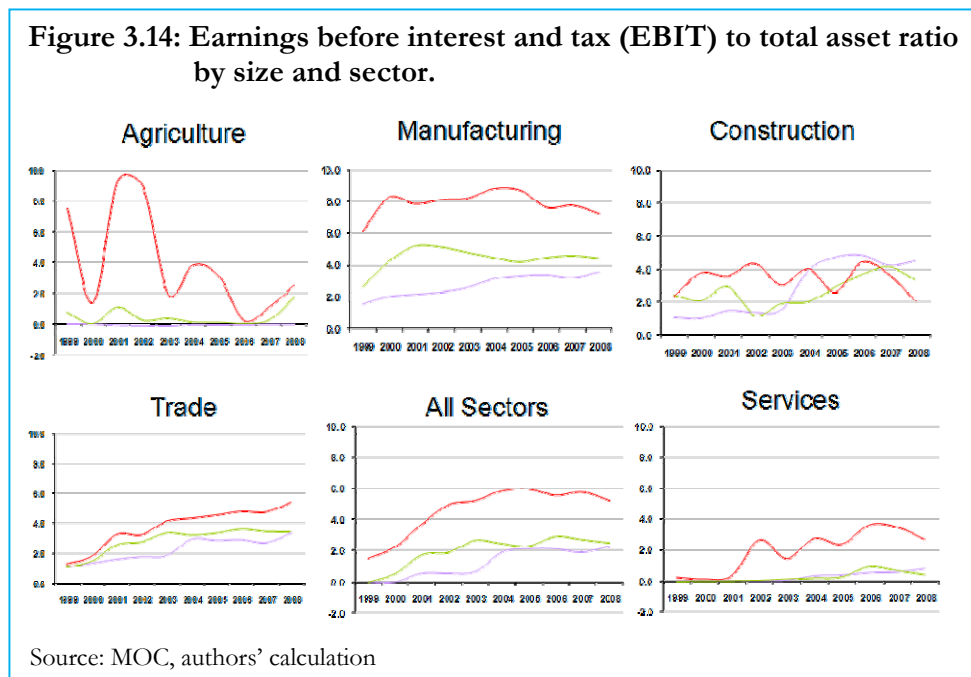
firm in the MAI. Last but not least, the wide gap between the 75th percentile and the median group suggests that a majority of firms has the ratio close to zero.

In sum, the firms in Thailand are quite conservative. They rely less on external funding. The analysis reveals that their capital structure varies with firm size, age and

the business sector. Smaller firms either are forced to utilize their own fund or choose not to be in debt, while larger firms enjoy variety sources of fund.

3.4.D CORPORATE PERFORMANCE

To assess firms' performances, the paper utilizes three measurements, namely EBIT to total assets,¹⁴ interest coverage ratio (ICR),¹⁵ and current ratio (CR),¹⁶ and then clustering them according to firm size. Note that for the ICR, the paper limits the sample size to firms with interest expenses greater than zero.

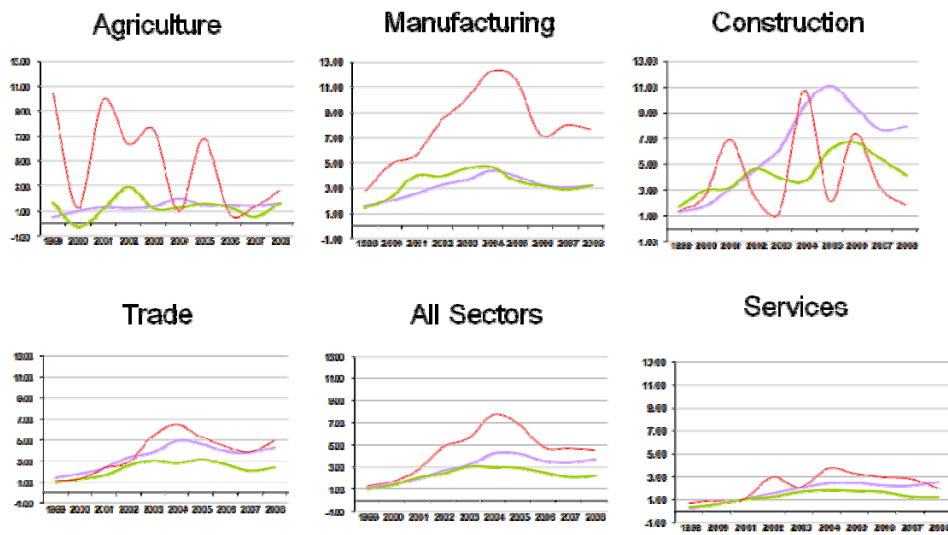


¹⁴ EBIT to total asset refers to the ratio of earnings before interest and tax to total asset. This ratio determines the ability to generate income given total asset. The higher the ratio is, the more capable the firm to generate income and the more capable the firm to repay debt.

¹⁵ Interest coverage ratio or ICR is calculated by dividing EBIT by interest expense. The higher the ratio, the more capable the company is in paying interest on outstand debt. The lower the ratio, the more difficulty the company in paying is debt expense.

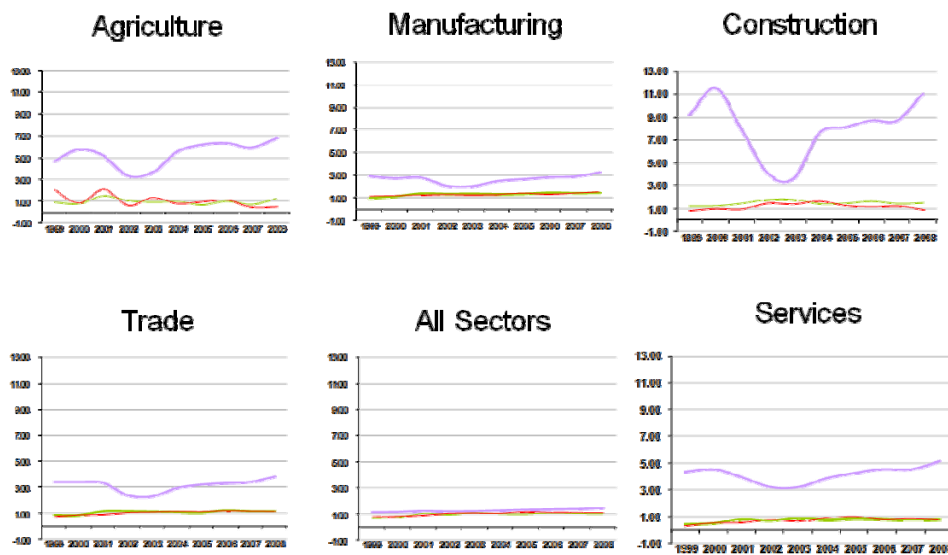
¹⁶ Current ratio is calculated by dividing the current asset by current liability. The ratio measures the ability to meet short-term debt. The higher the current ratio, the more capable the company is in paying off its loan.

Figure 3.15: Interest coverage ratio by size and sector



Source: MOC, authors' calculation

Figure 3.16: Current ratio by size and sector



Source: MOC, authors' calculation

Classifying firms by their size, Figures 3.14, and 3.15 confirm the fact that banks prefer to lend out to larger companies. Both figures reveal that large firms, in almost every business sector, outperform that of smaller ones. The EBIT to total assets and ICR of the large manufacturing firms are about twice as high as those of smaller firms. As for the agriculture sector, large firms, though performed better than the smaller ones, their performance is very volatile, reflecting a higher risk. The median of the EBIT to total assets of large firms has its peak of 10 percent and its trough around zero per cent. Regarding to the CR, as shown in the Figure 3.16, small firms are more liquid than the large ones. Although the higher ratio means firms are less likely to default on loan, the high ratio for small firms may also reflect lower needs to obtain loans from banks, as they now have liquidity on hands.

With respect to the firm age, infant companies with the age of three-year or less perform worse than that of larger ones in almost every sector. Figure 3.17 and Figure 3.18, clearly separate the infant firms from the matured ones.

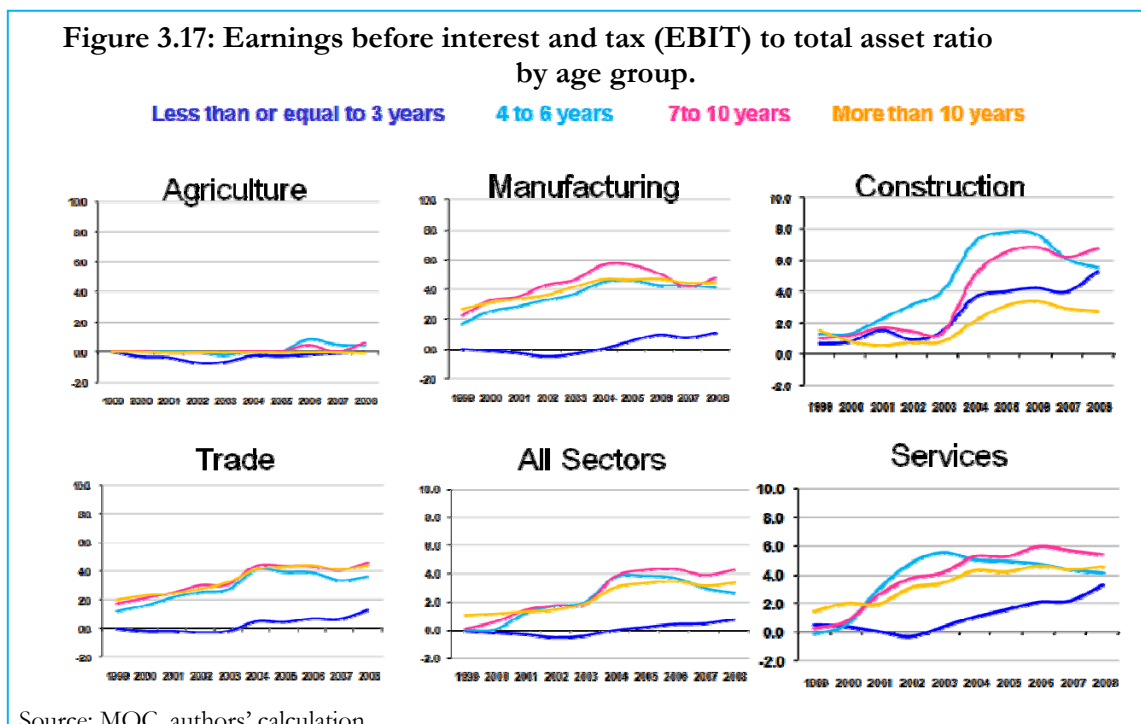
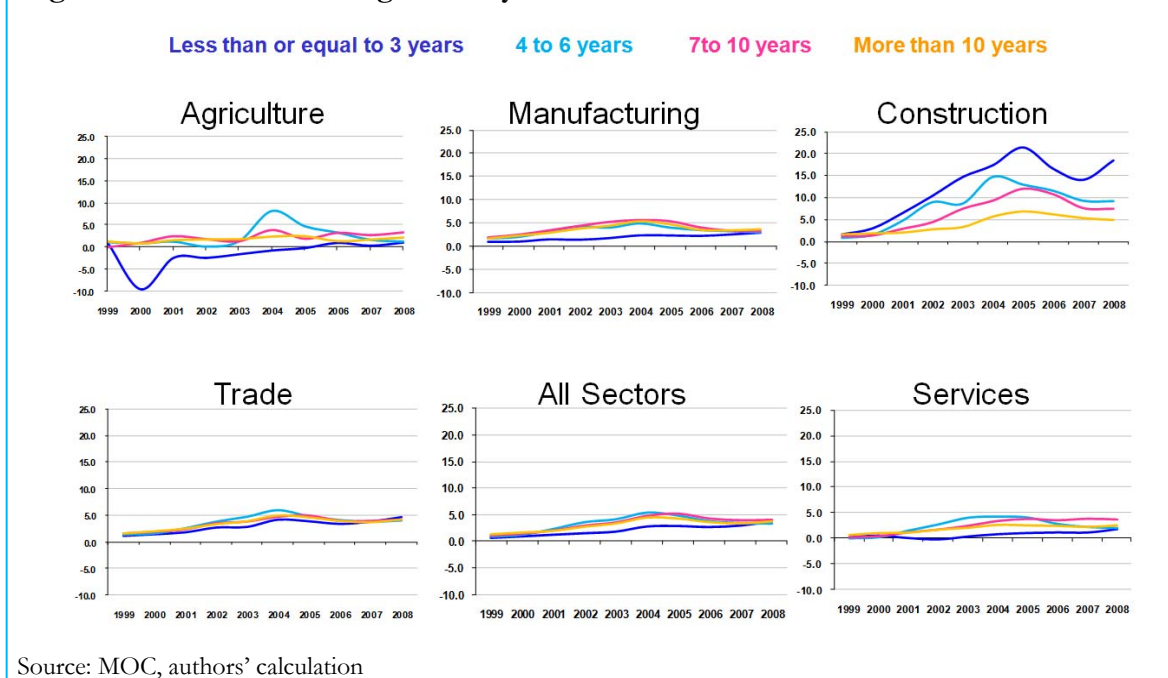


