The Global Financial Crisis and Resilience of the Thai Banking Sector

BHANUPONG NIDHIPRABHA

The Thai economy is vulnerable to external shocks because of its high exposure to trade and capital flows. Despite its adverse consequences on the real sector of the Thai economy in 2009, the global financial crisis had little impact on the Thai financial sector. The healthy performance and resilience of Thai financial institutions can be attributed to the financial reforms undertaken after the Asian financial crisis and the favorable macroeconomic environment.

JEL classification: G01, G21, G28

I. INTRODUCTION

The Asian financial crisis started on 2 July1997 when the Bank of Thailand (BOT) floated the baht, giving up the fight with currency speculators and hedge funds. The abandonment of the fixed exchange rate, after experiencing a chronic current account deficit since the early 1990s, led to a contagion effect in other Asian countries. The Asian currency crisis intertwined with the banking crisis as Asian banks had substantial dollar-denominated debts. In effect, it was the crisis that involved both foreign exchange markets and the financial sector. A large number of Thai financial institutions were closed down, consolidated, merged, or sold to foreign banks after 1997. Some underwent painful adjustments and emerged stronger. The crisis opened a window of opportunity for banks to become healthy and more resilient.

Ten years after the Asian financial crisis, the credit crunch in the United States (US) in July 2007 spread to other countries as the US mortgage-backed securities sold to investors around the world turned sour when US property values declined sharply. Marer (2010) examined the global economic impacts on Eastern Europe and found that different impacts on 10 Eastern European nations depend on exchange rate regimes, exposure to foreign currency borrowings, and monetary and fiscal policy responses. Kenc and Dibooglu (2010) found evidence that the risk premium of the subprime crisis was comparable to the risk prior to the great depression. Simpson (2010) attributed the rampant impact of the global financial crisis to integration of the global financial markets because of the

Bhanupong Nidhiprabha is Associate Professor, Faculty of Economics, Thammasat University. Rattanyu Dechjejaruwat provided excellent research assistance. The author accepts responsibility for any errors in the paper.

interdependence of the global banking industry. Mishkin (2011) reckons that the global financial system is far more interconnected and excessive-risk activities that threatened the collapse of the world financial system was far more pervasive than was previously recognized. Nevertheless, Thailand also has embraced open capital markets since the early 1990s and has become an integral part of the global financial system since then. The adverse impact of the global financial crisis on the real economy was substantial but not significant for the banking sector. Aly and Strazicich (2011) provide evidence from the time series from North Africa, indicating the resilience of the North African economics to the recent financial crisis and global recession.

It is argued in this paper that the 1997 financial crisis gave a valuable lesson to the Thai financial sector. The financial reform through strengthened rules and regulations has prepared the banking industry for the global financial crisis. After undergoing structural reform and enhancing capital adequacy, the Thai banking sector has become more efficient, leading to impressive performance. The year 2010 witnessed an impressive performance of Thai banks. In the second quarter of 2010, the two largest banks in the country experienced a 40% and 30% increase in profit. Likewise, some medium- and small-size banks doubled their profits. This paper examines the underlying causes of resilience of the Thai banking sector.

The paper is organized as follows. Section II reviews the 1997 financial crisis in Thailand. Section III outlines the financial regulations imposed after the financial meltdown. Sector IV examines capital strength and foreign entry. The impact of the global financial crisis on the Thai economy is discussed in Section V. Section VI highlights the resilience of the Thai banking sector. Section VII provides concluding remarks.

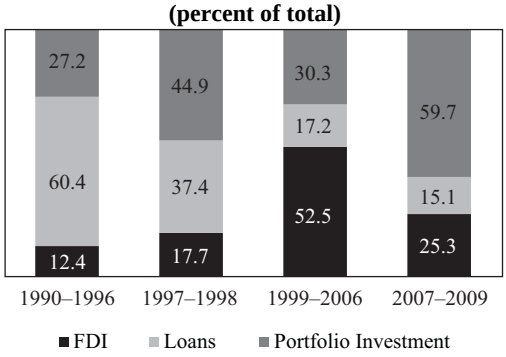
II. THE 1997 FINANCIAL CRISIS

When the economy is strong, there is no urgent need to restructure the financial system to improve efficiency. Structural weaknesses of the financial system do not reveal themselves until the economy is subject to shocks. In a mild business cycle, efficient financial firms with a conservative lending policy can survive temporary losses, but some aggressive banks would fail because of excessive risk-taking behavior. In a deep business downturn, even good banks with a cautious lending policy can succumb to losses and bankruptcy. To prevent a systemwide crisis, the central bank must step in to restore public confidence during a deep recession. The intervention to bail out troubled financial institutions therefore depends on macroeconomic fundamentals, which are intricately related to the soundness of financial institutions.

Before allowing capital convertibility, prudential rules and regulations should have been established. An open capital account is inconsistent with the fixed exchange rate regime and independent monetary policy. Strengthening the legal framework and corporate governance are required to guard against adverse consequences of liberalization.[1] Financial liberalization in Thailand began in the early 1990s with the abolition of interest rate ceilings. Thailand accepted Article VIII of the International Monetary Fund agreement in May 1990, relaxing capital controls and restrictions on capital account transactions. Consequently capital inflows rose rapidly. The maturity composition of capital inflows changed dramatically from cold to hot flows prior to the 1997 crisis.

Between 1990 and 1996, the share of foreign borrowing in total capital inflows was 60%, while the share of portfolio investment flows was 27% (Figure 1). These numbers indicate the domination of hot monetary flows over cold money, which was represented by the 12.4% share of foreign direct investment.

Figure 1. **Changing Structure of Capital Flows (percent of total)**



Source: Bank of Thailand (2010).

Liberalization of the external account may lead to financial disaster. As in the case of Thailand, capital account liberalization was premature. Capital controls were relaxed when Thailand's interest rates were much higher than the world market rates. The relaxation should have occurred after adequate prudential rules and regulations had been established. The open capital account led to large and fast inflows, while building the institutional infrastructure, which is time-consuming, could not cope with the huge inflows. The bond market was not sufficiently developed to allow the central bank to sterilize capital inflows. The Bangkok International Banking Facility (BIBF) encouraged borrowing in foreign currencies during the time when large interest differentials between domestic and international interest rates prevailed. Loans extended by BIBFs grew from 200

[1]Unless liquidity-constrained firms can rely on bond markets, strict prudential rules can thwart the recovery of a fragile economy.

billion Baht (B) in 1993 to B1.88 trillion in 1997.[2] The precarious borrowing structure foretold a financial distress that would come when foreign lenders changed their perception about Thailand's risk. Capital flight followed, causing liquidity problems in Thai financial institutions. Currency and maturity mismatching led to a financial disaster.

