International and Cross-Border Bank Lending and Implications in SEACEN Economies: Balance Sheet Perspective

Edited by

Reza Y. Siregar **Victor Pontines**

The SEACEN Centre

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FOREWORD

This study seeks to address a number of rising policy concerns from the aftermath of the recent subprime crisis. Did foreign bank lending decline sharply and transmit the financial shocks from the advanced economies to the SEACEN emerging markets? Was the decline driven by the drying-up in supply of cross-border loans or more by the sharp decline in the demand for this funding? Does greater exposure of foreign banks to a host economy lower the sensitivity of its claims to shocks originating from their own economies? Are bank claims on an economy affected by the aggregate changes in claims on another economy? How about the stability of these flows? In short, this study aims to ascertain the multi-faceted aspects of international bank lending.

This collaborative research was led by Dr. Victor Pontines and Dr. Reza Siregar, Senior Economist (on secondment from Bank Negara Malaysia) and Director of the Research and Learning Contents Department of The SEACEN Centre respectively. It was participated by 11 project team members of 8 SEACEN member central banks. The SEACEN Centre wishes to express its sincere gratitude to the participating member central banks and their project team members for actively participating in this project and preparing their respective project papers. The project team members are namely Mr. Souk Mann and Ms Chea Vuthy of the National Bank of Cambodia; Mr. Bokyong Jung and Mr. Dongwoo Kim of The Bank of Korea; Mr. Piter Abdullah of Bank Indonesia; Ms. Allison Loke Yen San of Bank Negara Malaysia; Win Htein Min of Central Bank of Myanmar; Dr. Veronica B. Bayangos of Bangko Sentral ng Pilipinas; Mr. M.R.M. Abeyratne of Central Bank of Sri Lanka and last but not least, Ms Huey-Ming Chen and Mr. Chien-Yeh Yang of Central Bank, Chinese Taipei. The assistance of staff members of the Research and Learning Contents Department of The SEACEN Centre is also gratefully acknowledged. We would also like to gratefully acknowledge the helpful comments received from Dr. Tony Cavoli, Senior Lecturer, School of Commerce, University of South Australia, on the integrative report.

The views expressed in this study, however, are those of the authors and do not necessarily reflect those of The SEACEN Centre or the SEACEN member central banks/monetary authorities.

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EXECUTIVE SUMMARY

The role of international banking and lending to the emerging markets has been long debated. To date, the balance of evidence supports the view that foreign bank entry into the domestic banking system has been largely a positive one. The liberalisation of local banking systems and the presence of foreign banks have, indeed, been contended to promote institutional and regulatory/ supervisory improvements and have also resulted in more efficient allocation of productive resources in globalised economies. Likewise, foreign banks have been touted as a stabilising force for host markets. Yet, this proclaimed stabilising role may seem at odds with the view that activities of the global banks have spread profound difficulties in international financial markets, including the SEACEN economies, during the recent subprime financial crisis period.

The objective of this research project is to evaluate a number of perspectives on the presence and bearing of the global banks in SEACEN economies. In particular, it seeks to address a number of rising policy concerns from the aftermath of the recent subprime crisis. Did foreign bank lending decline sharply and transmit the financial shocks from the advanced economies to the SEACEN emerging markets? Was the decline driven by the drying-up in supply of cross-border loans or more by the sharp decline in the demand for this funding? Does greater exposure of foreign banks to a host country lower the sensitivity of its claims to shocks originating from their own economies? Are bank claims on an economy affected by the aggregate changes in claims on another economy? How about the stability of these flows? In short, this study aims to ascertain the various aspects of international bank lending.

The main findings of the project indicate that the recent sub-prime crisis has forced a rethink on the mandate of central banks in the area of financial stability. Prior to the latest financial crisis, the primary mandate in most central banks in Asia was on monetary policy stability, in particular price stability. The recent crisis has demonstrated that years of monetary stability during the period of great moderation did not safeguard economies from financial instabilities. It was clearly illustrated as well that the globalised banking system played a crucial role in transmitting the crisis from the advanced economies to various parts of the world, including the emerging markets of East and Southeast Asia.

For policy makers, it is no longer adequate to view the domestic banking system and financial system as being separate from the domestic economy. The increasing interconnectedness of domestic banking liquidity to the global funding

environment enhances the links between domestic financial stability and adverse developments emanating outside the domestic economy. The study also examined the role of international bank claims, in particular cross-border lending, as a critical channel of transmission of worldwide financial shock on the local economy. Focus was given to the recent crisis period to gather greater appreciation of the exposure of the local financial system to these external shocks. The findings indicate that bank exposure and home country fundamental variables are significant factors and confirm the role of international bank lending as a channel of shock transmission from the home countries to host economies. Furthermore, the common lender effect — whereby movements in international banks' claims on one economy may be transmitted to other economies that owe claims from the same international banks—underscores the spillover effect that was evident as well during the 1997-98 Asian financial crisis.

The influence of the globalised banking system will likely continue to spread and deepen in the SEACEN economies. Understanding their network of dealings and anticipating their bearings in these economies will undoubtedly improve the authorities' capacity to manage them and mitigate, if not, eliminate potential shocks coming from the financial sector in the near future. Going forward, more in-depth research on the roles, activities and impacts of global banks on the local economy, including local policies, should be carried out.

Chapter 1

CROSS-BORDER BANK LENDING TO SELECTED SEACEN ECONOMIES: AN INTEGRATIVE REPORT

By
Victor Pontines and Reza Y. Siregar[1,2]

1. Introduction

The role of international banking and lending to the emerging markets has been long debated. To date, the balance of evidence supports the view that foreign bank entry into the domestic banking system has been largely a positive one. The liberalisation of local banking systems and the presence of foreign banks have, indeed, been contended to promote institutional and regulatory/ supervisory improvements (Mishkin (2009)), and have also resulted in more efficient allocation of productive resources in globalised economies (Goldberg (2009)). Likewise, foreign banks have been seen as a stabilising force for host markets. Yet, this proclaimed stabilising role may seem at odds with the view that activities of the global banks have spread profound difficulties in international financial markets, including the SEACEN economies, during the recent subprime financial crisis period.

This integrative report is part of a research project conducted at The SEACEN Centre to evaluate further a number of perspectives on the presence and bearing of the global banks in SEACEN economies. In particular, it seeks to address a number of rising policy concerns from the aftermath of the recent subprime crisis. Did foreign bank lending decline sharply and transmit the financial shocks from the advanced economies to the SEACEN emerging markets? Was the decline driven by the drying-up in supply of cross-border loans or more by the sharp decline in the demand for this funding? Does greater exposure of

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1. Victor Pontines and Reza Siregar are Senior Economist (on secondment from Bank Negara Malaysia) and Director of the Research and Learning Contents Department of The SEACEN Centre respectively. (E-mail: victor@seacen.org and reza@seacen.org). The views expressed in this study are those of the authors and may not necessarily represent those of The SEACEN Centre or SEACEN member central banks/monetary authorities.

2. We would like to gratefully acknowledge the helpful comments received from Dr. Tony Cavoli, Senior Lecturer, School of Commerce, University of South Australia on an earlier version of this integrative chapter.

foreign banks to a host country lower the sensitivity of its claims to shocks originating from their own economies? Are bank claims on a country affected by the aggregate changes in claims on another country? How about the stability of these flows? In short, this study aims to ascertain the various aspects of international bank lending.

To address the above set of relevant topical and policy questions, we offer next a more in-depth review of the rising role of international bank lending activities in SEACEN economies. The discussion unveils some of the domestic factors that have been catalytic in attracting these international banks. In this Section, we will also compare and contrast lending activities of banks from major developed economies, such as Japan, the UK and the US during different periods since the early 1990s. More importantly, the recent subprime crisis period will be the focal point of the discussion to introduce preliminary stylised facts on basic features and trends of these international bank lending. A more discerning observation underscores the role of cross-border lending vis-à-vis local lending of these international banks. In particular, in some of the SEACEN economies, cross-border lending has, indeed, been the source of volatilities in these flows whereas local lending by these international banks remains robust.

To further substantiate our analyses, Section 3 of the paper first introduces the empirical model and panel testing that we will undertake as far as the determinants of international bank claims allow, and elaborates in detail the key findings. To demonstrate the key features of international bank lending in our region, we will focus on the lending activities of banks from Japan, UK and US to five SEACEN economies, namely Indonesia, Korea, Malaysia, the Philippines and Thailand. These five SEACEN economies have arguably been subjected to both massive inflows and sudden outflows of international bank lending since the mid-1990s. The Japanese, UK and US banks, on the other hand, have been the major lenders to these economies during the past two decades.

The section of the paper that integrates the findings of the individual research papers coming from the research project is presented in Section 4. Essentially, it summarises and brings to light a number of common and contrasting findings from the experiences of economies included in the research project. The diversity of the experiences and stages of financial market developments in these economies does not only strengthen the previous discussion as far as the findings of the empirical panel testing undertaken in this paper are concerned, but, more importantly, it enriches the analyses on the set of policy questions posted earlier. Given what we have learned from the experiences of the SEACEN economies in particular, a number of policy recommendations to better manage the activities

and presence of the global banking system will be put forward in Section 5 of the paper. A brief concluding Section ends this integrative report.