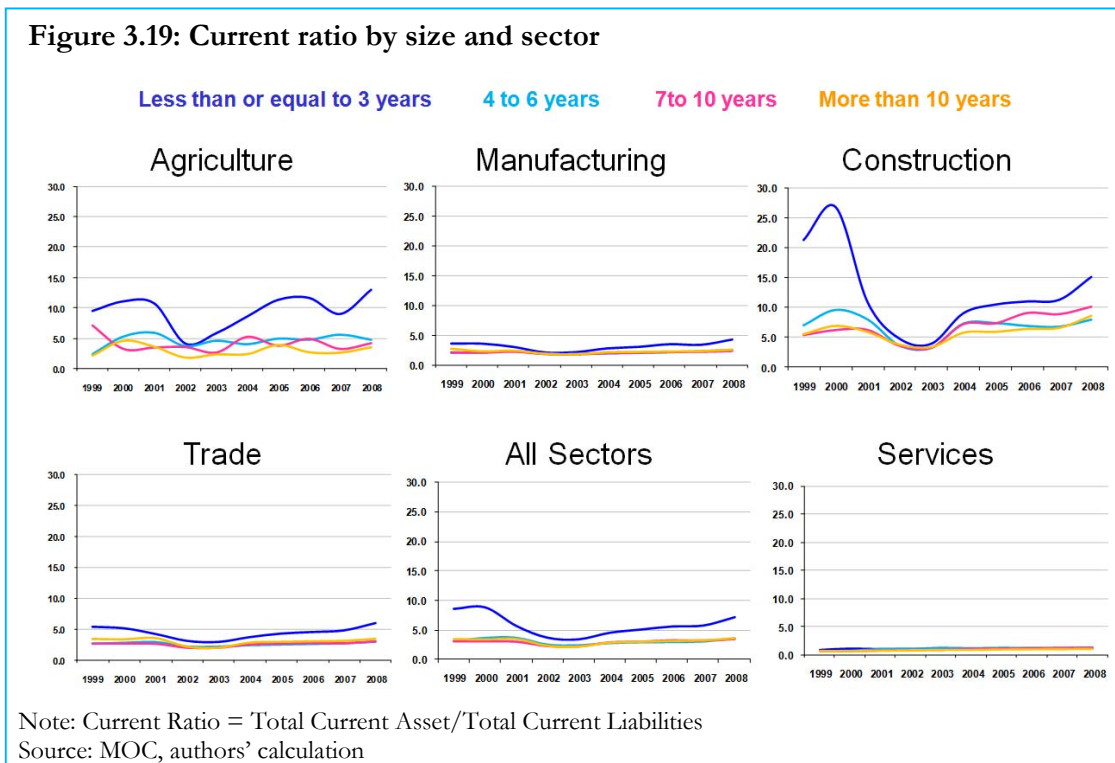
Figure 3.18: Interest coverage ratio by size and sector



The ratios of the matured firms, regardless of age groups, tend to move in the same direction and have higher values than the younger ones. The median of EBIT to total assets of the matured firms is about 2-3 percent higher than that of the infant firms. In some years, start-up firms even experience negative values of this ratio which may indicate that they do not even earn enough income to cover their operating expenses. Upon closer examination, we also find a similar pattern with the ICR, where young firms are likely to have less capability to meet the obligations.

Moreover, considering the two ratios across economic sectors, we find that the performance of firms in the agricultural sector does not vary much across age groups. The sector experiences worse performance than other sectors. With regards to the CR (see Figure 3.91), the ratio of the young firm is higher than that of the matured firms, suggesting that the start-up firms may have difficulties getting access to financial services.

Figure 3.19: Current ratio by size and sector



In sum, from the above measurements, it could be implied that start-up firms have less profitability and ability to repay debt; hence the banks might be reluctant to lend them.

3.5 ANALYZING THE DETERMINANTS OF OBTAINING BANK CREDIT: PANEL DATA EVIDENCE FROM THE DMS AND MINISTRY OF COMMERCE'S DATABASES

In the previous section, we have seen that one of the main obstacles for SME development in Thailand is the limitation of their access to bank credit. This section aims at providing some light on the types of firms that were granted bank loans so firms, especially SMEs, will know more about what are the important balance sheet factors banks consider in credit approval process and what kind of their fellow competitors obtain credit from banks. Due to data availability, we are able to offer the answers as to what characteristics of firms matter when it comes to getting additional bank credit for firms, whose existing credit limit is above 20 million baht,

covering around 60 percent of the total corporations registered. We use panel data regressions to determine the key balance sheet factors on the credit limit growth of firms by industry. The following sections present more detail about the data, regression methodology and results.

3.5.A DATA EMPLOYED

There are two original sources of data we use. First is the *DMS database* of the Bank of Thailand. This database contains the report of bank borrowers whose credit limit exceeds 20 million baht (or 5 million baht before 2004). The DMS report has information on each borrower's BOT loan classification (indicating the five classes of loan status), existing credit limit, number of transactions, present outstanding and non-performing loans, as well as information on collateral pledge. It should be noted that no names of individual borrowers were disclosed to the authors of this paper. The second database is the from Ministry of Commerce. The data contain the balance sheets of the firms that submitted to the Revenue Department as well as the firms characteristics including the ISIC industry classification. After merging the two databases using the firm identification number on file at the Ministry of Commerce, we have about over 180,000 data points to work with, covering the period of 1999-2007. The following table presents the number of data points in our analysis.

Table 3.4: Number of Firms in the Sample by Year 1999-2007

	1999	2000	2001	2002	2003	2004	2005	2006	2007	Total
number of firms	26,094	23,863	23,802	22,412	14,005	17,452	18,648	19,258	21,083	186,617

3.5.B REGRESSION METHODOLOGY

Since our aim is to provide the key determinants of bank credit issuance to firms, the next best thing that our data can offer is the determinants of *additional bank*

credit issuance to firms, as our database does not contain the information on firms which had been denied credit in the first place. Therefore, we had to proxy the characteristics of firms getting bank credit by the characteristics of firms getting *additional credit from banks*. Another limitation is that our sample size contains firms whose credit limit exceeds 20 million baht (or 5 million baht before 2004), covering roughly 60 percent of the registered firms. If one were to argue that small or medium-sized firms are under-represented in our sample, it might be true if one views that credit limit is highly correlated with the size of firms and only firms whose credit limit is above 20 million baht will be considered. However, very often, banks classify a firm to be small, medium or large based on *sale revenue* and not by asset size. In this case, our sample then contains a large number of small and medium size businesses.

Given our logic describe previously, we therefore perform the following fixed-effect panel data regression by industry sector:

$$\Delta Y(\%)_{i,t} = \alpha + v_{i,t-1} + w_{t-1} + \beta Z_{i,t-1} + \varepsilon_{i,t-1}$$

where $\Delta Y(\%)_{i,t} = \frac{\text{Credit Limit}_{i,t} - \text{Credit Limit}_{i,t-1}}{\text{Credit Limit}_{i,t-1}} \times 100$ represents the percentage of credit limit growth of firm i from year $t-1$ to year t . α is an intercept, $v_{i,t-1}$ is the firm fixed-effect and w_{t-1} is the time fixed-effect variables. $Z_{i,t-1}$ is firm i 's balance sheet characteristics which are different for each industry's regression, depending on its significance in explaining the growth in credit for that industry sector.¹⁷ The balance sheet characteristics were entered as lagged variables, since banks usually make a decision to grant more credit based on previous year's balance sheet information of firms. In addition, lagging the independent variables help alleviate the endogeneity problem

¹⁷ In addition, we chose the combination of independent factors by limiting the correlation between each independent variable to no more than 0.50 (which only a few of these high correlations allowed) and also winsorizing each variable at the top and bottom 1-2% to deal with outliers, depending on the nature and availability of data.

when one performs a panel data regression. Finally, please note that there are no macroeconomic variables entered as independent factors. All the yearly macroeconomic effects, as well as any other regulatory or structure changes throughout the years in our sample, were dealt with via the inclusion of the year fixed effect variable; hereby smoothing out any year-on-year difference or effects on the regression.

Note that there can be a case where the credit limit growth is negative due to the debt being paid full without any default or late payment. We then test for the robustness of our regression by neutralizing the data points which had negative credit limit growth with a reduction in the number of transactions (in case the accounts were closed) and with no default in year $t-1$ or year t . Since we could not be certain that the data points that fit these characteristics would always be the case where the good accounts were paid off, as it could also be the case that banks decided to restructure or discontinued the loans without the default status being reached, we therefore assign a zero value to the credit limit growth to neutralize such data points instead of eliminating them. Hence, we from now on would call this neutralized version *the robustness-checked regression* and call the original regression *the full regression*.

3.5.C REGRESSION RESULTS AND ANALYSIS

This section presents the summary of the by-industry regression results. Table 3.5 presents the significant variables which determine the additional credit issued by banks to firms for each industry sector (classified by ISIC first digit code). The column “increase credit limit” means that the factors listed in this column had positive effects, or *coefficient*, on credit limit growth (i.e. increase credit limit issued). Factors listed under the “decrease credit limit” column represents characteristics that lead to a reduction in credit limit. The significant factors in the table came from both the full regression and the robustness-checked regression. Definitions of variables

and complete regression tables for all industry sectors considered, including robust standard errors, and the specific details on the regression performed for each industry segment, can be found in the appendix.

Table 3.5: Determinants for obtaining more bank credit by industry sector

Industry Sector	Factors that Increase Credit Limit	Factors that Decrease Credit Limit
Agricultural and farming (ISIC Code: A)	<ul style="list-style-type: none"> • older firms • have collateral • more current asset growth • high net worth to paid-up capital • high utilization rate 	<ul style="list-style-type: none"> • had default history • having high existing credit limit • high liquidity (quick ratio) • high debt to equity ratio
Mining (ISIC Code: C)	<ul style="list-style-type: none"> • older firms • have collateral • high cash to asset ratio • high sales to asset (asset turnover) • high utilization rate 	<ul style="list-style-type: none"> • having high existing credit limit • high sales growth
Food and beverage production (ISIC Code: D15)	<ul style="list-style-type: none"> • have collateral • high liquidity (quick ratio) • high gross profit margin • high net worth to paid-up capital • high utilization rate 	<ul style="list-style-type: none"> • having high existing credit limit • high earning per share
Cigarettes, cloth, garments, leather, shoes and wood-based, paper-based products and publishing (ISIC Code: D16-D22)	<ul style="list-style-type: none"> • older firms • have collateral • high capital to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • having high existing credit limit
Coal, petroleum, chemical, plastic, paint, cleaning agents, glass, cement, ceramics production (ISIC Code: D23-D26)	<ul style="list-style-type: none"> • older firms • have collateral • high equity to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • had default history • high retained earning to asset • high asset growth
Steel, machine, electrical appliances, weapon, ammunition, electronics, medical equipment, watch, automobile, ship, train, motorbike, bicycle, furniture, musical/sport equipment, toy, recycling production (ISIC Code: D27-37)	<ul style="list-style-type: none"> • older firms • have collateral • high return on equity • high equity to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • had default history • high asset growth
Construction (ISIC Code: F)	<ul style="list-style-type: none"> • older firms • have collateral • high cash to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • had default history
Automobile/motorcycle sales, dealers, car repair businesses (ISIC Code: G50)	<ul style="list-style-type: none"> • have collateral • high cash to asset ratio • high earning before tax to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • had default history • older firms • high asset growth
Wholesale: food and beverages (ISIC Code: G511-512)	<ul style="list-style-type: none"> • older firms • have collateral • high cash to asset ratio • high asset turnover • high equity to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • having high existing credit limit
Wholesale: metals and metal ores, construction materials, machinery, equipment and supplies	<ul style="list-style-type: none"> • older firms • have collateral 	<ul style="list-style-type: none"> • high cash to asset ratio

Industry Sector	Factors that Increase Credit Limit	Factors that Decrease Credit Limit
(ISIC Code: G514200, G514300, G515)	<ul style="list-style-type: none"> • high liquidity (quick ratio) • high equity to asset ratio • high utilization rate 	
Wholesale: non-agricultural intermediate products, solid, liquid and gaseous fuels, other intermediate products and other wholesale (ISIC Code: G514000, G514100, G514900 , G519)	<ul style="list-style-type: none"> • high earning per share • high utilization rate 	<ul style="list-style-type: none"> • had default history • having high existing credit limit
Retail sales (ISIC Code: G52)	<ul style="list-style-type: none"> • older firms • have collateral • high inventory to sales • high utilization rate 	<ul style="list-style-type: none"> • high sales revenue to paid-up capital • high asset growth
Hotels, resorts, restaurants, bars (ISIC Code: H)	<ul style="list-style-type: none"> • high current asset growth • high liquidity (current ratio) • high asset turnover • high equity to asset ratio • high utilization rate 	<ul style="list-style-type: none"> • having high existing credit limit
Logistics and transportation (ISIC Code: I)	<ul style="list-style-type: none"> • older firms • have collateral • high liquidity (quick ratio) • high utilization rate 	<ul style="list-style-type: none"> • having high existing credit limit
Financial intermediaries, investment companies, pawn shops (excluding Central bank and commercial banks) (ISIC Code: J)	<ul style="list-style-type: none"> • older firms • have collateral • long collection period • high net profit margin • high utilization rate 	<ul style="list-style-type: none"> • had default history
Real estate developers, businesses and other related business (ISIC Code: K70)	<ul style="list-style-type: none"> • older firms • have collateral • high asset turnover • high utilization rate 	<ul style="list-style-type: none"> • had default history
Renting business, computer and database consulting, research services, other business support service (legal, accounting marketing, strategies, etc.) (ISIC Code: K71-74)	<ul style="list-style-type: none"> • older firms • have collateral • high net profit margin • high utilization rate 	<ul style="list-style-type: none"> • had default history • having high existing credit limit

The results from the regression confirm our belief on what characteristics type of firms lead to an increase in bank credit. The common factors contributing *negatively*, leading to a decrease in bank credit for firms, are the default history of firms (reflecting the inability to service debt), and the high existing credit limit (reflecting the already-high debt burden of firms). In some cases, the sales and asset growth may lead to a decrease in credit limit because too high sales or asset growth can sometimes be viewed as firms expanding too fast, resulting in higher risk and therefore a decrease in bank credit. As our regression is performed on sets of data reflecting somewhat a general equilibrium of an industry sector, there can be a case where it may be difficult to extract the demand-side effects. This may be the case where, in some industries,

the liquidity ratio, retained earnings, high sales to paid-up capital or high cash to asset ratio led to more liquidity and profit accumulation of firms and hence reducing the demand to obtain bank credit.