During the financial turmoil in 1997–1998, the share of foreign borrowing in total capital inflows declined to 37% (Figure 1). Portfolio flows became the largest part of capital flows. The share of foreign direct investment rose from 17.7% during this period to 52.5% in 1999–2006. Part of the increase was due to brown field investment. Large capital inflows came in the form of acquisitions of assets of troubled banks that simply ran out of capital funds after their huge bad debts were written off.

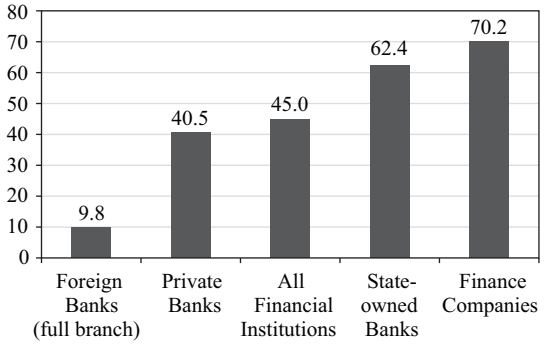
In 1996, short-term borrowing of finance companies amounted to 95% of their total borrowing, while their long-term credit was 40% of total lending. This was a technical mismanagement in terms of maturity mismatching between assets and liabilities. It is not surprising that these finance companies experienced liquidity problems when their short-term borrowing could not be rolled over during the period of financial turmoil.[3] Another technical problem involved currency mismatch, because Thai financial institutions and large corporations borrowed heavily in US dollars but extended credit in Thai baht.

The poor performance of the Thai economy resulted in deterioration of the balance sheets of financial institutions, leading to problems of illiquidity and insolvency. The risks of these financial institutions intensified after the massive devaluation of the baht in 1997. Their ability to obtain funds was severely reduced when foreign banks' perception of their risk deteriorated. Technically commercial banks in Thailand were insolvent because the level of nonperforming loans exceeded the level of capital funds. Forty-five percent of assets in financial institutions held were nonperforming in 1998. Nonperforming loans of private banks and state-owned banks were 40.5% and 62.4% of their total assets, respectively (Figure 2).

[2]At the end of 1999, the BIBF borrowing volume declined to just B600 million.

[3]By 2009, the percentage of long-term borrowing of finance companies increased to 28%, while the share of their long-term lending also increased to 72%.

Figure 2. **Nonperforming Loans in 1998 (percent of total loans)**



Source: Bank of Thailand (2010).

To recapitalize, Thai banks were allowed to increase the share of foreign shareholders from the maximum of 25% to 49%. Only one bank—Bangkok Bank of Commerce—was closed down. Other bad banks were integrated with the publicly owned Krung Thai Bank (KTB). Some other troubled banks were merged with stronger banks or sold to foreign institutions.

After 56 finance companies had collapsed following the 1997 economic crisis, the Financial Sector Restructuring Authority (FRA) assumed the assets of these defunct financial companies. By August 1998, the closure of the operation of the FRA took place after the auction of the FRA's assets into the Global Thai Property Fund, which was established by Lehman Brothers after paying B11.52 billion for the B24.62 billion corporate loans extended by troubled financial institutions. Other hedge funds such as GE and Goldman Sachs joined Lehman Brothers by investing in the fund. Ironically 10 years later, these investment banks suffered from the same fate similar to that suffered by Thai finance companies after the burst of the property bubble in 2007.

Because Thai firms and banks borrowed heavily from abroad in the early 1990s, they were exposed to foreign exchange risks. The domestic savings rate was high but not as high as the investment rate. Investment was financed mainly through borrowing from domestic as well as foreign banks. The average debt–equity ratio of Thai firms was above 8 at the height of the financial crisis, while the economy was exposed to extreme currency depreciation risks. The collapse of the economy in 1998 provided an opportunity for firms and banks to restructure by adhering to good corporate governance and avoiding technical mismanagement.

III. FINANCIAL RULES AND REGULATIONS AFTER THE 1997 CRISIS[4]

New regulations on financial institutions were imposed after the 1997 crisis. Thailand's accounting standards were changed in preparation for the adoption of the Basel II capital accord. A financial master plan was created in 2004 to liberalize and reform banking standards. The structure of commercial banks was reclassified into four categories: commercial banks, retail banks, subsidiaries, and branches of foreign banks. The license of each category is granted on the basis of the appropriateness of the shareholding structure, sources of capital, internal control, and qualifications of directors and executives. The BOT also allows commercial banks to operate five additional businesses related to insurance, securities, financial derivatives, electronic banking, and financial services. The expanded scope of operations permits commercial banks to exploit the economies of scale and encourage competition with nonbank financial institutions.

The BOT applies international standards to domestic banks that operate as a conglomerate. The financial structure of the businesses must acquire the approval from BOT and the capital fund must hold no less than 8.5% of the risk weighted assets of the group as a whole. The financial conglomerate must comply with such qualitative criteria by providing sufficient risk management and applying internal control of the businesses, monitoring the businesses to comply with various rules and policies of the BOT.

Since the capital fund supports and acts as the buffer against potential damage to depositors and creditors, the BOT has issued guidelines for capital adequacy of banks in terms of quality and composition of the reserve funds. Core capital or tier 1 capital includes paid-up funds; tier 2 capital is supplementary capital including increased reserves from revaluation of land and buildings. The adequacy of the fund is measured by the capital to risk weighted assets ratio (BIS ratio), which must be above the minimum level of 8.5%. In the past, according to the Basel I principles, BOT required financial institutions to reserve capital to cover only the credit and market risk. Nonetheless, in order to accurately reflect all associated risks, the current regulation of Basel II has extended the definition of risk to include also operational and liquidity risks.