2. Stylised Facts and Motivation

Foreign banks' operations in emerging markets across the global banking system, including those of the Asian economies, increased dramatically starting the second half of the 1990s. The emerging markets, in general, do not rely on foreign deposits for funding, but they usually turn to international banks for credit lines for exports (Mihaljek (2010)). For most of the eight SEACEN economies in the study, the rise of the international banks' presence started with the first phase of reform and deregulation of the banking sector in the late 1980s and early 1990s. For instance, as reported in Table 1, the total foreign bank claims of four of the eight SEACEN economies, namely Indonesia, Malaysia, Korea and Thailand, grew at an annual average of between 16 to 30 percent for the period of 1989-1996. This is not to mention that prior to this period, total foreign bank claims to Chinese Taipei grew at an annual average of around 19 percent between 1983 and 1988, and slightly tapering off to around 10 percent by the same period of 1989-1996. It is ironic, however, that with the exception of Malaysia which continued to experience strong international bank inflows, Thailand, Korea, Indonesia and to some extent Chinese Taipei, experienced the most severe declines in foreign bank claims across the eight SEACEN economies around the time of the peak of the 1997 East Asian financial crisis.

During the time of the reversal of the IT bubble in the US in 2001-2002, the likely retreat of foreign banks' claims on these same eight SEACEN economies were also observed. However, this presumed impact was quite uneven. For example, Indonesia and Thailand experienced a substantial negative contraction in international bank lending during this period. Meanwhile, Malaysia, the Philippines and Sri Lanka experienced a slowdown in international bank lending after coming-off from around the time of the East Asian financial crisis virtually unscathed (Table 1). On the other hand, however, international bank flows to the economies of Korea and Chinese Taipei were resilient from the recent adverse economic episode in the US as well as from the earlier East Asian financial crisis, with the posting of positive annual average growth rates during both crisis.

The loosening of ownership regulation in most SEACEN economies post Asian financial crisis had also significantly facilitated the rise in the activities of international banks in Asia. Indonesia, South Korea and Thailand, for instance, have raised the allowance for foreign equity participation in local banks by up

to 100 percent. Meanwhile, the Philippines permitted 60 percent foreign ownership. As a consequence, the significantly more liberal ownership policy which facilitated an aura of stability and confidence in the respective economies' banking system has frequently been recognised as an important contributing factor to the return of sustained surges of foreign bank inflows not only to these above-mentioned four SEACEN economies from 2003 to 2007 but also across the board for the wider spectrum of SEACEN economies, just before the outbreak of the recent sub-prime crisis in the US (Table 1).

The total foreign claims of international banks, in general, continued to sustain strong momentum in some of the emerging markets of the Asian region even until the first half of 2008. However, only during the immediate weeks and months following the Lehman Brothers debacle, were six of the eight SEACEN economies engulfed in a sharp and sudden reversal of international bank claims. The unforeseen and sheer size of these reversals in international bank flows out of these six SEACEN economies saw the annual growth rate of these flows hitting negative territory by end-of 2008, with the exception of Thailand and Sri Lanka.[3] More recent data reveals that for almost all of the eight SEACEN economies, inflows of international bank lending had again returned to these economies (Table 1).[4]

As for the sources of these international bank flows, it is interesting to note that during the pre-Asian financial crisis, Japanese banks were the largest sources of funding for the banks and corporations in the eight SEACEN economies.[5] For example, at its peak for the period of 1989 to 1996, Japanese lending amounted to 56 percent and 54 percent of total foreign lending in Thailand and Indonesia, respectively (Table 2).[6] Not far from these two economies are Korea and Malaysia which recorded lending of 28 and 40 percent of total foreign lending by Japanese banks during the same years, respectively. As presented in Table 2, in the aftermath of the Asian financial crisis, a consistent waning in the share of lending by Japanese banks were experienced by all of the eight SEACEN economies. The dominance in lending by Japanese banks have been taken over

3. Thailand only experienced a very marginal increase in international bank inflows.

4. The only exception is Sri Lanka, which presumably suggest that the adverse effects of the Global Financial Crisis impacted the economy with a lag.

5. Exceptions are the Philippines and to some extent, Chinese Taipei, which are both dominated by lending of US-owned banks.

6. See, for instance, Siregar and Choy (2010) which examines the driving factors behind the total claims of seven OECD countries' banks to nine East and Southeast Asian economies.

recently to some extent by UK banks and ever consistently by US banks.[7] The critical influence of Japanese, UK and US owned-banks has meant that the combined lending of these three big economies account for at least up to half of the combined lending by developed countries into each of these eight SEACEN economies (Table 2).

As discussed above, while international bank lending retreated substantially in almost all of the eight SEACEN economies in the immediate aftermath of the bankruptcy of Lehman Brothers, it could still be possible that a key component of these international bank lending in the form of the local claims of the foreign banks operating within the domain of these SEACEN economies, remained strong and were less adversely affected by the external shock that originated from the US. As depicted in Figure 1, while these local claims booked by offices of foreign banks receded in Indonesia, Korea, Philippines and Thailand, such was not the case for Malaysia and Chinese Taipei in 2008.[8]

In retrospect when we look back at previous crises such as the Asian financial crisis and the 2001-2002 collapse of the IT bubble in the US, almost all of the eight SEACEN economies experienced sharp reversals in total international bank flows during the two separate crisis periods, very similar to the recent global financial crisis (GFC) at end-2008. However, remarkably, the local claims continued to register positive average annual growth rates during the past two crisis episodes, namely the 1997 East Asian crisis and the 2001-2002 IT bubble.[9] In addition, more recent data in the post-GFC period indicate that the local claims of foreign banks recovered immediately and grew positively in six of the eight economies with the only exceptions being the Philippines and Chinese Taipei (Figure 1).

In summary, the cross-country experiences of our six economies highlight the seeming indisputable evidence that global banks act as a channel of financial shock transmission from the global financial markets to the local economy. Formally testing this hypothesis as well as significantly identifying the possible

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7. An interesting observation is the heavy dominance in lending by UK-owned international banks to Sri Lanka beginning in the mid-1990s and onwards.

8. In the case of Sri Lanka, while local claims booked by offices of foreign banks decreased more on average than total international bank claims in 2008, the reverse was true in the following period.

9. The only exception is the case of the Philippines which, during the 2001-2002 period, also saw the local claims by international banks contract along with total foreign bank claims.

driving factors behind this international bank lending are therefore imperative and will be the primary objective of the empirical works of this study.

3. Measurement and Empirical Results

Our baseline general econometric model lays out the possible determinants of international bank claims represented by the following dynamic panel equation:

$$\Delta \log Claims_{ij,t} = \alpha_0 + \alpha_1 \Delta \log Claims_{ij,t-1} + \beta_1 VIX_t + \beta_2 Clender_{ij,t} + \beta_3 growthrate_{j,t} + \beta_4 growthrate_{i,t} + \beta_5 [growthrate_{i,t} \times \exp osure_{ij,t}] + \upsilon_{ij,t} \quad (1)$$

where *i*,*j* represents economy pairs *i* and *j*, and *i* = 1 to 3 denotes the major BIS-reporting home country banks of Japan, UK and the US, while, *j* = 1 to 5 denotes the SEACEN host economies of Indonesia, Korea, Malaysia, Philippines, and Thailand. The dependent variable, $\Delta\log Claims_{ij,t}$, is the logarithmic differences of total foreign bank claims[10] from banks in home country *i* to host economies *j*; $\Delta\log Claims_{ij,t-1}$ is the lagged of the dependent variable. In Equation 1, we assume that $v_{ij,t}$ contains the following two effects: (i) the unobserved time-invariant country-pair specific effect, $\varsigma_{ij,}$ and (ii) a stochastic error term $\mathring{a}_{ij,t}$, varying across time and cross-section.[11]

We follow the voluminous literature on the fundamental determinants of capital flows by accounting for in our empirical model, the home or push and host or pull factors that figure prominently in this extensive literature. On this basis the respective real GDP growth of the host economy is *j* ($growthrate_{j,t}$) and home country *i* ($growthrate_{i,t}$).[12] We expect a positive coefficient on the real GDP growth of host economies as higher returns in these economies should then lead to a rise in international bank flows to these economies. Whereas, there is ambiguity as to the expected sign of the real GDP growth in home

10. Total foreign bank claims are the sum of international claims and local claims in local currency; while, international claims are comprised of cross-border claims in all currencies and local claims in foreign currencies.

11. The technical details of the dynamic panel estimation undertaken in this integrative chapter are presented in the Appendix.

12. We also include in the estimation, the nominal interest differential between the host economy *j* and home country *i*. However, this variable surprisingly came out with the opposite expected sign as it was highly correlated with one of the factors and therefore was entirely omitted from the estimations.

countries as, on the one hand, recessionary economic conditions in home countries entail lower profit opportunities at home, which should then encourage foreign banks to seek better or higher returns abroad in which case, we expect a negative coefficient on the $growthrate_{i,t}$ variable. On the other hand, weak economic conditions in the home countries may signal a worsening of the capital position of foreign banks which should then discourage, or worse, retrench their lending overseas.