Firm characteristics contributing *positively* to credit limit growth, resulting in an increase in bank credit, are mostly the factors that reflect good performance and value as well as resiliency of firms, although the specification may be different depending on the types of business sectors. The profitability characteristics include, for example, sales to assets, gross profit margin and return on equity. Resiliency can be assessed by the low leverage ratio (debt to equity), high capital or equity to asset ratios while the net worth to paid-up capital ratio is used to assess the value of the firm. Finally, two additional factors that have a positive impact on obtaining more bank credit are the fact that lenders have experience in the business (as seen in higher firm age) and also have collateral pledge on the loans from banks

Using the results above, we were able to pinpoint important firm characteristics that enable them to gain more bank credit and hence give more information, by business type, to existing SMEs and general entrepreneurs about what their competitors had done to gain bank funding, and hence they can adjust their business strategies accordingly.

4. IMPROVING LENDING INFRASTRUCTURE AND THE DEPTH OF THE FINANCIAL SYSTEM

Even though the Thai banking industry has been developing continuously in the past decade or so, there are still some frictions in the system that makes the intermediary role between financial institutions and the real sector not as efficient as it should be. There are three key areas to investigate regarding this matter: i) improvements on necessary legislations; ii) transparent credit information for better

risk measurement and management; and iii) enhancing financial depth and diversification in the system. This section concludes with policy recommendations.

4.1 IMPROVEMENTS ON NECESSARY LEGISLATIONS

Having the appropriate and relevant legislations can help facilitate better the lending process between financial institutions and the real sector, eventually aiding firms to be able to grow. The appropriate legal environment plays a key role in facilitating business lending through two channels. While the commercial laws govern the property rights associated with general business transactions, the judicial and bankruptcy legislations determine the efficiency of enforcing these commercial laws during business disputes and bankruptcy resolutions. The degree of law enforceability is then directly related to the confidence of counterparties in financial contracts and consequently the issuance of credit by financial institutions (Berger and Udell, 2006). Moreover, the failure to provide the relevant commercial law enforcement can lead to inefficiencies in the deployment of contracting elements by lending institutions—such as covenants, maturity, collateral and personal commitments—in order to mitigate adverse selection and moral hazard problem in business lending (Chan and Kanatas, 1985; Berlin and Loeys, 1988; Sharpe, 1990; and Berkowitz and White, 2004). Particularly, the study by Qian and Strahan, 2005 indicates that the legal framework that enables lenders to seize collateral in the event of default has a positive relationship with an increased use of collateral, which, in turn, serves as the essential component of the asset-based lending (Berger and Udell, 2006).

An overwhelming amount of literatures confirms the importance of having the efficient legal system and law enforcement in place to facilitate business lending. Firms are shown to face lower obstacles in generating growth in countries with efficient legal systems, strong shareholder and creditor rights, as well as efficient bankruptcy processes (Demirguc-Kunt et al., 2006 and Beck et al., 2005). In addition,

cross country comparison yields that firms are more likely to grow in countries with faster judicial conflict resolution mechanisms and better property right protection (Beck et al., 2006) while an effective legal system can increase investment of firms by reducing idiosyncratic risk imposed upon firm owners (Laeven and Woodruff, 2003). Regarding access, there is evidence of decreased access to credit in the legal environment where there is a high cost in judicial procedures (Jappelli et al., 2005).

Given the importance of implementing the appropriate and enforceable legal frameworks, it is very important to then assess the efficiency of the current Thailand's legal framework associated with lending facilitation as mentioned above, compared to other selected countries. There are a few aspects of the legal framework in relation to the lending infrastructure to be considered: i) ranking of contract enforceability for any business disputes; ii) efficiency in bankruptcy resolution procedures; iii) strength of legal rights for creditors; and iv) overall governance index.

The ranking of contract enforceability reflects the efficiency of contract enforcement in case of any business disputes, counting from the moment the plaintiff files the lawsuit until actual payment. Such effective enforceability helps increase the confidence of creditors that the effect and length of time its corporate borrowers may be involved in business disputes will be minimized, and consequently so is the impact on firms. Three aspects are considered—number of steps involved in the procedure,¹⁸ time in days to resolve dispute,¹⁹ and costs (as a percentage of the debt

¹⁸ The list of procedural steps compiled for each economy traces the chronology of a commercial dispute before the relevant court. A procedure is defined as any interaction between the parties, or between them and the judge or court officer. This includes steps to file the case, steps for trial and judgment and steps necessary to enforce the judgment.

¹⁹ Time is recorded in calendar days, counted from the moment the plaintiff files the lawsuit in court until payment. This includes both the days when actions take place and the waiting periods between. The respondents make separate estimates of the average duration of different stages of dispute resolution: the completion of service of process (time to file the case), the issuance of judgment (time for the trial and obtaining the judgment) and the moment of payment (time for enforcement).

value) of contract enforcement.²⁰ The cross-country comparison yields the following results.

Table 4.1: Contract enforceability assessment and ranking in 2010

Country	Procedure (Steps)	Time (days)	Cost (% of Claims)	2010 Ranking
Australia	28	395	20.7	16
China	34	406	11.1	18
Germany	30	394	14.4	7
Hong Kong	24	280	19.5	3
India	46	1,420	39.6	182
Indonesia	39	570	122.7	146
Japan	30	360	22.7	20
Korea, Rep.	35	230	10.3	5
Malaysia	30	585	27.5	59
Philippines	37	842	26	118
Singapore	21	150	25.8	13
Taiwan, China	47	510	17.7	90
Thailand	35	479	12.3	24
United Kingdom	30	399	23.4	23
United States	32	300	14.4	8
Vietnam	34	295	28.5	32

Source: World Bank's *Doing Business* database. The ranking is out of 183 countries total.

From Table 4.1, it can be seen that the official cost as a percentage of total debt is quite low compared to other countries and the overall ranking stands comfortably at 24th out of 183 countries. However, the number of steps in executing the enforcement as well as the time required to resolve disputes still lag behind other Asian countries—notably Hong Kong, Japan, South Korea, Singapore and Vietnam.

In addition to the efficient business dispute resolution, a good lending infrastructure needs proper bankruptcy resolution procedures. As mentioned earlier in the literature review, this procedure matters a great deal to creditors, as it ensures creditors their rights and assures that the resolution process will be timely, transparent and low cost; therefore helps facilitate an efficient lending process. The bankruptcy procedure efficiency can be assessed from three aspects also—average time to

²⁰ Three types of costs are recorded: court costs, enforcement costs and average attorney fees, where the use of attorneys is mandatory or common. Bribes were not part of the cost recording.

complete bankruptcy procedure,²¹ cost of bankruptcy proceedings²² and recovery rate.²³ Table 4.2 presents the assessment in 2010 for selected countries.

Table 4.2: Bankruptcy procedure assessment and ranking in 2010

Country	Recovery (%)	Time (years)	Cost (% of estate value)	2010 Ranking
Australia	78.8	1.0	8	14
China	35.3	1.7	22	65
Germany	52.2	1.2	8	35
Hong Kong	79.8	1.1	9	13
India	15.1	7.0	9	138
Indonesia	13.7	5.5	18	142
Japan	92.5	0.6	4	1
Korea, Rep.	80.5	1.5	4	12
Malaysia	38.6	2.3	15	57
Philippines	4.40	5.7	38	153
Singapore	91.3	0.8	1	2
Taiwan	80.9	1.9	4	11
Thailand	42.4	2.7	36	48
United Kingdom	84.2	1.0	6	9
United States	76.7	1.5	7	15
Vietnam	18.0	5.0	15	127

Source: World Bank's *Doing Business*

From the group of countries presented, Thailand is ranked 48th out of 183 countries in 2010 when it comes to the efficiency of bankruptcy procedures. However, the ranking falls short of other leading Asian countries such as Japan, Singapore, Taiwan, South Korea and Hong Kong, whose rankings belong in the top 15. The main obstacles seem to have come from registering a high bankruptcy cost

²¹ Time to resolve insolvency is the number of years from the filing for insolvency in court until the resolution of distressed assets.

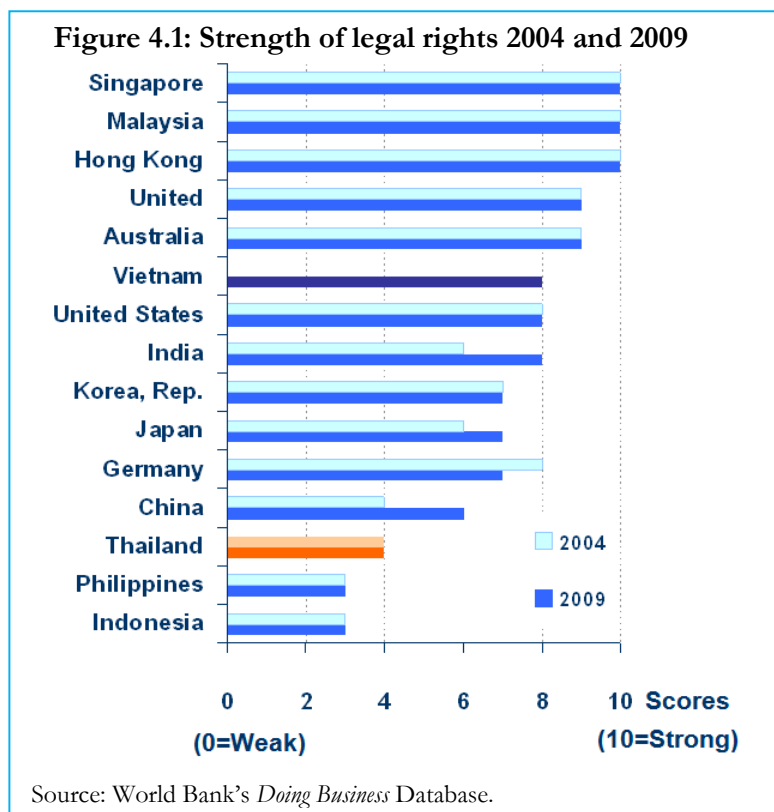
²² The cost of the proceedings is recorded as a percentage of the estate's value. The cost is calculated on the basis of survey responses by insolvency practitioners and includes court fees as well as fees of insolvency practitioners, independent assessors, lawyers and accountants. Respondents provide cost estimates from among the following options: less than 2%, 2–5%, 5–8%, 8–11%, 11–18%, 18–25%, 25–33%, 33–50%, 50–75% and more than 75% of the value of the business estate.

²³ The recovery rate is measured as cents on the dollar recouped by creditors through the bankruptcy, insolvency or debt enforcement proceedings. The calculation takes into account whether the business emerges from the proceedings as a going concern as well as costs and the loss in value due to the time spent closing down.

(2nd highest in the group of countries here) and also the low recovery rate of below 50 percent.

Another factor that can increase the confidence of creditors in lending practice is the strong legal rights. In Figure 4.1, the World Bank's strength of legal right index measures the degree to which collateral and bankruptcy laws protect the rights of borrowers and lenders and thus facilitate lending.²⁴ In 2009, Thailand scored only 4 out of 10 on the legal right index measurement, leading only to Indonesia and Philippines.

The reasons for this low ranking involve mainly: i) the grant of a non possessory security right without requiring a specific description of the secured assets; ii) the absolute priority of secured creditors during bankruptcy procedures as well as claim exemption; and iii) the possibility of an out-of-court settlement. For more details on the questions used in the calculation of legal right strength and the rating for Thailand, please see the appendix.



Finally, the World Bank's Governance Index (WGI) rated countries around the world in six aspects.²⁵ However, out of

²⁴ The strength of legal rights index includes 8 aspects related to legal rights in collateral law and 2 aspects in bankruptcy law. For more details, please visit <http://www.doingbusiness.org/methodologysurveys/GettingCredit.aspx>.

²⁵ The six aspects of the World Bank Governance Index are: i) voice and accountability; ii) political stability and absence of violence/terrorism; iii) government effectiveness; iv) regulatory quality; v) rule of law; and vi) control of corruption.

these six aspects, only three of them are related to the development of sound lending infrastructure: i) regulatory quality; ii) rule of law; and iii) control of corruption.²⁶ The following table presents the latest percentile ranking of WGI in 2008 for selected countries. The ranking results suggest that the current regulatory environment, the confidence of agents to abide by law and the corruption problems remain the obstacles for the private sector development, when compared to other economic leaders in the region and therefore additional measures need to be put in place to improve the current governance setting, which will be elaborated more as a concluding remark to this section.