If bank customers or partners of the bank cannot service their debts according to loan obligations, banks as a creditor would suffer from credit risk because it could affect solvency, confidence and reputation of banks. The BOT has set a range of policies to monitor different credit risk levels and guidelines for the banks' credit quality and credit diversification. The BOT has monitored standards for the group of corporate debtors, credit approvals, and investments in the sectors that align the benefits of bankers with clients. Commercial banks must

[4]This section is largely drawn from the BOT's rules and regulations on financial institutions.

formulate risk management policy related to foreign partners and also assess risk management and monitor their partners at least once a year. Credit card and personal loans businesses are also under the supervision of BOT to monitor and control the appropriate level of household debts. This type of credit risk supervision has strong a precautionary measure against property speculation caused by excessive credit extension that occurred during the boom in the early 1990s.

Market risk is the probability that banks may have been damaged due to changes in value of assets, liabilities, or contingent liabilities arising from movements in interest rates, exchange rates, and equity and commodity prices. Integration of financial sectors around the world would intensify external shocks transmitted from the rest of the world to domestic banks. The BOT employs regulatory rules for supervising market risk by requiring financial institutions to formalize a proper market risk management policy and assessment to ensure a sufficient level of capital adequacy for the risk arising from fluctuations in interest rates, and share prices, commodity prices, and foreign exchange rates. The Bank of Thailand also imposes rules relating to exposure to foreign exchange risks. This regulation is in response to the root of the 1997 financial crisis.

Operational risk refers to the risk of damage caused by the lack of good governance and control. The operational risk may involve people, working systems or external events, including legal risk, which damage financial status, reserves, income, or reputation of financial institutions. The BOT stipulates financial institutions' management policy on operational risk: criteria for corporate IT, prevention of money laundering and financial support for terrorism, and information systems relating to damages caused by operational risk.

The reversal of short-term capital inflows during the 1997/1998 financial crisis created liquidity problems for Thai banks that borrowed short-term loans from abroad. Liquidity risk is related to the risk that commercial banks cannot pay its debts and obligations. When banks fail to honor the contract and they cannot transform their assets into cash in a timely manner, they would have insufficient funds and must borrow at high costs. As a result, banks would lose public confidence and might trigger bank runs. The new regulations require that commercial banks must maintain liquid assets not less than 6% of all kinds of deposits including short-term borrowing from abroad and financial derivatives. Furthermore, the rule requires the board of directors of banks to formulate the policies and plans for liquidity management.

Good governance is fundamentally significant to the operations of commercial banks' efficiency, transparency, and creditability. The BOT issued guidelines for directors of financial institutions by specifying their duties and liabilities based on the principles of good governance. Internal control, internal auditing, information disclosure, and transparency are high on the agenda. To provide consumers with information for making decisions prior to choosing the

services and evidence of payment that can be traced back, the BOT set conditions for financial institutions and nonfinancial businesses (nonbank) to disclose the interest rates on deposits and loans, and customary charges. The BOT issued guidelines on debt collection for financial institutions on the same standards so as not to take advantage of people. By adhering to good governance principles, bankers are less likely to commit blatant mistakes through technical mismanagement and fraudulent behavior—the way bad bankers had done before the 1998 financial crisis.

Financial institutions are required to perform financial accounting according to the standards prescribed by the accounting regulations and guidelines set by the BOT. In some cases, the BOT establishes the specific accounting rules for certain businesses of commercial banks, either to comply with existing principles of accounting standards or to set guidelines for accounting standards that are not yet legislated, to ensure preparation of proper and transparent financial statements to allow investors access to the accurate financial information for decision making.

The new IAS39 accounting standards have a significant impact on how banks calculate loan reserves by forcing banks to consider collateral based on economic values. Banks with low bad-debt provisions have to increase their reserves. Large banks have already met the minimum regulatory requirements. New reserve requirements are assigned for different asset classes, causing banks to shift lending priorities to lower-risk segments such as home mortgages at the expense of higher-risk categories such as small business loans. Banks also have to set aside capital funds to cover market risks, operations risks, and credit risks.

The new regulations allow the BOT and the Ministry of Finance to remove management or amend any operations of financial institutions that may threaten the stability and confidence of the entire financial system. Financial institutions may be ordered to suspend part of or the entire operation, rectify conditions and operations, increase and decrease the capital, remove financial executives, or revoke business licenses of such financial institutions. This is an important tool that creates policy credibility that can prevent moral hazard and contagion effects from troubled financial institutions.

IV. CAPITAL STRENGTH AND FOREIGN ENTRY

In the aftermath of the financial fiasco, the Thai banking system turned around and raised capital funds. Thanks to capital injection by foreign banks and by the Financial Institutions Development Fund managed by the BOT, capital adequacy was enhanced. Despite the declining trend of the nonperforming loans (NPLs), the risk-weighted capital adequacy ratio increased substantially,

reflecting the strengthened capital fund that can provide safety cushion for depositors.

From 2004 to 2009, capital adequacy ratios (CARs) increased in banks of all sizes (Table 1). Large banks are classified as banks that have more than 7% of total assets in the banking system. By this definition, there are four large banks. Small banks had the highest tier 1 capital risk assets ratio as a result of foreign capital injection. The medium-size banks had the lowest tier 1 capital, although their CARs were raised from 10.9 in 2004 to 14.9% in 2009. Thus all banks had capital funds well above the Basel II requirement of 8.5%. The most vulnerable banks were medium-size banks, which had very high proportion of loans to related parties. It is not surprising that their NPLs increased marginally from 6.7% in 2004 to 7% during the same corresponding period, while other banks were able to reduce their NPLs from 10% to around 4.5%. In addition, it was large banks that provided allowances for bad loans more than the amount required by regulations. Thus large banks tend to be more conservative than small banks, which have been the most aggressive in lending; their loans/deposits ratio rose from 93% to 137%. Medium banks' loan exceeded deposits by 8% in 2009, on the contrary, large banks cautiously balanced their loans and deposits (Table 1).