Apart from considering the impact of traditional push and pull factors on international bank claims, we also take into account a measure of the state of the global financial market, the S&P 100 Volatility Index (VIX_t) of the Chicago Board Options Exchange which is widely used as an indicator of expected short-term volatility of the global financial market. A high value of the VIX indicates more volatile market expectations and as such we expect a negative coefficient on the VIX variable as greater global volatility should lead to a reduction in international bank flows to host economies (Hermann and Mihaljek, 2010).[13] In line with the well-cited study of van Rijckeghem and Weder (2003), we also include in our empirical model, a measure of the potential contagion or spillover of changes in international bank flows from one economy to another, denoted by the $Clender_{ij,t}$ variable. More popularly known as the common lender effect, this argues that movements in international banks' claims on one economy may be transmitted to other economies that owe claims from the same international banks (Peria, et al, 2005). We follow Peria, et al (2005) in accounting for this effect and thus operationalise $Clender_{ij,t}$ as the changes in claims from home country *i* banks to all the five SEACEN host economies other than that of the individual SEACEN host country *j*.[14,15] We should then expect that if the common lender effect works, the coefficient on $Clender_{ij,t}$ would be positive and significant.

Turning finally to our main variable of interest, that is, testing the impact of the financial crisis on the stability of international bank lending to our respective SEACEN host economies, we interact our home economies' real GDP growth

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13. It is also based on this expected relation that the VIX is construed as a factor that measures the global supply of international bank lending. Higher volatility corresponding to a high value of the VIX makes it more difficult for banks to raise additional capital (Takats, 2010).

14. As pointed out by Peria, et al (2005), in an ideal sense, the common lender effect can be equated to a portfolio allocation choice wherein changes in values of claims trigger an adjustment in other assets or claims. The limitation of working then with aggregated economy level data on international bank claims is that it obscures this portfolio allocation decisions at the individual bank level.

15. These major East Asian host economies are China, Indonesia, Korea, Malaysia, Philippines, Singapore and Thailand.

rate variable, $growthrate_{i,t}$, with a measure of foreign banks' exposure to our individual host economies, noting that we measure foreign bank exposure as the ratio of home country *i*'s international bank claims on host economy *j* to the total worldwide claims of home country *i*'s banks.[16,17] Since the crisis coincide with deterioration in macroeconomic fundamentals such as real GDP growth rates as was what happened in developed markets during the recent global financial crisis, this interaction variable recognises the idea that crisis are basically indistinguishable from downturns in GDP. This allow us to test, depending on the sign and significance of the interaction term, the impact of foreign bank exposure from a shock originating from their own economy. A priori, if higher exposure translates into stable international bank lending, we should expect the interaction between home country foreign banks' real GDP growth rate and its exposure to be positive.

The estimation results of three alternative specifications of the dynamic panel model for the whole sample period of 2000Q1 to 2010Q3 are summarised in Table 3. Altogether, with the exception of the growth rate in home country variable *i*, which came out only significant in specification (3), all of the estimated coefficients are significant and came out with their expected signs. Several key findings are worth highlighting. To start with, we find evidence that international bank flows increase (decrease) their claims on host markets once these same economies experience stronger (adverse) macroeconomic growth performance. This result confirms the presence of 'demand factor' influencing the flows of these claims. All of the five SEACEN economies experienced slower growth, particularly during the peak of the recent global financial crisis, translating into weaker demand for funding from the international banks.

Similarly, we find a number of 'supply side factors' have also come into play. First, the negative coefficient (as mentioned only although insignificant in specifications (1) and (2)) on the home countries' real GDP growth rate indicates that foreign banks' behaviour is veered towards seeking better or higher returns

16. Certainly, an alternative and common approach to assess the stability of international bank lending is by focusing on a volatility measure, such as the variance of the flows —or what is often referred to as second moment analyses.

17. This measure of foreign bank exposure is similar to that of Peria, et al (2005). Based on some unique reason pertaining to the Latin American context, they measure the numerator as home country *i*'s international bank claims on the *private sector* of host economy *j*. In this paper, however, we do not make that distinction between private and non-private sectors.

abroad when domestic economic conditions are weak and fragile. The results confirm that weaker economic outlook in the home country translates into a rise in the foreign bank claims' on the host economy.

Second, we also find evidence in support of the common lender effect in view of the positive and significant coefficient on changes in international bank claims in other economies.[18] This seems to support the argument for the presence of contagion effect in international banking. In particular, it demonstrates that changes in foreign bank claims on one economy might spill over to other economies that hold claims from the same banks (van Rijckeghem and Weder (2003)). Third, consistent with theoretical expectation, a rise in the expected short-term volatility of the global financial market, as proxied by the widely used S&P 100 Volatility Index (VIX_t) of the Chicago Board Options Exchange, has indeed adversely contributed to the overall sharp decline in the total claims of the foreign banks. The overall robustness of the supply side factors substantiates the role of international bank claims as a key transmission channel of the impacts of a distressed banking sector in the advanced economies into the emerging markets of SEACEN.

Finally, the positive and significant coefficient on the main variable of interest, the interaction between home country foreign banks' real GDP growth rate and its exposure suggests that controlling for macroeconomic conditions in developed economies, crisis episodes or shocks that originate from developed economies do not necessarily translate into less stable financing in international bank claims for host economies in SEACEN. This is in contrast, however, with the earlier preliminary examination of the flows in international bank claims wherein we observed a sharp and sudden reversal during the global financial crisis. Perhaps one reason for this seemingly conflicting result is that the foreign bank claims data used in this analysis is not a 'pure' cross-border claim data. This is due to the fact that the foreign bank claims data as consolidated by the BIS is not just comprised of the cross-border claims but also the local claims of the foreign banks' offices on residents of the economy the foreign bank is located. Thus, it is highly likely that the local claims component in the data maybe mitigating this effect since this particular component of foreign bank claims held up well during the global financial crisis.

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18. One possible extension here, as suggested by an external examiner, is to add an interactive variable between the common lender variable and that of the growth rate of home economies. The result may further reveal the important role of the supply side in explaining fluctuations in international bank lending. That is, if the common lenders are those economies suffering economic slowdown, the impact of international bank lending to host economies are even more significantly magnified.

4. Lessons from the Research Papers

The research papers summarised in this Section is a study in contrast in terms of their economies' approach or stance to relaxation of capital flows. The SEACEN economies examined here range from the relatively 'stricter' approach to capital flows, e.g., Myanmar, Sri Lanka to relatively more open and liberal stance to capital flows, e.g., Chinese Taipei and Korea. As summarised in Table 4, while the research papers employ a variety of data structure from macro-panel (Cambodia, Chinese-Taipei[19], Indonesia, Korea, Sri Lanka) to time-series (Cambodia, Philippines and Myanmar) as well as in the period of observations that either includes both the Asian and global financial crisis (Cambodia, Indonesia, Korea, Philippines) or to one that examines the beginning of the early part of 2000s till the recent global financial crisis (Chinese Taipei, Sri Lanka, Malaysia and Myanmar), the research papers were almost unanimous in using the growth rate of foreign claims as the dependent variable in their various econometric regressions.[20] In addition, with the exceptions of Cambodia, the Philippines and Myanmar, most papers have employed bilateral claims that comprise the top-four sources of international bank lending in the respective economies, and as we stated in the earlier discussions, bilateral claims of US, Japanese and UK banks are always included.

To be consistent with our own empirics undertaken in the previous Section, most of the research project papers provide in their respective empirical model, the home (push) and host (pull) factors of international bank flows by including for the most part, explanatory variables such as the GDP growth rates of the home and host economies as well as the interest rates of the home and host economies. Out of the nine regressions reported in total, the home country real GDP growth rate came out statistically significant five times. The home economy interest rate on the other hand, was weakly significant, on average. It was reported as significant in only one of the four regressions that this variable was included. Likewise, the host economy's real GDP growth rate turned out to be significant in five of the nine regressions that included this variable. However, the host economy interest rate turned out to be insignificant in all four regressions that

19. The Chinese Taipei paper also employs a micro-panel data structure as well as that of the Malaysia paper.

20. The only exceptions are the Malaysia paper which uses loans over deposit in an exclusive micro panel and the Philippines paper which uses the gross international claims data. In addition, as presented in Table 4, the Indonesia paper estimates separate regressions for the growth in foreign claims and growth of local claims. Similarly, the Philippines paper estimates separate regressions for gross international claims and cross-border lending.

included this as an explanatory variable in the model. These results are suggestive of the distinguishing characteristics of international bank flows into some of the SEACEN economies. In particular, the procyclicality of these flows, i.e., better (worse) economic conditions in the host (home) economies lead to greater bank flows into some of these SEACEN economies, whereas, the role of 'liquidity' conditions both in the home and host economies does not matter much as a fundamental driver of these flows.[21]

In contrast to the strong and robust results obtained with the variable on the expected short-term volatility of the global financial market in Section Three of this Chapter, only one of the research papers (Philippines) actually included this important variable in their estimations. The variable turned out to be highly and negatively significant as expected for this case, which again strongly suggests that global supply factors have a role to play in determining bank flows from developed to emerging economies.