Table 4.3: Governance index ranking (2008)

Country Ranking (Percentile)	Regulatory Quality		Rule of Law		Control of Corruption		Average Ranking	
	2004 Ranking	2008 Ranking	2004 Ranking	2008 Ranking	2004 Ranking	2008 Ranking	2004 Ranking	2008 Ranking
Australia	96	98	96	95	96	96	96	96
China	45	46	44	45	34	41	41	44
Germany	91	91	93	93	94	93	93	92
Hong Kong	99	100	91	91	92	94	94	95
India	40	47	57	56	46	44	48	49
Indonesia	26	45	25	29	19	31	23	35
Japan	81	86	89	89	85	86	85	87
Korea, Rep.	75	73	72	74	66	70	71	72
Malaysia	67	60	66	65	69	63	67	63
Philippines	47	52	34	40	32	26	38	39
Singapore	99	100	95	94	98	100	97	98
Taiwan, China	82	82	79	74	80	73	80	76
Thailand	63	60	54	54	50	43	56	52
United Kingdom	97	98	94	92	94	93	95	94
United States	92	93	92	92	93	92	92	92
Vietnam	35	32	40	42	23	25	33	33

Source: World Bank's Governance Index: <http://info.worldbank.org/governance/wgi/index.asp>.

²⁶ **Regulatory quality** reflects the ability of the government to provide sound policies and regulations that enable and promote private sector development while **the rule of law** assesses the extent to which agents have confidence in and abide by the rules of society, including the quality of contract enforcement and property rights, the police, and the courts, as well as the likelihood of crime and violence. **Control of Corruption** measures the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests.

4.2 INCREASE TRANSPARENCY OF CREDIT INFORMATION FOR BETTER RISK MEASUREMENT AND MANAGEMENT

In the previous section, we have learned about the relevant regulation necessary to support the efficient lending infrastructure. In this section, we will discuss another key driver that will help improve the lending activities—namely the availability of necessary credit information to creditors.

Intuitively, creditors make decisions to lend based on the characteristics and payment history of borrowers so as to minimize the probability that the borrowers will not be able to meet the payment commitment and to maximize possible lending rate. In a crystal ball setting where information is complete, creditors will be able to lend to the borrowers with the perfect risk-adjusted return rate, as the *ex-ante* risk mimics well the *ex-post* risk, hereby eliminating the adverse selection problem. However, in reality, asymmetric information of borrowers introduces inefficiencies into the lending procedure—leading to some worthy borrowers being denied of credits (Type I error) and some not-so-safe borrowers being granted credits (Type II error). It can also lead to higher cost of a loan issuance process and information search, which in turn can hinder the desire to issue credit. Therefore, in order to minimize the degree and consequently the impact of such asymmetric information, the establishment of a credit bureau (public or private) and the implementation of a sound accounting standard and auditing principles are essential. Credit bureaus serve as a credit information hub that creditors can utilize in order to measure and manage the lending risk efficiently, while a consistent and transparent accounting standard ensures the quality and consistency of information shared through the bureau and financial institutions.

Several researches have lent support to the importance of the credit bureau establishment in facilitating lending practices and risk management. Miller (2003) and Brown, et al. (2009) found that having a credit bureau helped reduce cost and time of

loan processing as well as the level of defaults, while such information in credit bureau can be used to better predict the default risk of firms more accurately beyond financial ratios and other qualitative information of firms (Kallberg and Udell, 2003). Also, there is a significant relationship between credit availability and the third-party credit bureau existence (Love and Mylenko, 2003) while a cross-country study shows that countries with more formal information sharing have a higher ratio of bank lending to GNP and credit risk decreases when there is more information sharing (Jappelli and Pagano, 2002). Baer et al., (2009) found that the existence of credit bureaus had positive effect on SME lending. There is also evidence that information sharing can reduce lending misconduct (Barth et al., 2008), thereby improving the credit process and quality. Finally, good accounting and auditing systems help mitigate credit risk by reducing the possibility for firm risk-taking associated with bank safety nets (Fernández and González, 2005).

Table 4.4: Credit bureau coverage ratio (% of adults)

Country	Public coverage		Private coverage	
	2005	2009	2005	2009
Australia	0	0	95.4	100
China	0.4	62.1	0	0
Germany	0.6	0.8	85.6	98.3
Hong Kong	0	0	61.5	71.9
India	0	0	0	10.2
Indonesia	0.4	22	0	0
Japan	0	0	61.5	76.2
Korea, Rep.	0	0	-	93.8
Malaysia	33.9	48.5	-	82
Philippines	0	0	3.4	6.1
Singapore	0	0	33.5	40.3
Taiwan	0	0	33.4	63.2
Thailand	0	0	15	32.9
United Kingdom	0	0	-	100
United States	0	0	100	100
Vietnam	0.8	19	0	0

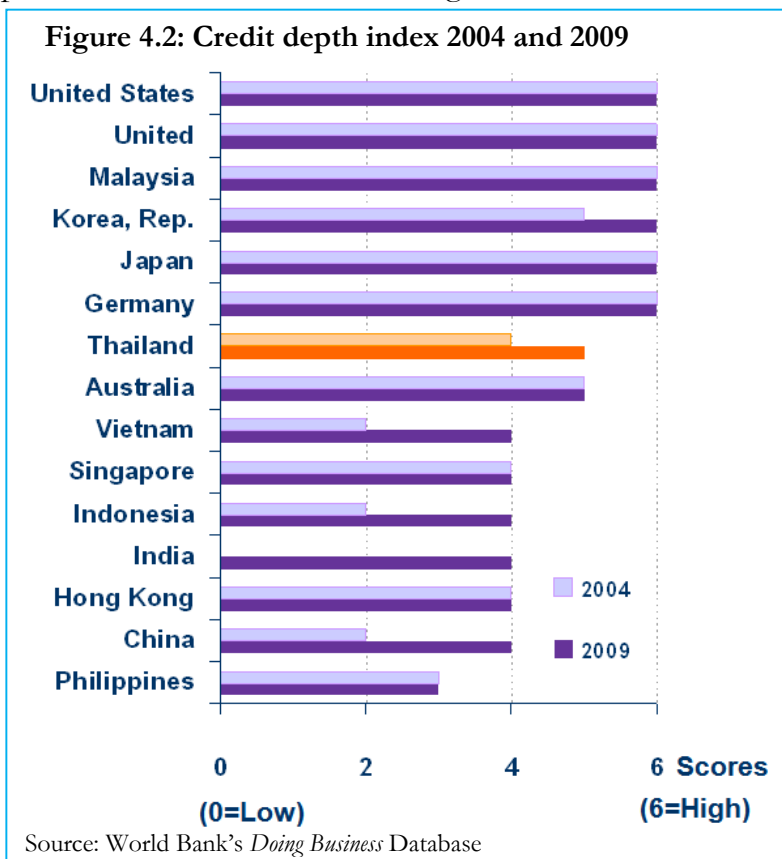
Source: World Bank's *Doing Business* Database.

agencies at the time. The bureau contains personal information on the loan and credit card products only. At present, the bureau scores by NCB is currently being

Given how the important role played by a credit bureau in lending businesses is, it is worthwhile to investigate the current status of the credit bureau setting in Thailand. The National Credit Bureau (NCB) of Thailand was first established in 2005 as a result of a merger between two existing credit reporting

developed. As of June 2009, the bureau had information on 17.2 million people and covers about 290,000 firms, yielding the coverage ratio of 32.9 percent. Table 4.4 shows the cross-country comparison regarding the credit bureau coverage, both for public and private credit registries, in 2009.

From the table, Thailand’s credit bureau information coverage still lagged behind some other countries, especially the peer Asian nations like Hong Kong, Japan, Malaysia and South Korea. This may have been contributed from the limited data collection, which covers only the loans and credit card usage, as well as from the fact that a substantial amount of adults may not have either loans or credit cards—either from having no demand for it or was denied access. In addition, a large part of the Thai population uses cash as a primary transaction tool and therefore does not possess credit cards; hence being left out of the credit bureau pool.



As for the measurement of the quality of information, Thailand performed quite well in the cross-country comparison in 2009, using the World Bank’s credit depth index, by scoring five out of six possible points as seen in Figure 4.2. This index measures rules affecting the scope, accessibility, and quality of credit information available through public or

private credit registries. The higher the values, the more credit information is available to facilitate lending decisions.²⁷

In addition to the limitation on types of data collected in the NCB, the legislation governing the usage of credit bureau information is quite restricted in Thailand. Kunvipusilkul (2009) pointed a few of these limitations as follows:

- i. Members of NCB are not allowed to inquire information of a guarantor as well as an owner or a board member of a business entity (in case of a business loan), directly from NCB, even with their consent. Instead, the guarantors are required to self-inquire through NCB and then submit the results to banks.
- ii. The law permits members of NCB to use credit information only for credit analysis (for example using as input for credit scoring) but does not allow the usage of information in model development or testing.

Such usage limitations, together with the low coverage of credit information, mean that the benefit from using credit bureau to alleviate the asymmetric information in credit issuance is still quite limited in Thailand. The limited availability of coverage may have affected the credit analysis but the prohibition to utilize the data for the credit model development may lead to lower model development efficiency, as it is widely known that credit bureau information serves as the key inputs for credit scoring and risk models (Barron and Staten (2003)). Regarding the limitations in using the credit bureau data on guarantors and firm executives directly by banks, it can increase the possibility of mistakenly denying credit issuance to potentially worthy borrowers when banks do not have such information, even though the statue of limitation can be argued from the ground of consumer privacy protection. In conclusion, the existence of the NCB in Thailand can help improve the lending

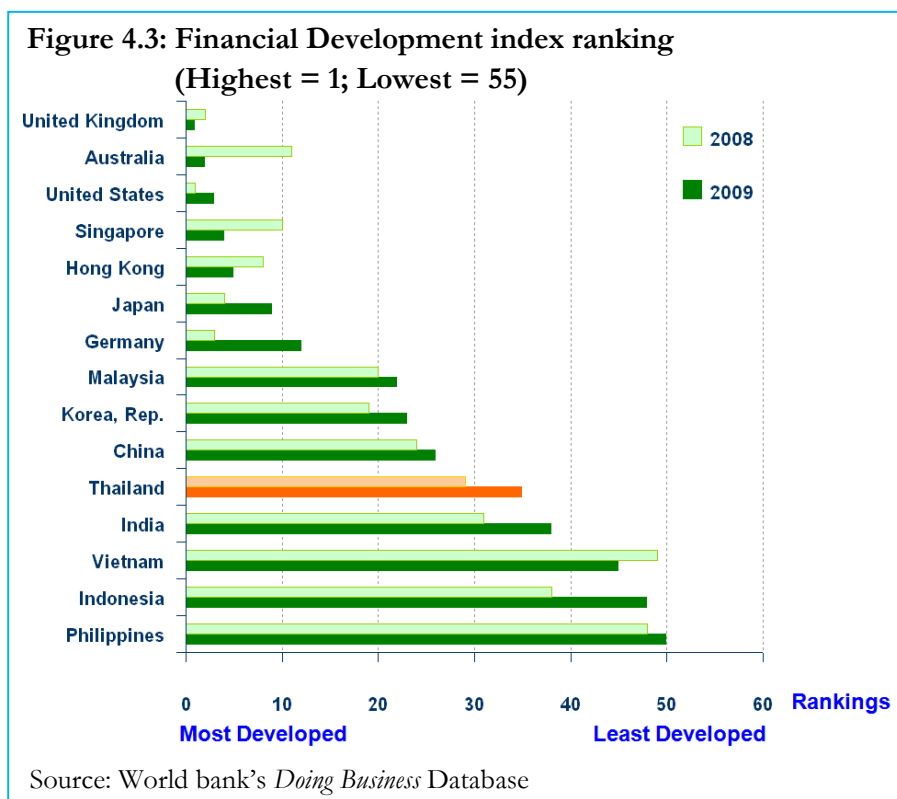
²⁷ The index ranges from zero to six where six reflects the highest data quality. Each country is rated using six questions, measuring the information distribution (both on individuals and firms as well as the positive and negative nature of information), the length of data history, the granularity of data, the ability to inspect the data by borrowers, and data availability to other entities than just financial institutions. For more details, please see the appendix.

efficiency of banks but there is room for improvement on some aspects, such as coverage and limitations, of the current credit bureau framework.

4.3 ENHANCING FINANCIAL DEPTH AND DIVERSIFICATION IN THE SYSTEM

Enhancing the financial depth and diversification is crucial for the development of the efficient and sound in the financial system. It can provide alternative source of funds to the real sector other than bank lending, especially for large corporates. This should lead to a more efficient fund raising for the real sector, as capable firms can possibly be directed towards the non-bank funding while bank credit can be extended to other types of firms which do not have access to non-bank funding. With the projection of the foreign fund pouring into Thailand in the near future, this influx will likely be invested in non-bank markets also, giving these markets a chance to develop further.

Recent studies still found evidence of financial deepening and economic growth in cross-country cases (Shan (2005) and Apergis, et al. (2007)) and also a positive relationship between financial development and growth in China (Hasan, et al. (2007)). The positive relationship between financial depth and growth in Thailand can be found in Townsend and Ueda (2003) where they provided both the model-based and actual data testing of the financial depth on growth in Thailand during the pre-Asian crisis. Given the importance of having a deep and diversified financial system, this section is devoted to providing the most recent update on the development of the Thai financial market. Since the previous section has already addressed the development in the banking industry, there remain the non-banking financial services to be assessed.