The assets of these small banks are lower than 3% of total assets in the banking system. As such, they are competing with disadvantages because they, unlike large banks, cannot exploit economies of scale. Nevertheless, some small banks do have some advantages as they are backed up by huge capital funding from world-class financial institutions. Molyneux et al. (1998) found the evidence that foreign bank performance in the US depends mainly on capital strength, in addition to industrial loan growth and asset composition. Berger (2007) provides evidence that foreign-owned banks are more efficient than domestically owned banks in developing countries because of managerial expertise, access to capital, and use of new technology. In the case of Thailand, foreign banks can compete against state-owned banks because the latter have to comply with the government's objectives that may not be consistent with profit maximization.

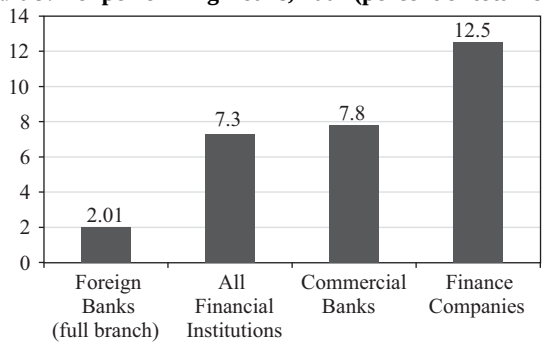
Table 1. **Capital Adequacy of Thai Commercial Banks**

	Large		**Medium**		**Small**	
	2004	**2009**	**2004**	**2009**	**2004**	**2009**
Capital funds/Risk assets	11.85	15.73	10.91	14.90	17.02	18.33
Tier 1 Capital/Risk assets	8.5	11.30	7.93	11.01	14.75	16.22
Loan to related parties/Loans	6.98	2.65	17.53	13.71	10.36	1.91
Nonperforming loan/Loans	13.34	4.75	6.71	7.01	10.58	4.36
Actual allowance/Required allowance	131.95	137.01	174.7	120.68	135.84	116.35
Problem assets/Assets plus allowance	10.27	4.14	8.53	6.45	10.96	4.26
Loans/Deposits	88.96	99.54	81.52	108.17	92.9	137.21

Source: Bank of Thailand (2010).

The economic slowdown during the period 2007–2009 was caused by weak consumption and sluggish investment. As a result, financial institutions cannot speed up the reduction of their nonperforming assets. Since real estates and manufacturing sectors are sensitive to business cycles, NPLs in these two sectors would decline only when the economy regains its strength. All banks have already set aside reserves for loan losses, which are larger than the amount required by regulations. The painful experiences in the past have taught commercial banks well in avoiding loan concentration and high risk exposure. Thanks to the adoption of the Basel II, banks are more prepared to deal with global slowdown due to oil price shocks and subprime mortgage problems.

Figure 3. **Nonperforming Loans, 2007 (percent of total loans)**



Source: Bank of Thailand (2010).

It is believed that local banks should have better information about local clients than foreign banks. As such they should be less subject to problems of asymmetric information. That does not turn out to be the case in Thailand, since commercial banks (both private and public banks) experienced NPLs around 40% of total loans in 1998, much higher than the 9.8% of foreign banks' total lending (Figure 2). By 2007, commercial banks' NPLs declined to 7.8%, which is still much higher than the 2% of foreign banks. Finance companies' excessive lending led to 70% NPLs in 1998, which led to their collapse. Finance companies remained the weakest financial institution in 2007. They were burdened by high NPLs of 12.5%, well above the average 7.3% of total NPLs for all financial institutions (Figure 3).

The ranking of nonperforming loans classified by type of financial institution in 2007 remains more or less the same as in 1998, although the level of NPLs was much lower than it was 10 years ago. Foreign banks are still the banks that have the lowest nonperforming assets, whereas finance companies still had the worst asset quality. Private banks registered in Thailand still could not fully get rid of their NPLs.

There is evidence from transition economies that foreign-owned banks are more efficient than domestic-owned banks because of a transfer of banking know-how, and better corporate governance exercised by foreign shareholders (Weil 2003). The cost efficiency of foreign-owned banks, after taking into account size and structure of activities, does not come from differences in risk preferences between types of banks. Arun and Turner (2004) argue that corporate governance reform is a prerequisite for successful divestiture of government ownership and suggested that increased competition resulting from entry of foreign banks may improve the corporate governance of banks in developing countries.

There was no significant rise in the banking concentration after the 1998 financial crisis. However, the market share of the top four banks was around 65% in 2007, while the largest six banks' combined assets were close to 80% of total banking assets. The lack of competition due to increased monopoly power can increase banking system's profits and would increase its solvency. Bank consolidation and conglomeration may not necessarily lead to a safer and more resilient banking system, because consolidated financial firms may take on correlated risks, thereby reducing banks' diversification. There is evidence from the survey of 500 financial firms worldwide in 90 countries that a highly concentrated banking system exhibited higher levels of systemic risk potential than a less concentrated banking system during 1993–2000, and this relationship intensified during 1997–2000 (De Nicolo et al. 2004).

Concentration ratios may not give an accurate measure of the lack of competition since it does not take into account of differences in bank sizes. The Herfindahl index gives a better measure of monopoly power because it gives higher weight to large banks than small banks. The top four banks compete in lending as well as in other competing services. The ease of entry is also an important consideration of monopoly as excess profit would induce more competition from newcomers. According to Claessens (2009), the lack of barriers to entry and exit determines effective competition. A banking system with greater contestability in the form of foreign entry and fewer entry and activity restrictions tend to be more competitive.

Small banks cannot compete directly with large banks. They may follow the actions of large banks in setting their interest rates. The solvency of the banking system depends crucially on the health of these large banks. Large banks can take over small troubled banks and subsume small banks' assets and liabilities. Intervention has been a norm in the past through employing public-owned banks to absorb ailing banks. But when bad banks are too expensive to absorb, they require temporary capital write-offs and public capital injection before selling to interested foreign financial institutions. The central bank is subject to the too-big-to-fail syndrome.

The BOT has permitted a limited scope of competition for foreign banks through permission of full branch status (only one branch) or subsidiaries of foreign banks. Competition from foreign penetration is weak as the number of branches is limited to four branches for each foreign subsidiary. Because of the ability to exploit economies of scope, large banks were able to obtain noninterest income higher than medium and small banks. Hence foreign banks are at unit cost disadvantage to local banks.[5] Bank size matters in the exploitation of economies of scale in banking business. Small banks can also achieve their minimum efficiency scale if they focus on the banking segment that they have comparative advantage in. The problem mainly falls on the medium banks since their medium size faces competition from both ends.