Turning now to the impact of crisis episodes on the direction of these bank flows, a dummy variable was created for this purpose in all the research papers. The papers that included the period of the Asian financial crisis of 1997-98 have unanimously found that the crisis episode had a negative effect on this type of flows. However, the papers that tested the impact of the recent global financial crisis on these flows arrived at conflicting results. While the global financial crisis dummy was significantly negative in the case of Indonesia and Korea, the same dummy variable was insignificant in the case of Chinese Taipei and Myanmar and significantly positive in the case of Cambodia. The more interesting question, therefore, is whether greater exposure on the part of major foreign banks, as analysed in this Chapter as well as in the other research papers, has a crisis-mitigating impact or, in other words, has a stabilising effect on these bank flows in times of financial turmoil. To answer this question, an interaction variable, i.e., product between the appropriate crisis dummy and exposure was created. The balance of the evidence appears to suggest that greater exposure on the part of major foreign banks in these selected SEACEN economies fulfill a stabilising or crisis-mitigating role during periods of financial distress. In particular, the interaction term between the Asian financial crisis dummy and exposure while insignificant in the case of Indonesia, turned out to be significant in the regression for the Philippines. More telling, the interaction term between the global financial crisis dummy and exposure was only insignificant in three

21. This then corroborates the results of our own set of empirics in Section 3 wherein a measure of interest rate differential turned out to have weak explanatory power in almost all the regressions.

of the eight regressions tested. This latter result, more importantly, again corroborates the earlier empirical results undertaken in the previous section.

Four of the project papers have also further considered interesting and related aspects of the issues at hand. For instance, the Chinese Taipei paper undertook separate micro-panel regressions on a very large number of observations and found evidence which support the above stabilising argument.[22] Similarly, the Malaysia paper also exclusively estimated micro-panel regressions and found very interesting results. Though it obtained inconclusive evidence on the stabilising property of international bank lending, this may be suggestive of the emphasis of the Malaysian banking system on local incorporation of foreign banks. Moreover, it found revealing results that profitability and assets size are both important factors in driving foreign banks' lending activities in Malaysia. The Indonesia paper also estimates a separate regression using the same set of explanatory variables but with the growth of local claims as the dependent variable and should therefore be viewed as an alternative angle to robustly ascertain the stabilising role of international foreign bank lending. The paper obtained results wherein the interaction term between the crisis dummies and exposure was insignificant in both fixed and random-effect regressions, which in turn can be interpreted as confirming the result obtained for the stabilising role of international bank flows when total international bank claims was used instead.

The Philippines paper also considered the alternative angle of robustly ascertaining the stabilising role of international foreign bank lending by estimating separate regressions using confidential cross-border lending data from the Bangko Sentral ng Pilipinas (BSP) as the dependent variable. The result obtained is intriguing wherein the interaction term between the Asian financial crisis dummy and a measure of exposure turned out to be positive and significant (again, confirming the stabilising role argument) while the interaction term between the recent global financial crisis and exposure was negative and significant, in direct contrast to the earlier results. The Philippines paper also interestingly examines the question of whether greater trade openness has a crisis-mitigating impact on international bank flows. However, the interaction variable between the crisis dummies and a suitably measured variable for trade openness was insignificant in the regressions.

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22. Specifically, interaction variables between the GFC dummy and country dummies were included in the regression along with a number of balance sheet indicators of domestic and foreign banks in the sample. Results showed that the interaction variables were positive and significant with the exception of the UK dummy. This can be interpreted as being that greater exposure of major foreign banks has a stabilising role on domestic loans as a ratio of deposits (dependent variable) during crisis times.

5. Policy Challenges Going Forward

The era of great moderation (low inflation) across the globe has been found to be gravely inadequate to safeguard much-needed stability in the financial sector. Even during periods of sound macroeconomic conditions, the financial system was subject to various self-amplifying mechanisms such as upward trends (bubbles), downward trends (busts) and phases of the credit cycle. There has been growing appreciation and acceptance of the role of the central bank to extend to financial stability in addition to monetary authority.

New responsibilities will come with new challenges. In this study, we highlight the role of lending activities of international banks, particularly cross-border lending, as a potential source of financial instability. Going forward, a number of policy responses to manage potential risks associated with international bank lending have been tabled and debated. The following sub-sections will elaborate on some of them.

5.1 Cross-border Supervision

Cross border banking with the presence of multinational banks (including the newly emerging regional multinational banks) enhances the 'interconnectedness' factor. It is now a well known fact that globalised banks play a crucial role in the international transmission of monetary policies and economic shocks globally. At the first instance, the lack of cross border supervisory cooperation has resulted in asymmetric information on cross-border risk exposures leading to an under-appreciation by supervisors and regulators of underlying systemic risks and connections (Kodres & Narain (2009)). In addition, it is rather obvious that the existence of asymmetric information among supervisors in different jurisdictions, leads to untimely and uncoordinated responses (Nijathaworn (2010)). Furthermore, adequate cross-country supervisory cooperation and coordination are necessary to overcome loopholes such as currency substitution, or switching from domestic lending in foreign currency to direct foreign credit.

One potentially effective method to facilitate cross-border policy cooperation and coordination is through the college of supervisors.[23] The college of supervisors is defined as a "permanent, although flexible, structure for cooperation and coordination among the authorities of different jurisdictions responsible for and involved in the supervision of the different components of cross-border banking groups, specifically large group" (The Committee of European Banking

23. As of September 2009, there are more than 30 colleges to supervise complex institutions.

Supervisors (CEBS (2009)). As a general rule, the establishment of a supervisory college should be considered for significant financial institutions in terms of size, interconnectedness with other components of the financial system and/or the roles they play in the market which may cause systemic impact on the economy's financial system, hence affecting the region's financial stability.

A recent survey has identified a number of regional and global banks that have strong presence in major Asian economies (Siregar & Lim (2010). The Hong Kong Shanghai Banking Corporation (HSBC), Citibank and the Standard Chartered Bank are among the three major international banks that have wide and extensive branch networks in the Asian region (Table 5). In addition to these three international powerhouses, the South East Asian region has also witnessed the emergence of its own multinational banks. In Malaysia, banks such as the Malayan Banking Berhad (Maybank), Commerce International Merchant Bankers Berhad (CIMB) and Rashid Hussain Berhad (RHB) have expanded their networks beyond Southeast Asian economies. A number of Singaporean banks, namely the Development Bank of Singapore (DBS), the United Overseas Bank (UOB), and the Overseas Chinese Bank Corporation (OCBC) have achieved similar success in their efforts to become regional banks.

As of May 2010, a number of major central banks in Asia have been invited to participate in colleges of supervisors. Bank Negara Malaysia, for instance, is involved in the colleges of supervisors organised by the Financial Stability Agency of United Kingdom for the Standard Chartered Group, the BaFIN for the Deustche Bank Group and the OFSI for the Bank of Nova Scotia Group. Similarly, the Monetary Authority of Singapore (MAS) and Bangko Sentral ng Pilipinas have also participated in a number of colleges of supervisors set up for major European and the US banks. In addition, under the foreign banking law of a number of Southeast and East Asian economies, one of the conditions for the foreign bank to establish its subsidiary domestically is that the home-supervisor of that particular foreign bank must sign a MOU with the host central banks. This MOU facilitates bilateral exchanges of data and information between the two bank supervisors. However, as of late 2010, there has not been any arrangement for supervisory colleges for Asian regional multinational banks such as Malaysian and Singaporean banks discussed earlier.

5.2 Reducing the Complexity of Large Cross-Border Banks through 'Subsidiarisation'

An important cross-border banking issue is the relationship between the home- and host supervisory agencies and central banks. In the event that a

foreign bank which is systemically important in a host economy finds itself in a crisis, this could lead to potential conflicts between authorities in the home- and host economies. These conflicts could be particularly significant if the relative size of the parent bank and its overseas affiliate is substantially different, or if the economic importance of the overseas affiliate to the parent bank is mainly marginal, e.g., funding of the overseas affiliate is mainly sourced from local deposits. For instance, home-economy authorities will not be keen on supporting a small overseas affiliate, or the overseas affiliate will receive less attention from the parent bank or home supervisor as the impact of such failure of the overseas affiliate is relatively low or immaterial on the financial group's overall position. This is even in the case if the troubled overseas affiliate is relatively systemically important for the host economy. Moreover, authorities of the host economy could find it politically difficult to use public or taxpayers' resources to support a foreign-owned bank when it gets into trouble.

One of the answers to such a challenge of a systemically-important foreign bank failing in a host economy is to ascertain local incorporation as a subsidiary rather than as a branch. All else being equal, local incorporation gives host authorities greater supervisory control over local operations by making it more difficult for assets to be moved from local operations to the parent bank, i.e., ring-fencing. Furthermore, it enables the possible imposition of specific capital-related prudential requirements which can provide some separation between the subsidiary and the parent bank, thus reducing intra-group contagion risk (Mihaljek, 2008).

5.3 Other Policy Considerations

5.3.1 Increasing Capital Levels and Buffers.

Introduced as part of the new capital standard under Basel III, 'ample' or conservation buffers reflect the large perceived negative externality associated with a failure of a large cross-border bank and as such should be available to enable banks to maintain large enough capital levels to offset losses in times of adverse financial shocks. Countercyclical capital buffers, on the other hand, rests on the concept that banks should build-up extra capital in times of excessive credit growth and as such, banks can tap the buffer during periods of financial distress without having to raise new capital immediately. Implementing such types of capital buffers can improve the banking sector's resilience to financial crises as well as mitigate its impact on the entire economy.

5.3.2 Deposit Insurance Scheme

Deposit insurance coverage could be lowered for large cross-border banks. There is a perception that large cross-border banks pursue scale, e.g., mergers and acquisitions, in order to become 'too big to fail'. In order to mitigate such an incentive, a spreading or sharing of the risk in the official financial safety-net (a form of co-insurance) can be introduced by reducing the deposit insurance coverage for large cross-border banks. This will also reduce the scope for free-riding on the part of large cross-border banks as far as the financial safety net mechanism of the banking sector is concerned.