To put the degree of financial development in Thailand into perspective, the Financial Development Index by the World Economic Forum Committee provides the cross-country comparison of the financial development on

seven different pillars for 55 countries, as shown in Figure 4.3.²⁸ In 2009, Thailand was ranked 35th, dropping from the 29th ranking in 2008, falling short of other leading Asian economies—Singapore (4th), Hong Kong (5th) and Japan (9th). Figure 4.3 presents the rankings in 2008 and 2009.

The next question to ask, naturally, is why our ranking fell short of other Asian countries. Upon further investigation, it just so happened that the insufficiently developed insurance sector (ranked 49th) contributed significantly to the low non-bank financial service scores, while the financial market development was rated 36th, mainly because of the low equity market development index (ranked 35th). Therefore, we concentrate our analysis on: i) insurance companies as non-bank players in the market;

²⁸ The seven pillars are: i) Institutional Environment; ii) Business Environment; iii) Financial Stability; iv) Banking Financial Services; v) Non-banking Financial Services; vi) Financial Markets; and vii) Financial access.

and ii) the performance of non-banking markets, mainly equity and bond markets, which carry highest weights of sixty percent to the scores of the sixth pillar of the index—financial market development.

As for the analysis of the insurance sector, it seems that the insufficient development of the insurance markets and companies contributes most to the low ranking of the non-bank financial services index, ranking 49th out of 55 countries. The ranking consists of 4 different aspects of the insurance market efficiencies: i) insurance density; ii) growth of insurance premiums; iii) insurance penetration; and iv) relative value-added of insurance to GDP. The latest statistics and rankings can be found in the following table.

Table 4.5: Insurance market efficiency indicators (as of 2009)²⁹

Country	Insurance Premiums		Insurance Density		Growth of Premiums		Insurance Penetration		Relative Value-added	
	Data	Ranking*	Data	Ranking*	Data	Ranking*	Data	Ranking*	Data	Ranking**
Australia	60317	13	2832.7	16	-10.6%	45	6.4%	19	2.27%	10
China	163047	7	121.2	41	14.6%	4	3.4%	32	0.59%	41
Germany	238366	5	2878.4	15	3.6%	18	7.0%	17	0.70%	36
Hong Kong	23201	22	3304	13	-4.5%	36	11.0%	4	3.94%	1
India	65085	12	54.3	47	9.0%	8	5.2%	22	1.07%	27
Indonesia	7285	36	31.7	49	8.4%	9	1.3%	46	0.71%	35
Japan	505956	2	3979	8	-1.1%	31	9.9%	7	2.03%	11
Korea, Rep.	91963	10	1890.3	20	0.8%	26	10.4%	5	2.59%	6
Malaysia	8840	32	321.8	32	-0.4%	27	4.4%	25	1.09%	24
Philippines	2399	44	26.1	50	6.1%	14	1.5%	45	1.07%	22
Singapore	14245	28	2557.6	19	-2.6%	33	6.8%	18	3.59%	2
Thailand	10460	30	154.4	38	9.8%	6	4.0%	27	0.57%	42
United Kingdom	309241	3	4578.8	4	-9.4%	43	12.9%	2	2.51%	8
United States	1139746	1	3710	9	-7.8%	40	8.0%	13	2.42%	9
Vietnam	1440	47	16.4	52	12.9%	5	1.6%	44	n.a.	n.a.

Source: Swiss Re. *Updated by the authors using the recent 2009 data. **This is 2008 data by Global Insight's *World Industry*

From Table 4.5, the Thai insurance industry registered a high real growth of 9.8 percent between 2008 and 2009, reflecting an on-going development in the insurance sector. Some countries affected by the subprime crisis showed a reduction in insurance premium growth, indicating the prolonging recovery period. However, when looking at the insurance base of the Thai industry, it clearly showed that the

²⁹ Insurance premium (including cross-border) is the total volume of life and non-life insurance in a country (in million of USD). Insurance density measures the insurance premium per capita (in USD). Real growth of insurance premiums is calculated as the annual real rate of growth (%) of premium based on local currency prices. Finally, insurance penetration is the percentage of domestic insurance premiums as a percentage of GDP.

Thai population has been under-insured when compared to other Asian countries like Japan, Hong Kong, South Korea and even India. The low ranking of real-value added of insurance business to GDP (after cost subtraction) remained low. This means that there is a high growth potential for this sector as a future GDP contributor.

Next is the assessment of the equity market development. Using partly the work of Levine and Zervos (1996), the index comprises of four different aspects: i) *market-specific liquidity*-market turnover ratio; ii) *size*-market capitalization; iii) *country-specific liquidity*-market value traded to GDP; and iv) *participants*-number of listed firms per 10,000 people. The following table presents these factors in detail.

Table 4.6: Stock market efficiency indicators

Country	Market Turnover Ratio		Market Cap to GDP		Market Value Traded to GDP		No. of Listed to 10,000 People	
	Data	Ranking	Data	Ranking	Data	Ranking	Data	Ranking
Australia	109.79	19	146.63	8	160.98	13	0.91	5
China	180.18	7	131.84	12	237.55	7	0.01	48
Germany	178.68	8	57.09	36	102.00	22	0.08	23
Hong Kong	88.62	23	500.53	1	443.57	1	1.49	1
India	83.91	27	112.72	20	94.58	23	0.04	32
Indonesia	64.12	32	40.66	44	26.07	39	0.02	44
Japan	140.34	15	105.78	23	148.45	15	0.30	14
Korea, Rep.	200.51	5	101.52	25	203.55	11	0.36	12
Malaysia	53.21	39	155.99	6	83.01	24	0.39	11
Philippines	33.95	43	59.78	35	20.30	41	0.03	37
Singapore	121.32	18	196.29	5	238.14	6	1.03	3
Thailand	63.88	33	68.91	33	44.02	34	0.07	24
United Kingdom	267.70	1	141.38	10	378.49	3	0.42	10
United States	214.78	3	143.65	9	308.54	4	0.17	18
Vietnam	87.80	25	20.12	52	17.67	43	0.01	46

Source: A New Database on Financial Development and Structure by Beck, Demirguc-Kunt and Levine. Updated November 2008.

The turnover ratio measures the liquidity based on market activeness with respect to the size of the market while high turnover can also reflect the low-cost nature of the market. The value traded to GDP reflects the economy-wide liquidity by comparing the activeness to the size of the economy. These two measures of liquidity are not always related. A small but liquid market will have high turnover but not necessarily high value traded to GDP. The performance of the Thai stock market on liquidity, both measured by the turnover ratio and the market value traded to

GDP, is very similar when comparing the ranking with other countries. Therefore, regardless of the measures, the Thai equity market is quite illiquid. In addition, the size measurement via market cap is also small, falling below the 50th percentile.

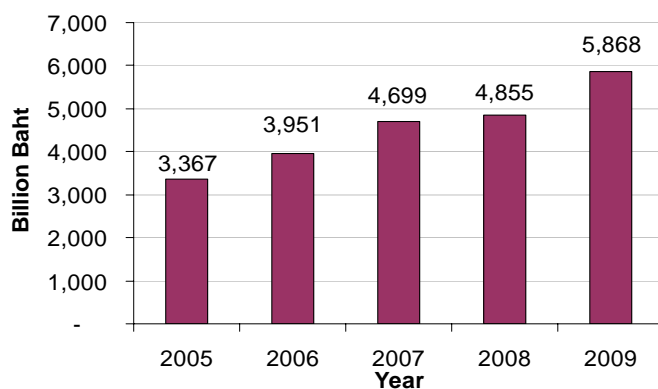
Table 4.7: Bond market size characteristics

Country	public bond to GDP (%)		private bond to GDP (%)		international bond to GDP(%)		value of newly issued corporate bond to GDP (%)	
	2003	2005	2003	2005	2003	2005	2003	2005
China	-	24.60	-	11.07	1.13	1.19	0.61	0.26
Hong Kong	9.82	9.93	19.11	17.86	29.56	32.17	9.37	3.98
Indonesia	24.09	18.00	1.67	2.37	3.82	4.22	1.50	1.35
Japan	120.67	150.58	44.37	42.46	6.06	6.39	3.27	3.95
Korea	16.22	25.42	52.01	52.93	9.45	10.03	7.14	3.44
Malaysia	35.73	38.30	52.16	52.36	22.72	22.40	2.98	5.13
Philippines	27.80	38.58	0.12	0.26	30.82	29.66	10.45	7.55
Singapore	38.13	39.34	22.67	18.85	25.73	32.39	6.68	7.17
Thailand	20.91	21.20	16.25	20.29	7.37	6.07	3.13	3.61
U.S.	44.17	46.36	111.42	114.00	26.45	27.83	12.28	9.40

Source: Bond Market Indicator Report, the World Bank Group, BIS, Thompson Financial and

Finally, the analysis on the bond market performance. In 2005, the Thai bond market was considered very small when compared across selected countries but it registered an upward trend when compared to the 2003 period, as shown in Table 4.7. Japan's public bond size was consistently large across both years while the private bond market in the U.S. topped the size comparison and also the value of newly issued corporate bond (measured as a percent of GDP).

Figure 4.4: Bond market outstanding 2005-2009

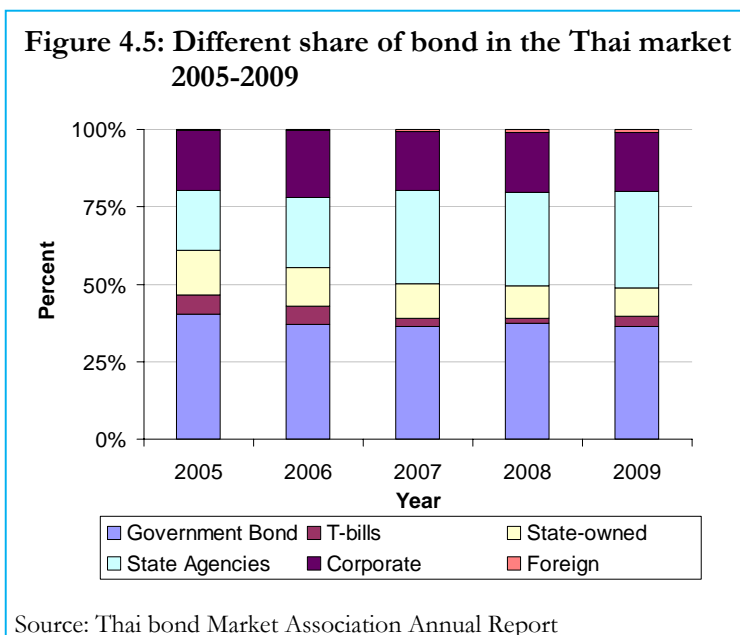


Source: Thai bond Market Association Annual Report

Since 2005, the bond market has evolved significantly. The size of the bond market grew constantly in the past years, as shown in Figure 4.4. The total bond market outstanding increased from 3,367 billion baht in 2005 to 5,868 billion baht in

2009, a 74.3 percent increase.

As for the composition of types of bonds, the government-issued bonds still captured the largest share of the market in 2009, comprising of about 36.3 percent of the total bond outstanding, followed by the bond issued by state agencies at 31 percent. The share of corporate-issued bonds surprisingly stayed roughly at the same level—around 19-20 percent across all years. The details are shown in Figure 4.5.



Regarding the activeness of bond trading in the market, the turnover ratio (a liquidity measurement similar to the stock market previously mentioned) increased from 0.902 in 2005 to 2.48 in 2009, indicating that the bond market had become more liquid but the highest

liquid bond traded was still the T-bills and the state agency bonds, surpassing other types of bonds by roughly *six times* in 2009 (Thai BMA Annual Report 2009).

When considering the participants in the bond market, other than the dealer-to-dealer trading of around 21 percent of trading transactions in 2009, the dealer-to-client trading was done mainly by asset management companies (AMC) with the share of about 66 percent, followed by the domestic and foreign companies of 14 percent and 6 percent respectively. However, the roles played by funds—either government, pension, private, and provident—as well as insurance companies and individual investors were still very limited, comprised total of about 14 percent with the

participants of insurance and individual investors at 2 percent and 1 percent respectively (Thai BMA Annual Report 2009).

Therefore, the Thai bond market has been developing quite significantly in size since 2005. However, there are still limited types of bonds available and the circle of market participants is still small, with very limited roles of other institutions such as funds, insurance companies and individual investors.

5. POLICY RECOMMENDATIONS

This section provides the forward-looking policy recommendations for the three topics analyzed previously, as well as offering suggestions regarding future challenges. The goal of providing this policy implication section is to identify what should and can be done for each topic. As will be seen, the efforts to improve all aspects of the topics discussed must come from all related parties—commercial banks, players in the financial markets, entrepreneurs, legislative institutions, the government and regulators.

5.1 POLICIES REGARDING THE EFFICIENCY AND COMPETITION OF THE BANKING INDUSTRY

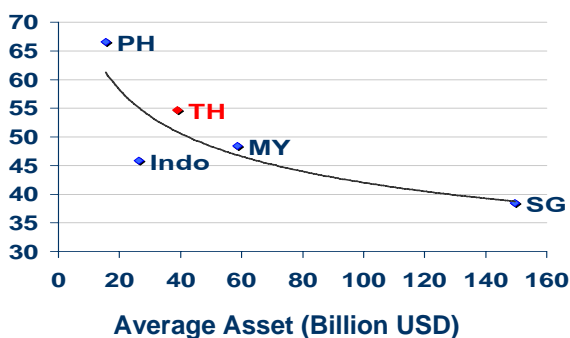
CONSOLIDATION: The literatures on scale economies find that banks enjoy economies of scale at low levels but there is a threshold, beyond which diseconomies set in (Berger and Mester, 1997), Berger et al., 1999), Wheelock and Wilson, 2001). These studies estimate that the maximum efficient size of commercial banks lies between USD 100 million and USD 25 billion. However, such finding fails to explain the existence of much larger international banks.