Foreign banks have played a dominant role in strengthening Thailand's financial institutions (Table 2). The Thai banking industry, heavily protected from new competition, has been penetrated by foreign financial institutions through the presence of foreign banks' full branches, establishment of foreign partnership, or takeover. In 1999, the BOT encouraged banking consolidation and permitted foreign capital injection, allowing the share of foreign capital to rise above the previous 25% limit to 49% of total equity. As a result, some ailing Thai banks have stayed solvent from the foreign capital injection.

Foreign penetration is prevalent in large to small banks. The average share of foreign ownership in large banks increased from 22% in 1997 to 38.5% in 2007. Small banks' foreign ownership share rose from the average 6.4% to 55.6% during the same corresponding period. The foreign share in medium-size banks declined to 9.5% as the government injected money to bail out these banks. But later on, the share of foreign ownership continued increasing to 37.6% in 2007 (Table 2). The need for foreign capital is obvious during recapitalization and when the economy is so weak that it could not generate capital funds. The government has already had considerable financial burdens from bailing out bad banks. Opening the banking sector to foreign institutions, the BOT has lessened the public burden and also maintained public confidence in the banking system. Although some banks failed and disappeared, their deposits were transferred to the government-owned KTB, which has assumed liabilities and assets of the failed banks.

Table 2. **Foreign Ownerships in Thai Banks**

	1997	**2000**	**2004**	**2007**
Large	22.1	33.4	36.3	38.5
Medium	25.8	9.5	12.2	37.6
Small	6.4	76.7	52.8	55.6

Source: Bank of Thailand (2010).

[5]According to BOT, at the end of the first quarter 2010, the outstanding loans of 15 foreign bank branches totaled B899 billion. Thai banks' combined loans stood at B7.08 trillion, up over B200 billion over the corresponding period.

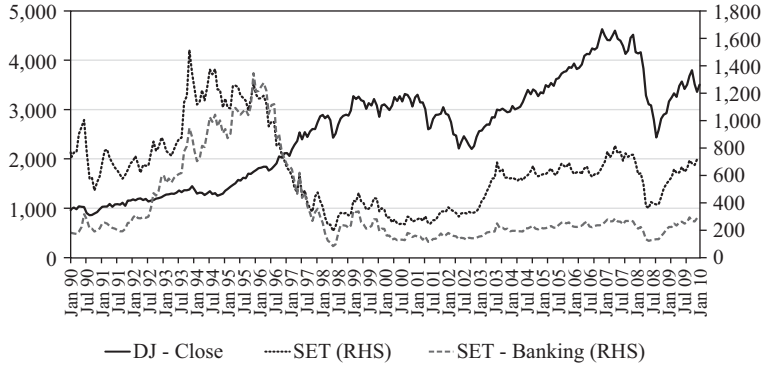
Among the four largest banks, two banks had foreign shares close to the maximum level permitted by law of 49%. The public-owned bank (KTB), after absorbing failed banks, had to accept foreign capital injection. Bank solvency was achieved by reducing the barriers to foreign investment in the financial sector. Although the other top three banks are efficient and profitable private banks, they cannot resist foreign capital participation because of the benefit from having foreign strategic partners. The capital adequacy ratio of all banks must be raised above the 8.5% as required by Basel II regulations. By 2007, all banks were able to satisfy the condition. Without foreign capital participation, it would be impossible for banks to maintain a high level of capital funds. Unlike large banks, the tier 1 capital fund to risk assets ratios of smaller banks were higher than those of large banks due to their limited ability to raise other types of capital funds (Table 1). The need for foreign capital partnership is greater for small- and medium-size banks.

Medium-size banks have encountered high nonperforming loans and related parties lending. Recapitalization through public money would cost more unless there is a change in management and business strategy. This is precisely the reason why the BOT, through the Financial Institution Development Fund, would want to sell shares of these medium-size banks to foreign institutions to reduce their burden after when they were bailed out. Unlike medium-size banks, small banks were easily taken over by foreign institutions that wanted to have their presence in the Thai financial markets. Their quality of assets is better than those of medium-size banks and they need only a relatively small capital injection to boost their capital adequacy ratio to the Basel II standards. Both United Overseas Bank and Standard Chartered Bank have taken absolute control of two small Thai banks and converted them into full-fledged foreign banks bearing their own names. The other four small banks in this group were either consolidated among finance companies and upgraded themselves into commercial banks. At the height of the financial turmoil in 1997, 56 finance companies were closed down. The remaining finance companies were strong enough to undergo structural adjustments during difficult times. They emerged as strong contenders in the financial sector and subsequently were upgraded into banks. Similarly, these newcomers need foreign capital participation in order to compete in the new competitive environment of universal banking system. They tend to concentrate on retail business and real estate lending.

V. THE IMPACT OF THE GLOBAL FINANCIAL CRISIS

The global financial crisis affected the Thai economy directly through its impact on the stock market. Perception of global risks and the fear of global recession caused a stock market crash. The indirect impact was on the real sector through a sharp decline in world trade. Thailand's exports in 2009 declined significantly as the import demand for manufactured goods declined in industrial countries. Thus commercial banks were indirectly affected by the global financial crisis through a slowdown in loan demand as GDP contracted.

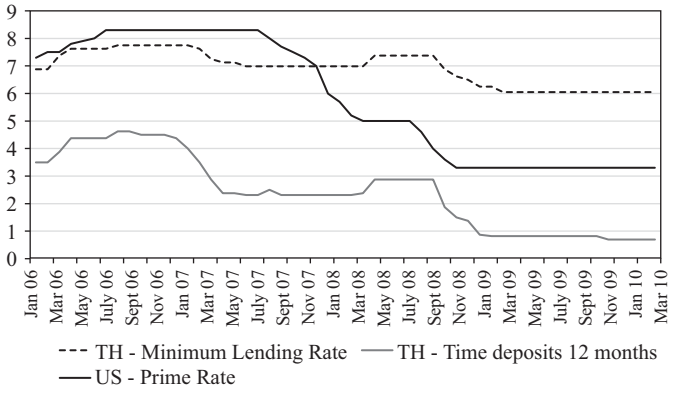
Figure 4. **Dow Jones versus SET Composite Index—Moderate Average**



Source: Securities Stock Exchange of Thailand (2010).