5.3.3 Establishment of Cross-border Collateral Arrangements

This involves the central bank in one jurisdiction providing domestic currency liquidity to eligible financial institutions against collaterals placed by their offices in another jurisdiction into the liquidity-providing central bank's account at the local central bank. In essence, this is another way for central banks to provide a cross-border bridge to support funding requirements in another jurisdiction should interbank cross-border intermediation become impaired (CGFS-2010).

5.3.4 A Systemic Risk Charge or a Systemic Risk Levy on 'Too-Big To Fail' or 'Systemically Important' Cross-Border Institutions.

The bigger the financial institution, the higher is the likelihood that it will be rescued in times of financial distress. In other words, the cost of the financial rescue is directly related to the systemic relevance or size of the financial institution. One solution is a systemic risk charge that mainly depends on the size of the cross-border bank. This follows on from the basic principle of the theory of externalities, which suggests that a polluter should be charged with a tax that is equivalent to the social costs of the pollution. We can then regard the systemic instability created by the cross-border bank's activities as an externality and a systemic risk charge could be regarded as a way to 'internalise' this problem of too-big to fail.

One such suggested approach is for regulators to assign systemic risk ratings to a financial institution and then assess a capital or systemic risk surcharge based on this rating. Banks with higher systemic risk rating would receive higher capital or risk surcharges. In short, the surcharge is based on the financial institution's corresponding contribution to systemic risk. In principle, under certain assumptions, a surcharge on capital is equivalent to a levy on capital in terms of stifling the incentive for large cross-border banks to engage in systemic risk

activities. However, an important difference between the two is that a levy removes the funds from the financial institutions balance sheet, whereas a capital surcharge leaves the funds under the control of the financial institutions (Doluca et al, 2010).

In view of this difference, the advantage of the levy is that it can be used to fund a 'Systemic Stability Fund' that would act as a private safety net in the event of a financial crisis. The idea is that the accumulated levies can then be re-invested into 'convertible' or liquid instruments by the Systemic Stability Fund into the same financial institutions that had paid these levies. These liquid instruments serve to fulfill the financial rescue role that in the event a large cross-border banks gets into trouble, these same instruments can be used by the supervisory authorities to 'bail-in' the weakened cross-border bank without resorting to the use of public or taxpayer resources.

6. Concluding Remarks

The recent sub-prime crisis forces a rethink on the mandate of central banks in the area of financial stability. Prior to the latest financial crisis, the primary mandate in most central banks in Asia was on monetary policy stability, in particular price stability. The recent crisis has demonstrated that years of monetary stability during the period of great moderation did not safeguard economies from financial instabilities. It was clearly illustrated as well that the globalised banking system played a crucial role in transmitting the crisis from the advanced economies to various parts of the world, including the emerging markets of East and Southeast Asia.

For policy makers, it is no longer adequate to view the domestic banking system and financial system as being separate from the domestic economy. The increasing interconnectedness of domestic banking liquidity to the global funding environment enhances the links between domestic financial stability and adverse developments emanating outside the domestic economy. Our study examined the role of international bank claims, in particular cross-border lending, as a critical channel of transmission of worldwide financial shock on the local economy. We focused on the recent crisis period to gather greater appreciation of the exposure of the local financial system to these external shocks. In addition, we looked into a number of home-country indicators of economic fundamentals. The exposure and home country fundamental variables have been found to be significant factors and confirmed the role of international bank lending as a channel of shock transmission from the home countries to host economies. Furthermore, the common lender effect — whereby movements in international

banks' claims on one economy may be transmitted to other economies that owe claims from the same international banks—underscores the spillover effect that was evident as well during the 1997-98 Asian financial crisis.

Going forward, more in-depth research on the roles, activities and impacts of these global banks on the local economy, including local policies, should be carried out. As regional banks such as CIMB, MayBank, OCBC and UOB (as shown in Table 5) continue to expand their activities in the region, it will be interesting to ascertain how they perform relative to the traditional global banks such as Citibank, Standard Chartered Bank or HSBC. Are these regional banks providing more stability in the region? At the end of the day, the influence of the globalised banking system will likely continue to spread and deepen in the SEACEN economies. Understanding their network of dealings and anticipating their bearings in these economies will undoubtedly improve our capacity to manage them and mitigate, if not, eliminate potential shocks coming from the financial sector in the near future.

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Table 1
Annual Average Growth of International Bank Claims in Selected SEACEN Economies

Economies	1983-1988	1989-1996	1997-2000	2001-2002	2003-2007	2008	2009
Indonesia	8.59	16.11	-6.27	-13.33	15.16	-0.85	14.01
Korea	-0.97	20.09	-7.49	6.85	34.50	-19.98	16.76
Malaysia	0.84	16.12	15.88	1.39	16.69	-5.91	2.75
Philippines	-2.98	6.08	10.30	-2.0	8.44	-20.35	10.89
Sri Lanka	7.09	3.62	21.87	2.34	22.93	14.24	-4.82
Chinese Taipei	18.94	10.13	1.43	11.05	23.33	-15.60	21.09
Thailand	8.45	30.65	-13.35	-9.19	9.32	1.61	19.38

Source: BIS Consolidated Banking Statistics for the basic data and authors' calculations.

Table 2
Average Share of Japanese, UK and US Banks in Total Foreign Bank Lending to Selected SEACEN Economies

Economy	Nationality of Foreign Banks	1983-1988	1989-1996	1997-2000	2001-2002	2003-2007	2008	2009
Indonesia								
	Japanese	40.48	54.22	30.82	22.57	15.37	14.09	14.66
	UK	8.40	4.85	8.48	10.08	12.30	13.31	13.20
	US	19.06	8.96	10.56	9.08	9.32	12.75	13.27
Korea								
	Japanese	31.30	28.48	18.72	13.48	8.86	8.94	9.52
	UK	7.78	4.80	7.72	10.45	19.44	25.02	24.37
	US	29.88	18.12	18.93	22.27	23.88	18.91	25.46
Malaysia								
	Japanese	43.57	40.91	22.48	11.98	7.73	8.16	8.71
	UK	8.65	6.40	20.09	26.51	28.12	26.73	27.67
	US	19.88	24.04	19.19	15.15	14.52	11.51	13.15
Philippines								
	Japanese	21.46	19.00	13.45	13.47	10.39	12.97	13.67
	UK	10.69	8.46	9.78	11.75	12.98	14.60	16.92
	US	41.13	42.74	27.52	21.99	17.55	17.46	19.58
Sri Lanka								
	Japanese	25.79	10.32	4.95	2.37	1.12	0.80	0.63
	UK	8.13	14.55	22.78	34.60	40.96	41.83	46.33
	US	18.33	9.45	6.74	8.33	8.67	8.06	7.37
Chinese Taipei								
	Japanese	19.24	20.72	10.61	8.79	7.58	8.72	8.07
	UK	4.85	7.30	12.08	15.88	19.45	25.89	27.63
	US	52.24	27.89	31.16	36.52	23.87	21.52	26.38
Thailand								
	Japanese	47.33	56.39	38.70	26.62	27.17	31.15	32.39
	UK	3.18	2.79	6.58	10.95	15.26	16.38	16.50
	US	23.94	11.44	9.87	10.68	12.70	10.33	12.00

Source: BIS Consolidated Banking Statistics for the basic data and authors' calculations.

Table 3
Dynamic Panel Estimation Results of Determinants of Changes in International Total Bank Claims, 2000Q1 – 2010Q3

Variables	(1)	(2)	(3)
$logdiffclaims_{t-1}$	-0.045 (0.033)	-0.050 (0.033)	-0.059 (0.033)*
$growthrate_J$	0.245 (0.099)***	0.383 (0.128)***	0.303 (0.129)***
$growthrate_i$	-0.169 (0.192)	-0.327 (0.214)	-0.405 (0.213)**
Vix		-0.42 (0.025)*	-0.041 (0.025)*
Clender			0.176 (0.034)***
$growthrate_i$ * exposure	0.441 (0.173)***	0.429 (0.172)***	0.504 (0.172)***
Sargan test (p-value)	0.07	0.07	0.15
AB test for AR(2) (p-value)	0.36	0.36	0.61

Notes: standard errors in parentheses. *** Significant at the 1% level; ** Significant at the 5% level; * Significant at the 10% level . Numbers in the last two rows of the table are *p*-values.