A study group established by the Committee on the Global Financial System of the BIS points out in its report (BIS, 2010)) that there are several possible reasons for the lack of evidence on economies of scale and scope. For example, findings typically

reflect properties of the representative or average banks in the data sample of each study. This leaves open the possibility that some banks have realized economies of scale and/or scope while others have suffered diseconomies of scale. The report further argues that industry representatives and consultancy firms often mention the existence of economies of scale as a driving force of mergers between banks.

Ghosh (2006) reports that competitive pressures arising from deregulation (domestic and foreign) have driven the banking sector in some Asian countries to consolidate. Our initial study finds a strong negative correlation between size and costs for banks in the region. Figure 5.1 shows Singaporean banks having the largest average size of about 150 billion USD and operating at the lowest cost-to-income ratio of below 40 percent. In terms of size, Thai banks lag somewhat behind Singapore and Malaysia. If we exclude Indonesia whose cost-to-income ratio is kept low because of the extremely high net interest margin, the negative correlation between size and costs becomes even stronger. Figure 5.2 shows a scattered plot of the average size and the average cost-to-income ratio of Thai banks during the years 2001-2009. Although the negative correlation between size and costs is not as strong

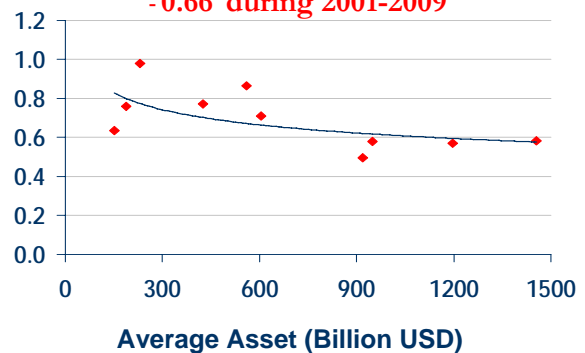
Figure 5.1: Relationship between cost to income ratio and average asset of banks in the region.



Source: Bank of America and Bank of Thailand, 2009

Figure 5.2: Cost to income and average asset of Thai banks 2001-2009

Correlation (cost/income, asset) = -0.66 during 2001-2009



Source: SETSMART and banks' website

as in the cross-country data, such correlation seems to exist, at least for asset size up to 1 trillion Baht.

EXPECTED LOSS: The first line of defense against having high expected loss is to manage risk well; thereby minimizing the probability of default. In other words, the expected loss can be reduced by reducing the amount of new delinquent loans. For Thai banks, credit risk is the most important source of potential loss, as loans are the majority of bank assets while most of them carry flexible interest rates.

Thai banks have come a long way in enhancing their risk management systems. There are two notable areas which have seen significant improvements. First, the process of loan underwriting has been strengthened by (i) the introduction of a check-and-balance system and (ii) the usage of risk management tool, such as the credit scoring and information of the credit bureau. Second, the process of loan monitoring has also been enhanced. Relationship managers are now in closed contact with the borrowers. If there is a reason to believe that borrowers may be facing a repayment difficulty, they tend to deal with such problem more early and in a timely manner. Going forward, such process can be strengthened further by improving the loan review process in order to ensure that the required practices are followed accordingly.

Once a loan becomes past due, the loss given default (LGD) rate is determined by the effectiveness of banks in managing the non-performing loans, which, in turn, depends on the bank's own performance and the strength of creditors' rights given by the legal system. Having experienced the financial crisis in 1997, Thai banks have gained significant skills in NPL management. Certain regulations are being reviewed to facilitate effective management of non-performing loans, such as allowing banks to set up a joint venture with the real estate developers/consultants to complete unfinished real estate projects before selling them later in the market. In addition to bank's own ability to manage the non-performing loans, the strength of creditors' rights given by the legal system is also an important determinant of the LGD rate. As

seen in Table 4.2, there is a case for reforming the bankruptcy and foreclosure laws in Thailand, which will be discussed further in Section 5.3.

5.2 POLICIES ON ENHANCING INCLUSIVENESS AND FINANCIAL ACCESS

Policymakers have recognized the importance of SMEs to the economy and have not waited to intervene in credit markets on behalf of SMEs. The sheer size of employment generated by SMEs and their contribution to the economy mean that the sector cannot be neglected. It is important for the government to provide some sort of financial assistance to these firms. In Thailand, SMEs are gradually losing their edges in competing with larger enterprises while the constraints on SMEs have become more evident, especially the difficulty in obtaining financing access. The problem of SMEs financial access remains and it is essential that the form and amount of the financing should be tailor-made to the SMEs in order to promote growth and development, leading to earning sufficient profits and cash flow.

Market failures in credit markets due to asymmetric information and imperfect contract enforcement result in the difficulty for SMEs to get external finance. Therefore, one of the most important roles of the government may not necessarily be about the provision of credit directly, but rather about strengthening the institutional underpinnings of financial transactions. As will be discussed in Section 5.3, this requires improvements in the legal and regulatory infrastructure, as has been pointed out by many past studies for quite some time now. It also requires improvements in the information infrastructure that underpins the efficient operation of financial systems.

Finally, specific areas related to SME financing are government-supported credit guarantee schemes *on a continuous basis*, and promoting the public and private sector partnership, including SME bank, OSMEP, government and commercial

banks. Government, in this regard, has a role to play in facilitating the private sector in the process of this experimentation and recovery.

5.3 POLICIES ON IMPROVING LENDING INFRASTRUCTURE

This section outlines the possible policy recommendations in lending infrastructure improvements discussed previously in topics 4.1-4.3. The policy discussions are presented in the order of such topics.

First, the policies on improving the legal framework related to facilitating the lending process. To improve the current business-dispute and bankruptcy legislation frameworks, the time and complexity of the process needed to complete the bankruptcy process should be lessened. Such improvement will lead to more efficiency in a sense that there will be less time spent in the bankruptcy process, more recovery on the value of assets (which tends to deteriorate with the length of time used in the process), and also lower processing cost. In fact, the cost of bankruptcy procedures in Thailand is almost the highest among the countries considered in the table so the authority responsible for processing bankruptcy cases may also need to investigate and determine ways to reduce such cost. As for the enforceability of law and the protection of creditors' rights, there should be an improvement to the rights of creditors to take possession of the pledged collateral without complex and time-consuming procedures. Specifically, regarding the non-possessory security rights of revolving movable assets, which can be interpreted as receivable securities, the current Thai legislation currently does not allow receivable securities to be used as collateral for bank borrowing. Therefore, permitting such collateral pledge can increase the types of collateral pledged and consequently can help better facilitate credit issuance to firms.

Second, regarding the credit information transparency through the use of the NCB, two aspects of policies should be implemented. The first part of the policy

deals with means to increase more credit information coverage, as the current coverage of the Thai NCB is around 33 percent. As mentioned previously, the current credit information only covers loans and credit card borrowers. If most of the Thai population does not have a credit card, more credit information may be obtained from other possible sources, such as utility or phone payment history, as can be seen in the U.S. If there is going to be a trade-off between privacy and possible information gathering, the bureau may select and obtain help from a specific information pool, such as phone bills only and not utility bills, for example.

The second part of the bureau policy is about how to improve the usage of bureau information. As mentioned previously, the financial information of guarantors and member of corporate boards should be made directly available to the members of NCB for the case that guarantors or board members have already signed the consent to release their financial information. This process can shorten the time and reduce complexity in providing necessary credit support information of borrowers, leading to more transparent credit application information as well as better and more efficient loan processing procedures. In addition, with more complete information, obligors who used to be denied bank credit because of the insufficient information now should have a better chance of getting credit, as the information needed to grant loans is more complete.

As for the development to increase financial depth, the 5-year Capital Market Development Plan to be consecutively executed during the years 2009-2013 represents such attempt. The Capital Market Development Plan intends to deal with the existing regulations that currently hinder the development of capital market; for example, alleviate restrictions on mergers and acquisitions,³⁰ privatize Security Exchange of Thailand (SET), eliminate the restrictions on existence of broker/dealer

³⁰ The improvement on the legislations regarding mergers and acquisitions involve transfer of rights, securitization, objection period, minority shareholders' protection, and asset/share acquisition. For more information, please see the documents on the Capital Market Development Plan.

companies and commission, increase transactions in the market through tax-driven incentives and cost of fund reduction. In addition, in order to increase the number of market players, the plan also facilitates the following:

- i. the Bank of Thailand's securities borrowing and lending (SBL) role in the secondary bond market
- ii. the formation of venture capital businesses as potential investors
- iii. the establishment of the National Savings Fund and employee's choice social security-type funds, infrastructure funds and Thailand carbon fund

Finally, to provide more investment products in the market, the plan also pushes forward the creation of new market products such as annuity/unit-linked products, currency (THB)/interest rate/bond futures, benchmark/inflation-linked/long-maturity bond, and securities/commodity-based instruments. With the plan progressing, we should see a deeper capital market.

As for improving the participation in insurance market, the main obstacle is that the demand for insurance in Thailand is still insufficient and only limited types of insurance products are available. Only a handful of people realize that insurance should be bought to hedge risks, leading to a less demand-driven insurance market. Therefore, more people need to be financially-educated so that they are aware of the benefits and needs of having insurance to cover the risk in everyday life, such as life, health, auto and property insurance. With more players participating in the insurance market, more products should be offered to fit the needs of insurance buyers.

5.4 HOW TO DEAL WITH FUTURE CHALLENGES

As elaborated in the first paper of this symposium, the surge in capital flows into Asia will be underpinned by a number of factors. In terms of the economic fundamentals, the relatively favorable growth outlook will translate into attractive investment opportunities for international capital. More favorable prospects for

growth in Asia can also cause policymakers to maintain higher interest rates in the region, creating even more return for foreign investors. In addition, the regional exchange rates are likely to appreciate as these countries are running large amount of current surplus. Valuation gains from exchange rate appreciations will make it more attractive for international capital to flow in and invest in the region.

Some economists argue that capital flows are not always connected with crises. If they were, policymakers would not be reluctant about pursuing policies to limit the economy's exposure to capital flows. For example, foreign direct investment can augment domestic savings, helping relax resource constraints on capital formation and can come packaged with expertise and be a conduit for technology transfer. Portfolio flows can also help develop domestic financial markets by increasing market liquidity.

Nevertheless capital flows can be volatile and pose important policy challenges for macroeconomic management and the maintenance of financial stability. Such challenges can come in various forms such as exchange rate appreciation, rising inflation, credit boom, and asset price bubble. Emerging market economies which over-rely on external financing can also face the risk of a sudden stop, which could exert extreme downward pressure on the currency. Both the Asian and global financial crises clearly demonstrated that excessive capital inflows, if not properly managed, may lead to severe financial imbalances and eventually develop into a financial crisis. Macroeconomic imbalances and weak banking system have been identified as common causes of financial crises in the period following excessive capital inflows (Reinhart and Rogoff, 2008). While the Thai banking system has done well in managing the impact from the latest global financial crisis, we cannot afford to think that we are immune from future risk. The next question is, what should be done?

First, the financial market needs to be deepened, as mentioned previously in Section 5.3. The level of financial market development determines the extent to

which domestic financial markets are affected by capital inflows. The deeper and more developed local financial markets, the less likely that volatile capital flows will create substantial risks to the system. In this regard, the capital market development plan is a step in the right direction and the focus should be on its effective and timely implementation.

Next, bank owners and managers should be encouraged to maintain rigorous risk management system. As most banks failure may be traced back to poor management and governance, it is important to ensure that bank management strives to maintain the value of the bank. It is the responsibility of the bank's management to ensure that credit appraisal and valuation are handled properly and that the asset portfolio is properly diversified. Management must ensure that the growth in loan is not too excessive that credit quality is compromised. Good management framework will institute appropriate policies and procedures for the internal loan review and for an early intervention should there be a warning sign. In addition, the loan portfolio should be subjected to regular stress testing, which takes into account both borrower specific risk and overall economic risk. As mentioned earlier, Thai banks have significantly improved on internal risk management, it is critical for the stability of the system that such practice continues to develop in parallel with new challenges.

Regarding the enhancement of market discipline to ensure the soundness of banks, creditors, including sophisticated depositors, can reinforce banks' incentives to operate safely and soundly by exerting discipline on banks' activities and driving poorly managed or unsound banks out of the market. This can be done by creditors responding to signals of unsafe or unsound practices by requiring higher interest rates or by withdrawing funds from the bank. Faced with the potential of higher costs or being forced out of business, bank owners, directors and managers will be cautious about allowing high-risk practices. Such market discipline requires that creditors have funds at risk and have sufficient information about the banks in which they have

placed their funds. A well-designed deposit insurance system that protects only small depositors but exposes large ones to risk would provide such incentive. In addition, the effort on improving the disclosure system for banks' financial data according to IAS 39 can further support the creation of market discipline in the Thai banking industry.