Figure 4 illustrates Thailand's stock bubbles in the pre-1997 crisis, when the SET Index for the banking sector rose from 200 in 1990 to 1400 in 1996 before the financial crash. The overall SET index peaked in 1994. During this period, there was no correlation between the stock prices in Thailand and the Dow Jones Industrial Average. When the New York Stock Exchange market crashed during the period 2008–2009, the SET index followed the pattern of the Dow Jones. A Granger causality test of the monthly data indicates that between 1990 and 1997, the Dow Jones index does not Granger cause the SET index. However, the test for the period 1998 and 2010 indicates that the Dow Jones Granger causes the SET index. This finding is related to the fact that before the crisis, the proportion of capital flows that went into the Thai stock market was still low. But during the subprime crisis between 2007 and 2009, the portfolio investment accounted for almost 60%, compared with only 27% during the period 1990–1996. Nevertheless, no such relationship was found between the US prime rate and Thailand's lending interest rates. As can be seen from Figure 5, the declining US prime rate that started in September 2007 was not followed immediately by the minimum lending rate in Thailand.

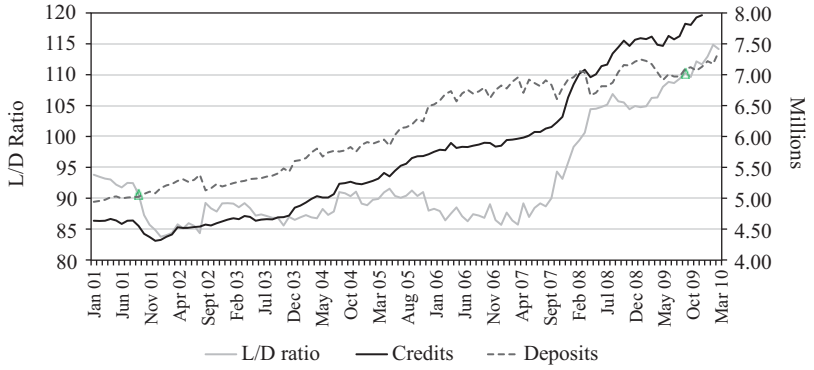
Figure 5. **Interest Rates During the Global Financial Crisis (percent)**



Source: Bank of Thailand (2010).

The global financial crisis in 2007–2009 led the Fed to continue maintaining the low interest rate policy. While the US prime lending rate declined further in November 2008, the Thai commercial banks' minimum lending rate was also reduced with a few months' lag. The excess liquidity of the Thai banking system due to the lack of loan demand caused a temporary departure of the domestic interest rate from the world interest rates. The cost of bank funding was reduced since Thai banks also reduced the deposit interest rates when the lending rate was cut (Figure 5). The widening interest spread between the time deposits and minimum lending rates improved profitability of Thai commercial banks. Particularly when the loan deposit ratio increased after the economic recovery, Thai banks experienced larger interest income. The 5% interest spread indicates that Thai banks have monopoly power. Had there been more competition, there would have been a narrower spread. The net interest margin (NIM) of the Thai banking in 2010 was close to 3%, suggesting the ability to earn larger profits when loan demand expands in response to rapid growth rate (as happened in 2010), which also improves the quality of bank loans.

Figure 6. **Thai Banking Sector—Loan/Deposit Ratio**



L/D = loan/deposit.
Source: Bank of Thailand (2010).

Figure 6 illustrates that bank deposits exceeded bank credits during the period of low investment and stagnant investment. In the second half of 2008, bank credit volume surpassed deposits, manifesting in the loan–deposit ratio as greater than 100%. Because the inflation rate has risen since 2008, the real rate of return on bank deposits is negative, reducing the incentive for financial savings. The economic recovery in 2010 gradually generated the demand for loans. The first quarter GDP of 2010 expanded by 10% (year-on-year), while the loan deposit ratio reached 115%. The strong second quarter GDP growth of 9% prompted the BOT to raise its key policy rate from 1.5% to 1.75%. The V-shaped economic recovery would indicate the resumption of bank credit expansion, thereby enhancing bank profitability during the economy's upturn.

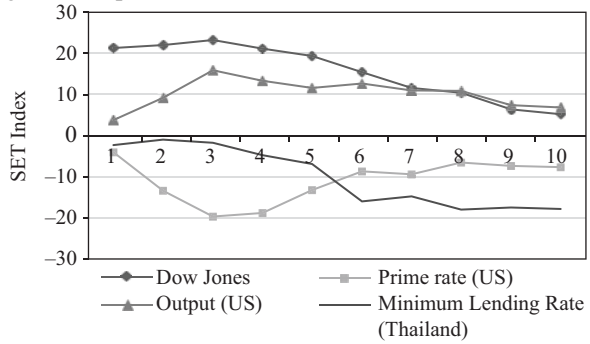
In order to examine the impact of the global financial crisis on the real and financial sectors in Thailand, a vector auto regression model is employed. This model is appropriate since it can trace the lag effects of financial crisis and policy responses. The motivation behind this exercise is so see how external shocks can impact the Thai economy. External shocks can be in various forms: a stock market crash, output contraction in developed countries, and a response to interest shocks caused by interest rate policy in response to recession or inflation in the US. The model can also be used to explore the impact of a double-dip recession in the US.

Monthly data from 1990 to June 2010 are utilized. Three variables from the US economy reflect the extent of the subprime crisis: Dow Jones index, the US prime interest rate, and the US production index. It is imperative to understand the impacts of shocks from these variables on the Thai economy in terms of output, measured by manufacturing production index (MPI); the Thai stock market, i.e., the Stock Exchange of Thailand (SET) index; and domestic interest

rates, represented by the minimum lending rate of commercial banks. The lag length was 4 months as suggested by the final prediction criterion.