Table 4
Integrative Summary of Research Papers

	Cambodia	Chinese Taipei	Indonesia	Korea	Malaysia	Myanmar	Philippines	Sri Lanka
Data	Time series and Macro Panel	Macro and Micro Panel	Macro Panel	Macro Panel	Micro Panel	Time series	Time series	Macro Panel
Period	1999Q1 – 2010Q2	2000 Q1 – 2010 Q2	1994 – 2009	1995 – 2010 Q2	January 2000 December 2009	1999 – 2010	1995 Q1 – 2009 Q4	2000 – 2010 Q1
Data on International Bank Claims Used	Logarithmic-first difference of Foreign Claims	Logarithmic-first difference of Foreign Claims	Distinguish between growth of foreign claims and growth of local claims	Logarithmic-first difference of Foreign Claims	Not appropriate refer to discussions in the bottom of the table	Logarithmic-first difference of Foreign Claims	Distinguish between Gross international Claims and cross-border lending	Logarithmic-first difference of Foreign Claims
Were Bilateral Claims Used	Claims from Malaysia, Thailand, Australia and Netherlands banks	Claims from the US, UK, Japan and Switzerland banks	Claims from the Japan, US, Germany and UK	Claims from Japan, US, UK and European banks	Not appropriate refer to discussions in the bottom of the table	aggregated	aggregated	Claims from Netherlands,Japan, US, UK banks
Sign and Statistical Significance of Global Supply factor, if included	———	——	——	——	Not appropriate refer to discussions in the bottom of the table	——	negative, significant	——
Sign and Statistical Significance of Push Factors:								
Home country real GDP growth	insignificant in all time series regressions but weakly significant in panel regression	negative (significant) – US; positive (significant) – Japan; insignificant – UK; insignificant - Switzerland	insignificant in fixed-effect regression; significant in random-effect regression[a]	negative, significant	Not appropriate refer to discussions in the bottom of the table	insignificant	—	significant
Home country interest rate	———	significant only for the UK	insignificant[a]	negative, significant	Not appropriate refer to discussions in the bottom of the table	—	—	insignificant

Sign and Statistical Significance of Pull Factors:								
Host country real GDP growth	significant in one out four time-series regressions; significant and positive in panel regression	positive (significant)	negative (significant) in fixed effect regression; insignificant in random effect regression[a]	positive, significant	Not appropriate refer to discussions in the bottom of the table	negative, significant	positive, significant	insignificant
Host country interest rate	———	insignificant	insignificant[a]	insignificant	Not appropriate refer to discussions in the bottom of the table	—		insignificant
Sign and Statistical Significance of crisis variables:								
Asian financial crisis dummy	———	—	significant[a]	negative, significant	Not appropriate refer to discussions in the bottom of the table	—	—	—
Global financial crisis dummy	significant in one out four time-series regressions; significant and positive in panel regression	insignificant	significant[a]	negative, significant	Not appropriate refer to discussions in the bottom of the table	insignificant	—	—
Interaction term between Asian financial crisis dummy and exposure	———	—	insignificant[a]	—	Not appropriate refer to discussions in the bottom of the table	—	positive and significant	—

Interaction term between Global financial crisis dummy and exposure	insignificant in all regressions	positive (significant)	positive, (significant) in both fixed and random effect regressions[a]	positive, significant	Not appropriate refer to discussions in the bottom of the table	insignificant	positive and significant	insignificant
Other Important Details								
		Results from Micro-panel: Dependent variable - (Loans to deposit) Interaction between GFC dummy and country dummies - significant and positive for France, HK, Japan, Switzerland and US But not for the UK	interaction terms between crisis dummies and exposure all insignificant in fixed and random effect regressions using the growth of local claims		Dependent variable: logarithm of loans over deposit interaction between GFC dummy and country dummies – all insignificant interaction between GFC dummy & regional dummies – all insignificant ratio of return on assets lag one period – negative & significant in both regressions logarithm of bank assets lag one period – positive & significant in both regressions logarithm of bank equity over assets lag one period – insignificant		Interaction between trade openness and crisis dummies included in regressions using international claims – all insignificant interaction term between asian crisis dummy and exposure – positive and significant using cross-border lending; interaction term between GFC crisis dummy and exposure – negative and significant using cross-border lending	

[a] Based on results using the growth of foreign claims.

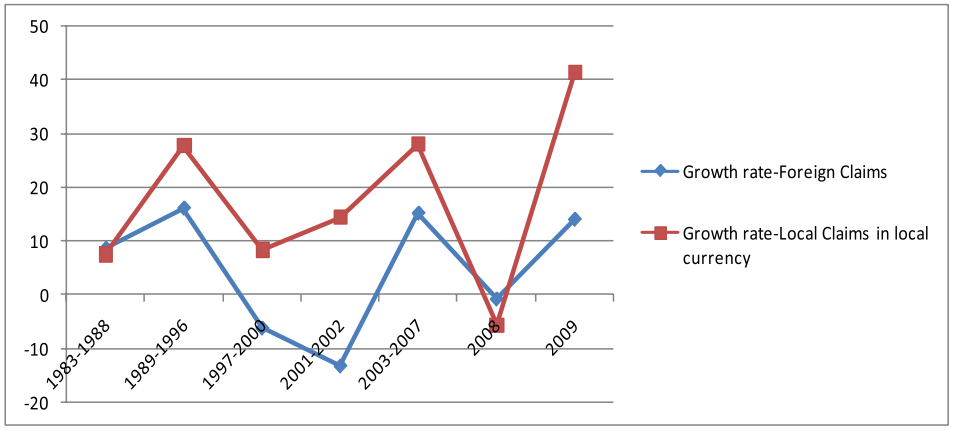
Table 5
Cross Border Banks in Selected SEACEN Economies

Economies	Top 3 domestic FIs in your jurisdiction that have significant presence in the region	Top 3 foreign FIs in your jurisdiction that are originated from SEACEN member economies	Top 3 other foreign FIs (apart from originating from SEACEN member economies) that have significant presence in your economy
Indonesia	- Bank Mandiri - Bank BRI - BCA	- CIMB Niaga (Malaysia) - Bank International Indonesia (MayBank Malaysia controls around 43%)	- Citibank - HSBC - Standard Chartered Bank
Korea	- None	- DBS (Singapore) - UOB (Singapore) - OCBC (Singapore)	- Citibank - HSBC - Standard Chartered Bank
Malaysia	- Maybank - CIMB Group - Public Bank	- OCBC (Singapore) - UOB (Singapore) - Bangkok Bank (Thailand)	- Citibank - HSBC - Standard Chartered Bank
The Philippines	- Metropolitan Bank Corporation (Metrobank) - Philippine National Bank (PNB)	- Chinatrust (Taiwan) - Maybank (Malaysia) - Korea Exchange Bank (Korea)	- Citibank - HSBC - Standard Chartered Bank
Singapore	- DBS Bank Limited - OCBC - UOB	- Maybank (Malaysia) - Bangkok Bank (Thailand) - RHB Bank (Malaysia)	- Citibank - HSBC - Standard Chartered Bank
Chinese Taipei	- Bank of Taiwan - Taiwan Cooperative Bank - Mega International Commercial Bank	- DBS (Singapore) - OCBC (Singapore) - Bangkok Bank (Thailand)	- Citibank - HSBC - Standard and Chartered Bank
Thailand	- Bangkok Bank - Kasikorn Bank - Siam Commercial Bank	- UOB (Singapore) - CIMB Thai (Malaysia) - OCBC (Singapore)	- GE Capital - ING - Standard Chartered

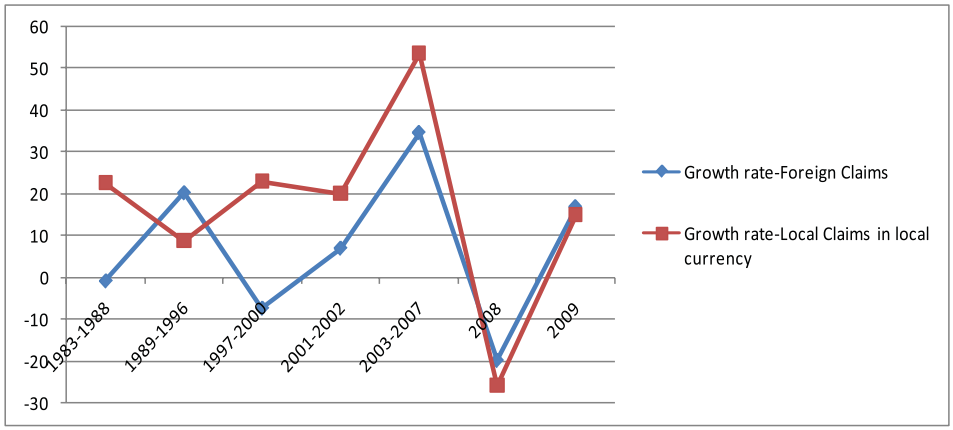
Source: Siregar and Lim (2010)

Figure 1
Average Annual Growth Rate of Foreign and Local Bank Claims in Selected SEACEN Economies