When it comes to macro-prudential measures, policymakers have been trying to mitigate the impact of capital inflows on the financial sector either by using capital controls or macro-prudential tools to deal with the financial consequences of the inflows. Such tools can be classified under three groups. The first group is price or quantity-based measures to limit credit growth. Some examples of these measures are credit ceilings, reserve requirements and taxes on lending. The second group is related to measures to maintain the quality of credit growth such as the loan-to-value ratios (LTV) and rules on debt-to-income/debt service-to-income. The third group deals with measures that strengthens bank balance sheet and enhance the resilience to shocks. It includes rules on capital loan-loss provisioning requirements which also aim at dealing with and mitigating the effects of procyclicality in bank lending. Given these challenges, regulators and central bankers will need to draft the related policies carefully and implementing them effectively to ensure the stability and well-managed growth of the financial system.

6. CONCLUDING REMARKS

Our paper provides the analysis and gives policy options as to how we should take advantage of the changed financial landscape, capital inflows and investment incentives in order to efficiently use the financial sector to finance the real sector. As can be seen from the discussions in the paper, the Thai financial system has evolved continuously since the Asian crisis in 1997 but more still needs to be done to improve it further.

With the incoming capital inflow projection, banks will need to be ready for the upcoming challenges—meaning that they will need to be more competitive and prudent—while the real sectors, especially SMEs, will need to determine their business strategies in order to gain more funding from banks and other sources to propel their growth in a more efficient way. Finally, the government and regulators should facilitate the transmission process of funding from the financial sector to the real sector by eliminating any existing friction or inefficiencies in the financial system. With efforts from all related parties, the economy can then benefit from this dynamics, achieving the goal of balanced and sustainable growth.

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APPENDIX

I. PANEL DATA REGRESSION ANALYSIS

This section presents the results of the fixed-effect panel data regressions performed for each industry segment. The *full regression* is the regression with all the data included while the *neutralized for possible account closed regression* is the regression whose credit limit growth is assigned a zero value to take into account the possible decrease in total credit limit due to the debt being paid back by the borrower, as mentioned in the paper. *The results are as follows:*

I.A: Agricultural and farming (ISIC Code: A)

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-13.38** (6.52)	-12.80** (6.27)
Firm age	45.27*** (14.67)	26.52* (15.86)
Current asset (in 100 mil unit)	-2.79** (1.28)	-4.69*** (1.22)
Dummy for current collateral pledge	613.75*** (220.58)	324.43 (238.70)
Sales revenue to paid capital	-0.41 (0.28)	-0.32 (0.30)
Quick ratio	-0.07* (0.04)	-0.08** (0.04)
Current asset growth	0.88** (0.37)	0.84** (0.37)
Asset turnover	1.57 (1.47)	1.86 (1.43)
Return on sales	-0.08 (1.42)	-2.25 (1.61)
Debt to equity	-0.03 (0.06)	-0.10* (0.05)
Net worth to paid-up capital	2.09*** (0.81)	1.63** (0.68)
Utilization rate	54.64*** (15.11)	40.56*** (14.17)
Constant	-884.41*** (272.78)	-517.36* (296.82)
F-stats	3.78	2.98
Prob>F	0.00	0.00
Adjusted R-squared	0.577	0.4929
No. of observations	790	790

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.B *Mining (ISIC Code: C)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-3.83 (4.59)	-0.51 (4.99)
Firm age	41.93*** (12.26)	5.29 (12.01)
Current asset (in 100 mil unit)	-1.62 (2.41)	-2.87*** (0.98)
Dummy for current collateral pledge	1447.98*** (419.70)	407.96 (501.44)
Sales revenue to paid capital	-1.43 (0.89)	-1.00 (0.68)
Sales growth	-4.68** (2.15)	-4.71** (2.05)
Cash to asset ratio	32.27** (14.76)	22.26* (12.12)
Quick ratio	-0.03 (0.04)	-0.03 (0.04)
Current asset growth	-0.16 (0.28)	-0.14 (0.25)
Asset turnover	8.60* (5.03)	5.25 (3.63)
Inventory to sales	0.05 (0.04)	0.06** (0.03)
Debt to equity	0.04 (0.10)	0.07 (0.11)
Net worth to paid-up capital	0.37 (0.72)	0.19 (0.71)
Utilization rate	51.39*** (13.96)	40.77*** (12.34)
Constant	-1994.25*** (556.83)	-293.84 (547.97)
F-stats	2.86	2.81
Prob>F	0.00	0.00
Adjusted R-squared	0.4759	0.4692
No. of observations	729	729

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.C *Food and beverage production (ISIC Code: D15)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-1.03 (5.37)	-0.93 (5.72)
Firm age	0.40 (0.30)	0.43 (0.30)
Current asset (in 100 mil unit)	-2.19* (1.25)	-1.62* (0.96)
Dummy for current collateral pledge	72.66*** (21.69)	71.90*** (21.96)
Earning per share	-0.005 (0.003)	-0.005* (0.003)
Quick ratio	0.05** (0.03)	0.06** (0.03)
Cash to asset ratio	-3.59 (6.88)	-5.74 (6.33)
Current asset growth	-0.17 (0.43)	-0.56 (0.35)
Gross profit margin	16.81** (8.30)	13.06* (7.45)
Capital to asset ratio	0.48 (1.95)	-0.35 (1.81)
Net worth to paid-up capital	1.72** (0.72)	1.76** (0.66)
Utilization rate	39.47*** (7.78)	33.09*** (7.30)
Constant	-85.31*** (24.16)	-77.98*** (24.67)
F-stats	1.37	1.13
Prob>F	0.00	0.00
Adjusted R-squared*	0.1630	0.0627
No. of observations	3854	3854

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.D *Cigarettes, cloth, garments, leather, shoes and wood-based, paper-based products and publishing*
(ISIC Code: D16-D22)

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-0.77 (2.88)	-3.75 (3.03)
Firm age	36.71*** (5.28)	31.08*** (4.99)
Current asset (in 100 mil unit)	-1.48** (0.66)	-1.34** (0.63)
Dummy for current collateral pledge	1333.97*** (192.65)	1138.65*** (176.83)
Quick ratio	-0.10 (0.08)	-0.09 (0.07)
Cash to asset ratio	1.24 (3.54)	1.57 (3.40)
Current asset growth	-0.03 (0.74)	0.24 (0.75)
Asset turnover	1.46 (0.90)	1.14 (0.87)
Gross profit margin	4.07 (4.16)	1.53 (3.89)
Capital to asset	6.55** (2.86)	6.95*** (2.70)
Net worth to paid-up capital	0.40 (0.33)	0.41 (0.30)
Utilization rate	49.56*** (5.07)	38.95*** (4.74)
Constant	-2067.53*** (283.68)	-1756.28*** (268.70)
F-stats	3.2	2.34
Prob>F	0.00	0.00
Adjusted R-squared*	0.4901	0.3702
No. of observations	6880	6880

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.E *Coal, petroleum, chemical, plastic, paint, cleaning agents, glass, cement, ceramics production*
(ISIC Code: D23-D26)

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-3.43 (3.05)	-7.16** (3.27)
Firm age	37.18*** (4.72)	35.05*** (4.27)
Current asset (in billion unit)	2.51 (5.39)	1.01 (5.04)
Dummy for current collateral pledge	355.11*** (37.89)	372.52*** (34.37)
Total asset growth	-1.60 (1.06)	-1.56* (0.93)
Retained earning to asset	-3.66* (2.22)	-4.33** (2.16)
Quick ratio	-0.03 (0.03)	-0.02 (0.02)
Cash to asset ratio	0.72 (4.45)	-0.15 (4.34)
Asset turnover	0.69 (0.79)	-0.14 (0.77)
Equity to asset ratio	13.10*** (3.37)	10.13*** (3.16)
Net worth to paid-up capital	-0.26 (0.40)	-0.13 (0.37)
Utilization rate	54.14*** (4.98)	37.66*** (4.54)
Constant	-366.42*** (41.92)	-336.14*** (38.11)
F-stats	3.22	2.40
Prob>F	0.00	0.00
Adjusted R-squared*	0.4871	0.3755
No. of observations	6751	6751

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.F *Steel, machine, electrical appliances, weapon, ammunition, electronics, medical equipment, watch, automobile, ship, train, motorbike, bicycle, furniture, musical/sport equipment, toy, recycling production (ISIC Code: D27-37)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-2.16 (2.95)	-6.31** (3.12)
Firm age	34.07*** (6.87)	29.97*** (6.90)
Current asset (in billion unit)	-6.12 (6.08)	-5.75 (5.56)
Dummy for current collateral pledge	433.63*** (60.35)	419.96*** (60.90)
Total asset growth	-4.02*** (1.06)	-3.26** (1.31)
Cash to asset ratio	3.75 (3.59)	3.21 (3.49)
Current ratio	-0.01 (0.02)	-0.02 (0.02)
Gross profit margin	-0.25 (3.94)	-0.38 (3.62)
Return on equity	2.18** (0.91)	2.03** (0.89)
Equity to asset ratio	4.93* (2.61)	2.28 (2.47)
Net worth to paid-up capital	0.10 (0.46)	0.20 (0.44)
Utilization rate	49.28*** (5.27)	38.52*** (4.97)
Constant	-370.62*** (67.54)	-320.06*** (67.96)
F-stats	2.49	1.97
Prob>F	0.00	0.00
Adjusted R-squared*	0.4023	0.3096
No. of observations	8841	8842

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.G *Construction (ISIC Code: F)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-6.81** (3.03)	-8.46*** (3.08)
Firm age	42.89*** (8.85)	32.07*** (9.78)
Current asset (in 100 mil unit)	-4.10 (2.53)	-2.59 (2.48)
Dummy for current collateral pledge	510.17*** (107.57)	398.82*** (125.36)
Sales (in 100 mil unit)	6.77 (7.55)	7.44 (6.66)
Sales growth	-1.25 (1.12)	-1.78 (1.14)
Cash to asset ratio	5.67* (3.05)	4.89* (2.91)
Quick ratio	-0.0002 (0.02)	-0.0005 (0.02)
Current asset growth	-0.16 (0.27)	-0.19 (0.26)
Asset turnover	0.80 (0.97)	0.97 (0.97)
Inventory to sales	-0.01 (0.01)	-0.002 (0.01)
Debt to equity ratio	0.12 (0.14)	0.16 (0.13)
Net profit margin	0.36 (0.76)	0.25 (0.75)
Ebit to asset	-2.25 (5.22)	-0.94 (4.97)
Utilization rate	54.61*** (7.72)	47.36*** (7.36)
Constant	-2868.52*** (580.94)	-2145.01*** (643.31)
F-stats	1.65	1.53
Prob>F	0.00	0.00
Adjusted R-squared*	0.2475	0.2130
No. of observations	4965	4965

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.H *Automobile/motorcycle sales, dealers, car repair businesses (ISIC Code: G50)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-5.62 (4.33)	-7.00* (4.25)
Firm age	-1.55*** (0.19)	-1.23*** (0.18)
Current asset (in 100 mil unit)	-1.11 (1.45)	-1.31 (1.19)
Dummy for current collateral pledge	48.82*** (8.97)	31.29** (13.97)
Total asset growth	-2.02 (1.86)	-3.21* (1.70)
Sales growth	1.22 (1.13)	0.81 (1.29)
Earning per share	0.0007 (0.002)	-0.0007 (0.0012)
Quick ratio	-0.007 (0.03)	-0.01 (0.03)
Cash to asset ratio	5.65* (3.20)	4.26 (2.99)
Asset turnover	0.49 (0.63)	0.24 (0.60)
Earning before tax (Ebt) to asset	14.90* (8.57)	13.29 (8.62)
Equity to asset ratio	1.71 (3.23)	1.27 (3.12)
Net worth to paid-up capital	0.11 (0.32)	-0.01 (0.29)
Utilization rate	36.40*** (6.36)	32.07*** (6.14)
Constant	-7.19 (11.40)	-6.70 (10.79)
F-stats	1.62	1.32
Prob>F	0.00	0.00
Adjusted R-squared*	0.2462	0.1421
No. of observations	4233	4233

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.I *Wholesale: food and beverages (ISIC Code: G511-512)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-6.15 (4.99)	-4.99 (5.28)
Firm age	42.97*** (14.22)	37.74*** (12.46)
Current asset (in 100 mil unit)	-2.47** (1.21)	-1.66 (1.14)
Dummy for current collateral pledge	993.72*** (326.36)	455.44*** (157.89)
Total asset growth	-2.74 (1.78)	-2.70 (1.73)
Quick ratio	-0.005 (0.03)	-0.01 (0.03)
Cash to asset ratio	13.27** (5.58)	14.04** (5.69)
Interest coverage ratio	0.12 (0.19)	0.11 (0.18)
Asset turnover	0.19 (0.35)	0.26 (0.32)
Net profit margin	2.29 (4.16)	2.95 (3.88)
Equity to asset ratio	6.38* (3.64)	3.72 (3.22)
Net worth to paid-up capital	0.20 (0.39)	-0.12 (0.39)
Utilization rate	55.73*** (9.64)	44.03*** (9.48)
Constant	-1122.24*** (353.98)	-978.24*** (309.94)
F-stats	1.76	1.53
Prob>F	0.00	0.00
Adjusted R-squared*	3731	3731
No. of observations	0.2666	0.2015

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.J *Wholesale: metals and metal ores, construction materials, machinery, equipment and supplies*
(ISIC Code: G514200, G514300, G515)