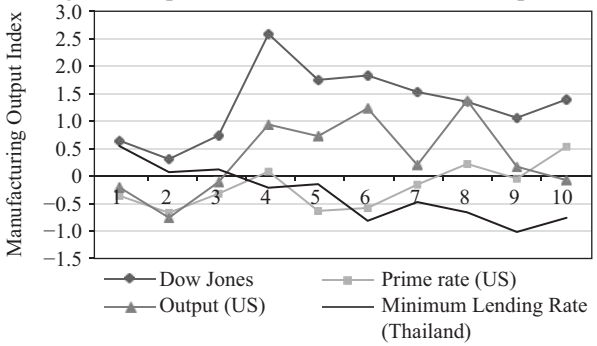
The result from the impulse response function indicates that a positive shock in the Dow Jones resulted in a decline in the SET index of more than 20 points (Figure 7). The impact is instantaneous and lasts longer than 10 months. Similarly, the rise in the US output raises the SET index, albeit less than the impact of the Dow Jones. A rise in the prime rate in the US has a depressive impact on the Thai capital market. This external interest shock has an instantaneous effect stronger than the effect of a rise in domestic interest rates, but it was not long-lasting as the domestic interest rate hike. The impact of shocks in the US interest rate dies off slowly after 6 months. Thus global financial shocks, such as the subprime crisis, have a strong impact on the Thai capital market.

Figure 7. **Responses of Thai Stock Market to External Shocks**



Note: Impulse response function from a vector auto regression model (responses to Cholesky 1 standard deviation innovations).
Source: Author's calculation.

Figure 8. **Impacts of Shocks on Thailand's Output**



Note: Impulse response function from a vector auto regression model (responses to Cholesky 1 standard deviation innovations).
Source: Author's calculation.

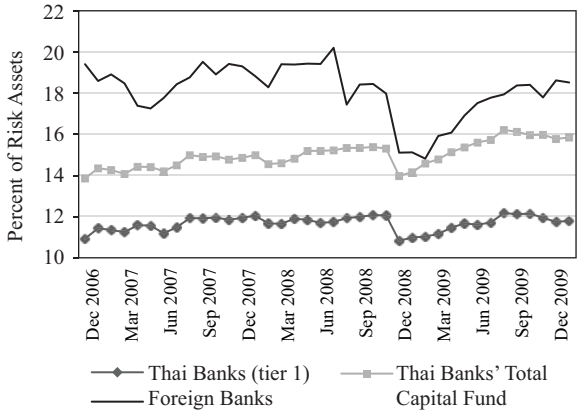
A similar conclusion can be drawn from Figure 8, which shows a positive impact of shocks on Thailand's manufacturing output (MPI) from the bull market in the US. The real sector is affected more by the movement of Dow Jones stock prices and US output fluctuations than domestic disturbances. The results expose the high degree of vulnerability of the Thai economy to global disturbances. A rise in the prime rate in the US and Thailand's domestic lending rate leads to a contraction in domestic output. Both the real and financial sectors in Thailand are susceptible to adverse impacts of external shocks. Nevertheless, it must be explained why the Thai financial sector, unlike the real sector, has not been adversely affected by the global financial crisis.

VI. RESILIENCE OF THE THAI BANKING SECTOR

The Thai economy experienced a severe recession in 1998 and was able to recover within a few years after the crisis. As pointed out by Bonin and Huang (2002), countries that had strong financial institutions and undertook more rapid restructuring of the banking systems were more successful in coping with the financial crisis. The Thai banking sector prepared well for the global financial crisis. GDP contracted by 2.3% in 2009 as a result of the global recession. World trade declined in 2009 leading to a sharp fall in exports. Moreover, political violence curtained spending, which dampened business confidence. As the economy slowed down, the demand for loans became sluggish and lowered the quality of bank assets. As a result, the risky assets increased, necessitating banks to raise capital funds and increase loan loss provisions. Figure 9 illustrates that Thai banks, both total and tier 1 capital funds, were raised above the BIS requirement.

From 2004 to 2009, there was a tendency for rising labor cost, reflecting both inflation and productivity improvement. If bank workers are paid by the value of their marginal products, the low wage rate reflects the low marginal productivity. Both large and small banks had a higher share of salaries in total operating expenses than medium-size banks. However their operating expenses as a percentage of interest income and dividend are much smaller than medium-size banks. It is possible that both large and small banks employ labor more efficiently by equating wages to marginal revenue product of labor. On the contrary, medium-size banks pay lower wages to their employees and were not able to optimize the use of their manpower. The problem of employment efficiency is related to performance of the medium banks.

Figure 9. **Capital Adequacy during the Global Financial Crisis**



Source: Bank of Thailand (2010).

For large and small banks, average net assets per employee increased from 2004 to 2009. The ability to exploit economies of scale led to productivity gains. But this is not the case for medium banks, whose average net assets per employee declined. Except for small banks, Thai banks experienced a decline in net profit per employee in 2009 (Table 3).

Small-size banks can be profitable and efficient if they do not compete directly with large banks and concentrate their operations in their niche areas. The BOT allows finance companies to upgrade into banks with specialization in retail banking. This can create more competition among banks. Competition has been intensified and widened into different kinds of services, including investment in securities, foreign exchange services, fees, and services income. The numerous branches of finance companies all over the country make it difficult for smaller banks to compete. Most of medium and small banks' noninterest income is in the form of fees and services income. In 2007, some medium and small banks suffered losses from investment in collateralized debt obligations (CDO). Nevertheless, such investment was small and did not threaten the stability of any bank's solvency.

In 2009, the return on assets (ROA) of all banks was lower than the level in 2004 (Table 2), in line with the recession in 2009. It is clear that Thai banks, despite the global financial crisis, experienced insignificant impact from the global recession brought about by the subprime crisis. Large banks regularly outperformed medium and small banks. Compared with 2004, banks of all sizes were able to increase net interest per net assets (NIM). The net interest gap was highest with the small banks at 3.25, while large banks' NIM was 3.1, a sharp increase from 2.1 % in 2004.

Profit from operations per net asset increased in banks of all sizes. Efficiency improvement in the banking sector led to higher net interest income. Loss on investment in securities for medium banks was a small proportion (6%) of total noninterest income. The ability to seek income from fees and services, and foreign exchange helped banks to remain profitable during the economic slowdown.