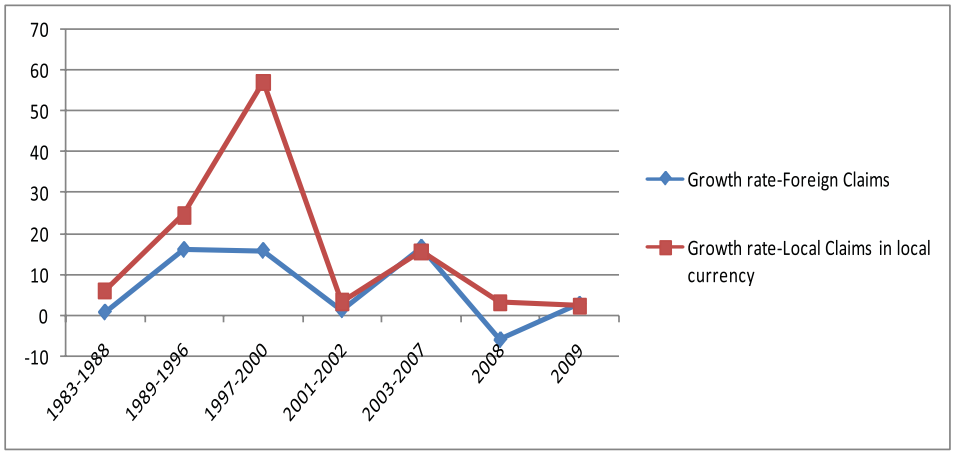
Indonesia



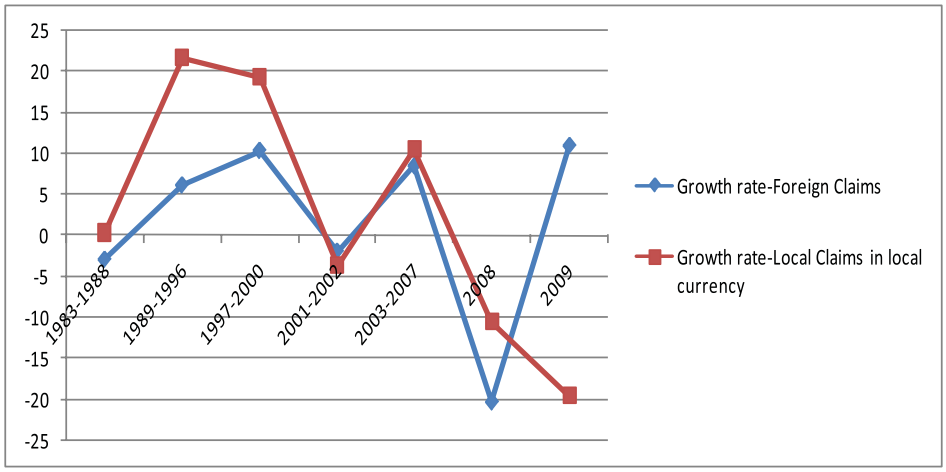
Korea



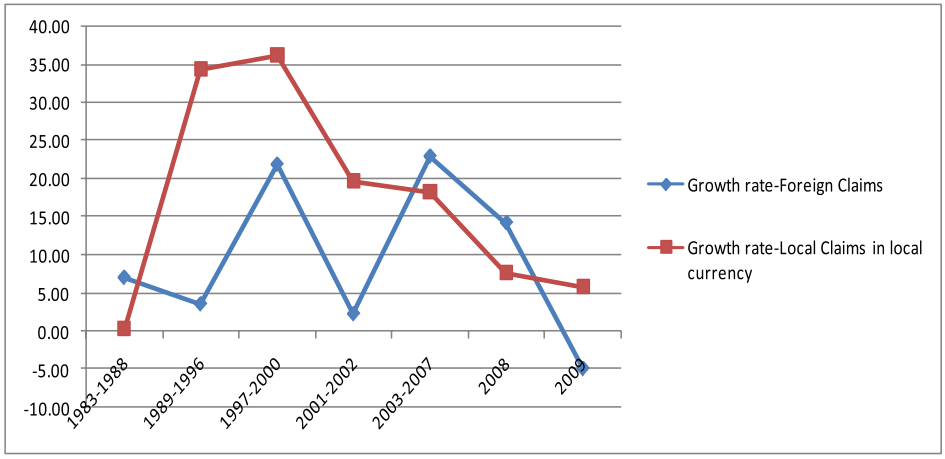
Malaysia



Philippines



Sri Lanka



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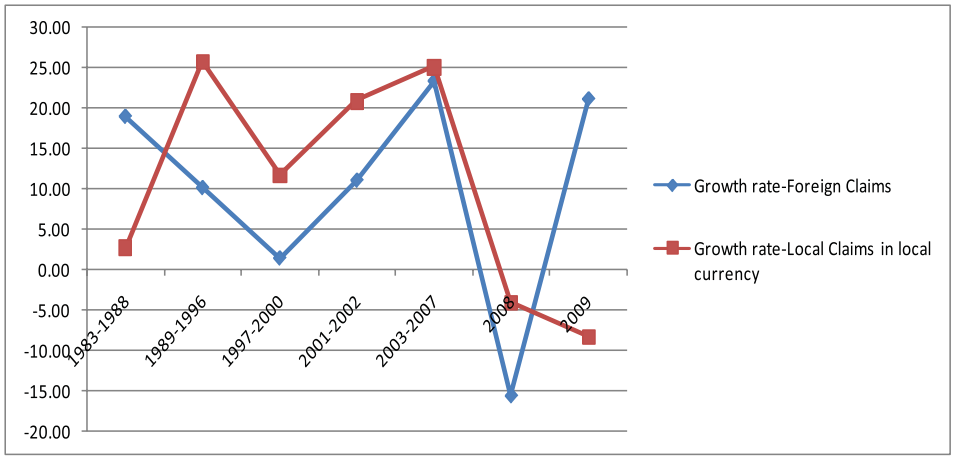

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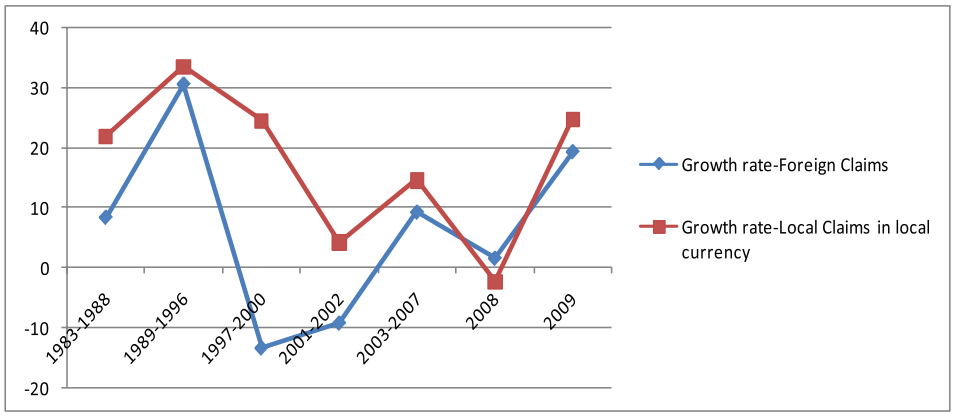

Source: BIS Consolidated Banking Statistics and authors' calculations.

Chapter 2

INTERNATIONAL AND CROSS-BORDER BANK LENDING AND IMPLICATIONS IN SEACEN ECONOMIES: BALANCE SHEET PERSPECTIVE THE CASE OF CAMBODIA

By
Souk Mann and Chea Vuthy[1]

1. Introduction

Banks and their principal financial-service competitors are expanding their service beyond local boundaries to become international banking institutions. The majority of commercial and financial transactions now flow across international borders. The continuing search for higher revenues, lower operating costs, and reduction in risk exposure through geographic diversification is the driving force towards these cross border operations. Along with British, Japanese, German and Canadian banks, U.S. commercial banking institutions have led in the development of international banking facilities to meet the financial needs of foreign institutions and multinational corporations. International financial services today continue to be important sources of earnings for banks and nonbank institutions around the world. A number of facilities being established across border include representative offices, agency offices, branch offices, subsidiaries, joint ventures, international banking facilities etc. (Peter S. R. & Sylvia C. H., 2005).

The advent of economic globalisation and financial liberalisation has allowed participation of foreign banks, either through expanded cross-border lending activities and/or via direct entry into local bank markets. This has generated significant local benefits in terms of enhanced efficiency, provision of liquidity, risk-sharing, and overall potential growth opportunities. At the same time, the

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1. Division Chief, Economic Research & Statistics Department and Deputy Section Chief, Bank Supervision Department of National Bank of Cambodia respectively. This paper presents preliminary findings and is solely to stimulate discussion and elicit comments from interested readers. The views expressed in the paper are those of the authors and are not necessarily reflective of views of the National Bank of Cambodia or The SEACEN Centre.

globalisation of banking can also have profound effects on the transmission of shocks across markets and on the effectiveness of policy tools applied at home and abroad. The transmission of the recent crisis into the emerging-market economies has also been through the existence of the global banks via both sides of the balance sheet. The adverse liquidity shocks brought about by the crisis have reduced lending in local markets through contractions in cross-border lending and parent banks' support of their foreign affiliates. Since the central bank is the supervisory authority of the banking system, understanding the size and nature of the global bank's presence in their respective economies would be critical in conducting effective policies for dealing with any potential financial shocks to the local economy.

This paper, therefore, aims at examining the global banks' balance sheets and how shocks could be transmitted from the home economy to Cambodia, the host economy. In particular, because of data limitation, we would examine only the effects of the global financial crisis 2007-2009 through the foreign banks' balance sheets. The findings would be utilised to suggest policy options, including the areas of regulation and supervision, in addressing risks associated with the cross-border banking system. Section 2 presents the general review of literature on the internationalisation and globalisation of banks with the balance of evidence supporting the view that foreign bank entry would be a stabilising force for host markets and result in a more efficient allocation of productive resources in a globalised economy as observed by Goldberg (2009).A brief stylised fact on Cambodia's economy and financial system is also covered in this Section. Section 3 presents the main features of the data used for the analysis of foreign banks' involvement pre- and during the recent global financial crisis in Cambodia. The foreign bank data is grouped by economies, and selected according to the recent data on larger shares of assets to total assets of all foreign banks and the larger shares of foreign bank lending of those particular economies to total foreign bank lending. Five economies have been chosen for the analysis namely, Malaysia, Thailand, Chinese Taipei, Netherlands, Australia, and Korea. The focus is to examine the key data on foreign bank participation rate, the foreign bank lending (including the cross-border bank claims) and deposits relative to GDP and share of foreign assets. The research methodology and empirical results using the quarterly data from 1999Q1-2010Q2would be presented in Section 4. Policy implications on prudential, supervisory, and regulatory aspects of monetary policy would then be drawn up and discussed in Section 5. Section 6 concludes the paper.