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-1.34 (3.59)	-4.71 (3.75)
Firm age	37.95*** (7.23)	22.12*** (7.20)
Current asset (in 100 mil unit)	-0.68 (1.35)	-0.92 (1.18)
Dummy for current collateral pledge	2253.20*** (418.91)	1343.47*** (411.21)
Sales revenue to paid capital	0.03 (0.06)	0.04 (0.05)
Total asset growth	-1.08 (1.28)	-0.34 (1.20)
Quick ratio	0.05* (0.03)	0.05* (0.03)
Cash to asset ratio	-6.23* (3.57)	-5.80* (3.38)
Asset turnover	0.87 (0.65)	1.20** (0.61)
Gross profit margin	-3.60 (6.34)	-2.56 (6.06)
Equity to asset ratio	5.32* (2.87)	5.92** (2.78)
Net worth to paid-up capital	-0.02 (0.29)	-0.02 (0.29)
Utilization rate	39.28*** (5.58)	33.12*** (5.20)
Constant	-2342.36*** (434.09)	-1393.31 (432.12)
F-stats	2.05	1.81
Prob>F	0.00	0.00
Adjusted R-squared*	0.3269	0.2711
No. of observations	6978	6978

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.K Wholesale: non-agricultural intermediate products, solid, liquid and gaseous fuels, other intermediate products and other wholesale (ISIC Code: G514000, G514100, G514900, G519)

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-6.64**	-9.75***
	(3.16)	(3.19)
Firm age	-1.50	-1.71
	(2.59)	(2.33)
Current asset (in 100 mil unit)	-3.45*	-3.09*
	(2.01)	(1.75)
Dummy for current collateral pledge	-234.82	-153.80
	(143.27)	(125.81)
Earning per share	0.006**	-0.003
	(0.002)	(0.003)
Total asset growth	-2.12	-2.21
	(1.93)	(1.87)
Interest coverage ratio	0.03	-0.005
	(0.14)	(0.12)
Current ratio	0.02	0.01
	(0.03)	(0.03)
Inventory to sales	-0.79	1.15
	(6.48)	(5.77)
Net profit margin	-1.81	0.23
	(4.59)	(3.48)
Equity to asset ratio	0.93	1.02
	(2.87)	(2.63)
Net worth to paid-up capital	0.27	0.29
	(0.35)	(0.32)
Utilization rate	52.99***	47.03***
	(7.39)	(7.14)
Constant	111.49	128.34
	(172.62)	(155.37)
F-stats	1.29	1.19
Prob>F	0.00	0.00
Adjusted R-squared*	0.1328	0.0889
No. of observations	4861	4861

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.L. *Retail sales (ISIC Code: G52)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	0.19 (10.13)	0.65 (11.21)
Firm age	28.85** (12.19)	32.73*** (12.66)
Current asset (in 100 mil unit)	-0.28 (0.92)	-0.52 (0.89)
Dummy for current collateral pledge	122.37** (49.20)	93.29* (47.69)
Sales revenue to paid capital	-0.26** (0.10)	-0.17* (0.10)
Total asset growth	-4.51* (2.45)	-0.91 (2.26)
Cash to asset ratio	8.93 (14.24)	4.94 (13.45)
Current ratio	0.01 (0.12)	-0.01 (0.11)
Inventory to sales	0.20*** (0.07)	0.13* (0.07)
Gross profit margin	-0.71 (12.86)	-11.11 (11.58)
Return on equity	-0.57 (2.87)	2.17 (2.94)
Debt to equity ratio	0.02 (0.12)	-0.03 (0.10)
Net worth to paid-up capital	1.05 (0.77)	-0.07 (0.72)
Utilization rate	47.98*** (13.31)	30.15*** (12.85)
Constant	-656.20*** (174.91)	-670.06*** (183.72)
F-stats	3.12	2.59
Prob>F	0.00	0.00
Adjusted R-squared*	0.4925	0.4202
No. of observations	1207	1207

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.M *Hotels, resorts, restaurants, bars (ISIC Code: H)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-2.28 (3.05)	-3.59 (3.17)
Firm age	2.19 (2.01)	1.70 (1.68)
Current asset (in 100 mil unit)	-0.45 (3.15)	-4.96* (2.78)
Dummy for current collateral pledge	60.33 (40.34)	28.24 (34.07)
Current asset growth	0.11** (0.05)	0.12*** (0.04)
Cash to asset ratio	-1.55 (3.97)	1.83 (3.85)
Current ratio	0.02* (0.01)	0.02 (0.01)
Asset turnover	2.71** (1.24)	2.34** (1.18)
Return on equity	-3.28 (4.28)	-4.78 (4.39)
Equity to asset ratio	2.25* (1.35)	2.34* (1.39)
Net worth to paid-up capital	-0.05 (0.20)	-0.15 (0.20)
Utilization rate	38.65*** (7.28)	30.72*** (6.56)
Constant	-79.80* (42.22)	-62.66* (35.51)
F-stats	2.56	2.31
Prob>F	0.00	0.00
Adjusted R-squared*	0.4081	0.3669
No. of observations	5774	5774

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.N *Logistics and transportation (ISIC Code: I)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-0.61 (7.08)	-5.28 (7.24)
Firm age	78.76*** (16.04)	56.93*** (14.33)
Current asset (in 100 mil unit)	-1.66* (0.95)	-1.27 (0.95)
Dummy for current collateral pledge	2786.60*** (549.32)	2097.08*** (490.80)
Sales revenue to paid capital	0.11 (0.20)	0.16 (0.20)
Total asset growth	0.21 (0.94)	0.04 (0.76)
Quick ratio	0.19* (0.10)	0.18* (0.11)
Cash to asset ratio	7.83 (7.61)	11.40 (7.46)
Interest coverage ratio	0.03 (0.03)	0.03 (0.03)
Asset turnover	0.33 (1.58)	0.15 (1.51)
Inventory to sales	-8.07 (43.02)	2.83 (41.21)
Return on equity	-1.20 (7.41)	-1.99 (6.34)
Debt to equity ratio	-0.02 (0.07)	0.01 (0.06)
Net worth to paid-up capital	0.96 (0.87)	0.70 (0.83)
Utilization rate	28.76* (14.81)	18.20 (14.58)
Constant	-2992.39*** (576.17)	-2196.53*** (515.31)
F-stats	1.99	1.81
Prob>F	0.00	0.00
Adjusted R-squared*	0.3253	0.2818
No. of observations	2288	2288

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.O *Financial intermediaries, investment companies, pawn shops (excluding Central bank and commercial banks) (ISIC Code: J)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-10.86 (8.12)	-19.52** (8.73)
Firm age	44.07** (19.74)	47.40*** (17.19)
Current asset (in billion unit)	-0.36 (2.03)	-4.08 (3.91)
Dummy for current collateral pledge	542.64** (227.63)	1303.14*** (480.02)
Total asset growth	6.07 (3.91)	3.12 (4.09)
Net income growth	-0.84 (0.68)	-1.02 (0.75)
Quick ratio	-0.009 (0.02)	0.02 (0.03)
Cash to asset ratio	5.55 (6.71)	3.70 (7.79)
Interest coverage ratio	0.16 (0.17)	0.19 (0.14)
Asset turnover	4.72 (4.71)	1.32 (4.94)
Collection period	0.005*** (0.002)	0.005** (0.002)
Inventory to sales	-0.26 (0.74)	-0.09 (0.82)
Net profit margin	0.14*** (0.04)	0.13*** (0.04)
Debt to equity ratio	0.10 (0.08)	0.04 (0.09)
Net worth to paid-up capital	-0.10 (0.10)	-0.09 (0.10)
Utilization rate	47.50*** (16.24)	34.31* (17.52)
Constant	-803.82** (322.56)	-1553.76*** (563.76)
F-stats	2.12	1.59
Prob>F	0.00	0.00
Adjusted R-squared*	0.3377	0.2132
No. of observations	1388	1388

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.P *Real estate developers, businesses and other related business (ISIC Code: K70)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-4.49**	-5.17**
	(2.12)	(2.09)
Firm age	39.69***	33.71***
	(10.44)	(9.14)
Current asset (in billion unit)	-2.31	-6.57
	(4.98)	(5.21)
Dummy for current collateral pledge	1291.05***	1146.86***
	(360.48)	(316.50)
Total asset growth	0.16	0.06
	(0.21)	(0.15)
Current ratio	-0.0003	0.0008
	(0.002)	(0.001)
Asset turnover	2.61**	1.71
	(1.26)	(1.08)
Net profit margin	-0.51	-0.76
	(0.40)	(0.38)
Cash to asset ratio	-0.09	-0.05
	(1.73)	(1.69)
Equity to asset ratio	0.56	0.61
	(2.07)	(1.97)
Net worth to paid-up capital	-0.20	-0.04
	(0.27)	(0.27)
Utilization rate	42.86***	33.55***
	(4.99)	(4.78)
Constant	-1588.94***	-1337.31***
	(406.64)	(355.89)
F-stats	2.46	2.08
Prob>F	0.00	0.00
Adjusted R-squared*	0.4254	0.3544
No. of observations	7018	7018

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.Q *Renting business, computer and database consulting, research services, other business support service (legal, accounting marketing, strategies, etc.)(ISIC Code: K71-74)*

	credit limit growth (%)	
	full regression	neutralized for possible account closed
Default history	-8.09** (4.13)	-10.07** (4.15)
Firm age	42.37** (16.83)	35.92** (17.73)
Current asset (in 100 mil unit)	-5.17*** (1.33)	-4.92*** (1.37)
Dummy for current collateral pledge	1063.31*** (286.04)	923.20*** (301.02)
Total asset growth	-0.63 (0.56)	-0.51 (0.63)
Quick ratio	0.03 (0.03)	0.03 (0.02)
Sales growth	1.76 (1.38)	1.54 (1.35)
Cash to asset ratio	-5.75 (4.40)	-6.06 (4.46)
Inventory to cost of goods sold	0.006 (0.02)	0.009 (0.02)
Net profit margin	1.12* (0.67)	1.04* (0.55)
Equity to asset ratio	1.25 (1.73)	1.34 (1.66)
Net worth to paid-up capital	0.22 (0.35)	0.002 (0.31)
Utilization rate	53.59*** (9.97)	47.43*** (9.47)
Constant	-1673.39*** (636.43)	-1410.79** (670.90)
F-stats	1.71	1.67
Prob>F	0.00	0.00
Adjusted R-squared*	0.2556	0.2461
No. of observations	3807	3807

This table presents the panel data regression results with the firm and time fixed effects. *, **, and *** indicates the 10%, 5% and 1% significant levels respectively. Robust standard errors are reported in parenthesis. The F-stats, Prob>F and adjusted R-squared are from the non-robust version of the regression.

I.R *Definitions of Variables*

Variables	Definitions
age of firms	number of years in business
asset turnover	sales / total assets
binary for having collateral	if having collateral = 1
binary for having default history	if having default history within the previous year = 1
capital to asset ratio	registered capital / total assets
cash to asset ratio	(current assets - inventory - account receivables) / total assets
collection period	account receivables / (sales/365)
current assets	current assets
current asset growth	growth of current asset from previous period
current ratio	current assets / current liabilities
debt to asset ratio	total debt / total asset
debt to equity ratio	total debt / total equity
earnings per share	Net profit/no. of share outstanding
EBIT to asset ratio	(net profit + interest + tax) / total assets
EBT to asset ratio	(net profit + tax) / total assets
equity to asset ratio	total equity / total asset
gross profit margin	(sales - cost of goods sold) / sales
interest coverage ratio	(gross revenue - cost of goods sold - operating expense) / interest
cost of goods sold to inventory	cost of goods sold / inventory
sales to inventory ratio	sales / inventory
net income growth	growth of net profit from previous period
net profit margin	(sales – cost of goods sold – operating expense – interest – tax)/sales
net working capital to asset ratio	(total current assets- total current liabilities) / total asset
net worth to paid-up capital ratio	(total assets - total liabilities)/ paid-up capital
quick ratio	(current asset-inventory) / current liabilities
retained earnings to asset ratio	(total assets - total liabilities - paid-up capital) / total assets
return on equity	net profit / total equity
return on sales	net profit / sales
sales growth	growth of sales from previous period
sales to paid-up capital	sales / paid-up capital
total asset growth	growth of total assets from previous period
utilization rate	outstanding / credit limit

II. DETAILS ON THE STRENGTH OF LEGAL RIGHTS RANKING

Strength Of Legal Rights Index (0-10): Set of Questions	Thailand's scores: 4/10
Can any business use movable assets as collateral while keeping possession of the assets; and any financial institution accept such assets as collateral ?	Yes
Does the law allow businesses to grant a non possessory security right in a single category of revolving movable assets, without requiring a specific description of the secured assets ?	No
Does the law allow businesses to grant a non possessory security right in substantially all of its assets, without requiring a specific description of the secured assets ?	No
May a security right extend to future or after-acquired assets, and may it extend automatically to the products, proceeds or replacements of the original assets ?	No
Is a general description of debts and obligations permitted in collateral agreements, so that all types of obligations and debts can be secured by stating a maximum amount rather than a specific amount between the parties ?	Yes
Is a collateral registry in operation, that is unified geographically and by asset type, as well as indexed by the grantor's name of a security right ?	Yes
Do secured creditors have absolute priority to their collateral outside bankruptcy procedures?	Yes
Do secured creditors have absolute priority to their collateral in bankruptcy procedures?	No
During reorganization, are secured creditors' claims exempt from an automatic stay on enforcement?	No
Does the law authorize parties to agree on out of court enforcement?	No