In 2009, the share of noninterest income for large banks was 26%, compared to 20% and 21% for medium and small banks, respectively. The large banks' share of fee income in total noninterest income was 77%, while their wage share in operating expenses remained at the same level as smaller banks. The ability to raise revenue during the time when loan demand growth was sluggish and the ability to control operating cost explains its superior performance over medium- and small-size banks. Large banks are able to exploit both economies of scale and scope from their operations. The loss in investment in securities of medium banks in 2009 reduced the ROA from 0.93 in 2004 to 0.58 in 2009. Part of the loss was mitigated by the gain in foreign exchanges, because during this period the baht-dollar exchange rates appreciated considerably. All banks gained from the baht appreciation.

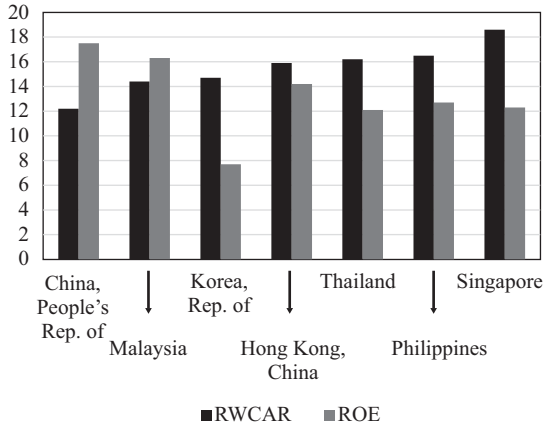
Table 3. **Efficiency and Profitability of Thai Banks**

	Large		**Medium**		**Small**	
	2004	**2009**	**2004**	**2009**	**2004**	**2009**
Interest income and dividend/Average net assets	3.7	4.06	3.35	4.38	4.36	4.76
Net interest income and dividend/ Average net assets (NIM)	2.64	3.08	2.05	2.88	3.17	3.25
Noninterest income/Average net assets	1.35	1.46	0.78	1.04	1.39	1.29
Operating expenses/Average net assets	2.08	2.44	1.63	2.54	3.1	2.7
Profit from operation/Average net assets	1.92	2.1	1.21	1.38	1.45	1.84
Net profit/Average net assets (ROA)	1.39	1.14	0.93	0.58	0.64	0.63
Noninterest income/Total income	26.83	26.44	18.99	19.19	24.12	21.32
Gain (loss) on investments in securities/ Noninterest income	20.43	3.97	21.57	–6.07	8.93	7.99
Gain on foreign exchanges/Noninterest Income	11.42	14.62	8.12	10.56	10.57	20.53
Fee and services income/Noninterest Income	55.8	77.35	54.47	65.43	56.31	41.82
Average net assets/Number of bank Employees	72	79.81	75	64.34	58	73.86
Net profit /Number of bank employees	1	0.91	0.69	0.38	0.37	0.47
Salaries and employee benefits/Number of bank employees	0.51	0.70	0.41	0.63	0.63	0.72

NIM = net interest margin, ROA = return on assets.
Source: Bank of Thailand (2010).

In the aftermath of the global financial crisis, Asian economies recovered rapidly, thanks to the fiscal stimulus and the sharp rebound in exports. Despite the strengthening Asian currencies against the dollar, exports in emerging Asian countries experienced a V-shaped recovery. Consequently, the Asian banking sector's performance was spectacular relative to those financial institutions in Europe and the US. Business synchronization of Emerging Asia implies across-the-board improvement in banking performance in 2010.

Figure 10. **Risk-weighted Capital Adequacy Ratio and Return on Bank Equity in 2010 (percent)**



ROE = Return on Bank Equity, RWCAR = Risk-weighted Capital Adequacy Ratio.
Source: Global Financial Stability Report (IMF 2011).

Figure 10 demonstrates the remarkable performance of commercial banks in Asia. In general, banks that took risky lending would tend to experience a higher rate of return on equity. Except for the Republic of Korea, the high rate of return is associated with less capital adequacy. Profitability and bank solvency can be traded off. Nevertheless, the Thai banking sector's profitability and capital adequacy are in line with other commercial banks in the region. The underlying factor behind the strength of Asian banking institutions is favorable macroeconomic environment that enables them to expand credit in response to rising demand for loans in the course of rapid recovery. Furthermore, except for the People's Republic of China, the Asian banking sector suffered from the financial crisis in 1997/1998 and undertook painful banking reforms. Consequently, it has become more resilient to external shocks.

VII. CONCLUDING REMARKS

The Thai financial sector was vulnerable and weak in the late 1990s. Lack of prudential regulations and sufficient capital funds made capital control relaxation in the early 1990s premature liberalization. The ensuing fast and large capital inflows led to subsequent financial turmoil. The Thai financial sector since then has emerged from the 1998 crisis and become stronger and resilient, thanks to foreign capital injection, good governance, and strengthened financial rules. The rapid economic recovery, despite the political turmoil in 2010, provided opportunities for banks to expand their credit and enjoy the benefits from rising interest rates. In addition, strong performance of the corporate sector enabled banks to further reduce nonperforming loans.

The large interest margin between lending and deposit rates bodes well for the monopoly rent of commercial banks. The transfer of wealth from consumers to banks can be reduced by allowing foreign entry in line with liberalization of the services sector. Financial institutions and their regulators cannot resist the global trend of foreign penetration. By opening up the financial sector to foreign participation, the financial sector has become more efficient, benefiting from competition and technology adaptation. With foreign capital injection, monetary authorities can maintain system solvency while lessening the burden of financial bailouts.

Since the 1997 financial crisis, the Thai economy has been closely integrated to the world economy through international trade and capital flows. As such, it cannot completely shield itself from external shocks. The global financial crisis during 2007–2009 led to export collapse and output contraction in 2009. The debacle of the world's financial institutions and stock market crashes in 2008 had a negative impact on the Thai stock market. However, the adverse consequence on the Thai banking sector was minimal. Thai banks were able to make profits during difficult times. Most of them did not invest in CDOs nor focus mainly on property lending. The level of NPLs continued to decline, while banks enhanced capital strength and provided sufficient loan-loss provisions. The exploitation of economies of scale and scope improved efficiency in their operation. All of these factors are the result of financial reforms undertaken after experiencing the financial crisis in 1997. Thai banks have been well prepared for the global financial crisis as they have learned a valuable lesson on being conservative and observing stringent prudential rules and regulations. It remains to be seen how vulnerable and resilient the Thai banking system is in the face of the Eurozone problems and fears of a US double-dip recession.

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