2. Literature Review and Stylised Fact about Cambodia's Economy

In principle, there are two basic channels through which internationally active banks can provide credit to other economies - directly, i.e., via cross-border (international) lending, or indirectly, via entering the domestic market of a host economy in the form of a subsidiary or a branch and providing credit locally. The later form is seen to be on the rise. Banking business through international banks' branches and subsidiaries in emerging markets has more than quadrupled in recent years (Gallego, Herrero, and Luna, 2004).The transformation of the banking sector towards a more globalised one has become apparent in the recent financial crisis (Karolina 2010).

The Global Development Finance of the World Bank has reported that at the end of 2007, there were 910 foreign banks present in developing economies, which controlled combined assets in excess of US$1.2 trillion and accounted for more than 39% of total domestic banking assets. Foreign-owned lenders accounted for a particularly high proportion of local banking assets in three regions - 70% in several Eastern European economies, and approximately 40% in some Latin American and Sub-Saharan economies. In some economies, such as Peru and Mozambique, their share was almost 100%, while in others, such Albania and Croatia, one or two foreign banks control the largest share of the local banking system (World Bank 2009). In Cambodia, the three largest banks are foreign-owned and account for 55% of total assets, while the "big five" banks, also foreign-owned, hold 71% of total assets.

Some literatures attempt to endorse the potential benefits of the existence of foreign banks in the host economy. The entry of new players into local markets may lead to a more competitive environment, generating efficiency gains that can be passed on to consumers in the form of a greater variety of financial services and lower prices. Other potential benefits of cross-border banking are transfers and spillovers of knowledge and know-how. In particular, host economies with weak local banks and a lack of experience with bank supervision might benefit from the transmission of knowledge from foreign banks and supervisory authorities to local counterparts.

Moreover, cross-border banking has the potential to improve financial stability though controversial. However, the empirical evidence on this issue is that cross-border banking on balance seems to improve rather than weaken financial stability. They have the potential to contribute to the overall soundness of local banking systems. Foreign banks are typically less open to government pressure

to lend to “preferred borrowers”, which may contribute to an improvement in the overall quality of the loan portfolios. And they are less likely to be affected by stress in the local market since they usually hold a more geographically diversified credit portfolio. Moreover, affiliates of foreign-owned banks that generally have better access to international funding may serve as a countervailing force to the local business cycle. More importantly, foreign bank entry can have a positive impact on the host economy authorities, which in turn may induce stricter regulation and improved financial supervision.

The transmission of shock from the financial crisis via international bank lending also becomes a topic of interest among others. Cross-border lending seems to be a two-way street for contagion. Crises can be transmitted from advanced countries to emerging markets, not just the other way around. In addition, cross-border lending can transmit advanced country credit booms. Policymakers might want to reduce the resulting vulnerabilities. On the other hand, cross-border lending is normally a channel for efficient international capital allocation. Emerging markets might wish to continue to benefit from this access to international lending. Given the heterogeneity of emerging markets, the policy responses might differ substantially across countries.

Some recent literature concentrates on the role of the banking system and international banks in transmitting financial shocks across borders (Sbracia, Zaghini, 2003). Some literature in this strand uses the same data source as this paper, namely the BIS statistics on the international banking business (van Rijckeghem, Weder, 2001), whereas other literature uses, for example, the data from the Coordinated Portfolio Investment Survey compiled by the IMF (de Alessi Gracio et al., 2005).

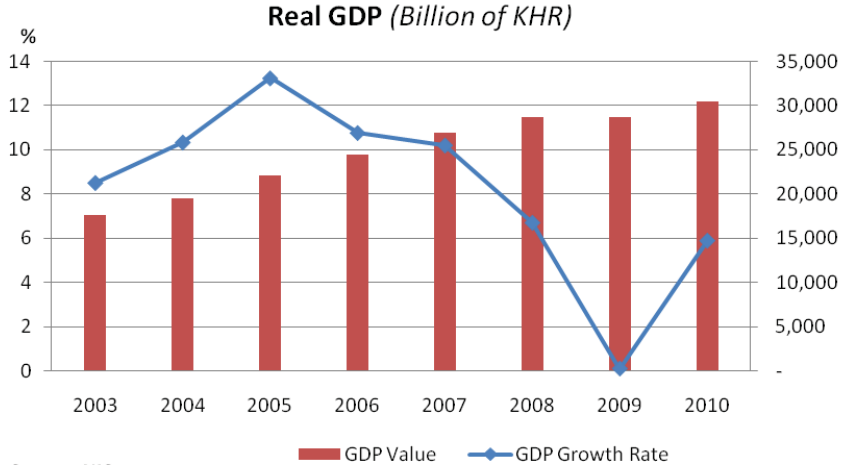
To the authors’ knowledge, there is no study on the home-host effect of foreign bank lending in Cambodia per se. Some studies consolidate data of Asia as a group of developing Asian economies with no detailed discussion on Cambodia or omit it altogether. Also, due to the limitation of the data available in the BIS data set and elsewhere, we attempt to use the data from the Cambodia supervisory authority plus author’s own estimates, the reliability of which may be called into question. However, it is the best option available to get some grasp of the impact of foreign banks’ presence in the economy through their balance sheets, in particular their lending performance.

2.1 Overview of the Cambodia Economy

Since the mid-1980s, realising the vast potential provided by the world community and FDI, Cambodia embraced a market-based economic system. Cambodia has gradually moved away from a planned economy to a market-based economy supported by a wide range of economic reforms.

Economic growth has averaged 10% in the last decade. This spectacular growth was made possible by sharp increases in trade and investments. Economic growth accelerated to 13.5% in 2005 despite negative external developments such as higher oil prices, terrorism, and the spread of epidemic diseases. In 2007, the growth was 9.5% as compared to 6.7% in 2008. Political stability, accompanied by greater investor confidence, has provided the basis for the robust growth performance, which has been driven mainly by agriculture, tourism, garment exports, and increased construction activities. A sharp decrease in the growth rate to 0.1% in 2009 has occurred due to the slowdown in global economy as a result of the recent financial crisis (Figure 1).

Figure 1
Real GDP *(Billion of KHR)*



Source: NIS

The growing integration of Cambodia into regional and global communities is reflected through the increase in trade and investments albeit fraught with opportunities and challenges. Cambodia has actively participated on an equal footing and with equal rights in ASEAN, the WTO, as well as in other sub-regional, regional, and global cooperation groupings. These linkages have created a favourable environment for the development of agriculture, tourism, garment industries, as well as financial industry.

Dollarisation in Cambodia also contributes to greater economic and financial integration with the rest of the world through reduced transaction costs and the reduction in exchange rate risk. The wide use of US dollars in the economy has attracted foreign direct investments and the banking sector per se has also benefited from this special dollarised environment. Although this limits the ability of the Central Bank to conduct monetary policy, the banking sector has nonetheless, been quite stable even with the presence of many foreign banks in Cambodia.

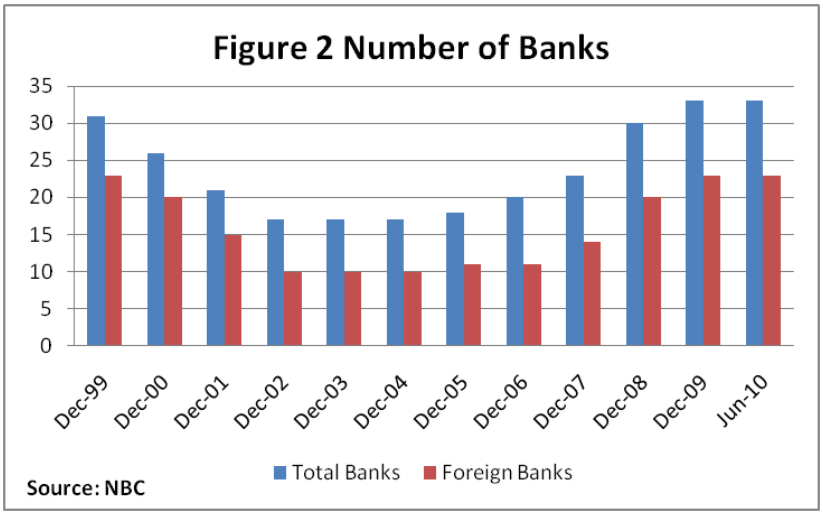
2.2 Financial System in Cambodia

In the early 1990s, the first foreign bank that invested in Cambodia was the Cambodian Commercial Bank. The Cambodian Public Bank followed in 1992, with other commercial banks ensuing. The promulgation of the Law on Foreign Direct Investment has attracted an influx of foreign capital into Cambodia, adding to the existing small local capital. In Cambodia, the number of banks has been increasing rapidly since the first general election. Foreign bank branches and the locally incorporated banks with share of foreign ownership are also on the rise.

Over the last decade, following a restructuring of the banking system in 1999, developments in the banking sector have been significant. As of June 2010, Cambodia's financial system consists of the National Bank of Cambodia (NBC) as the Central Bank, 27 commercial banks, 6 specialised banks, and 21 microfinance institutions (MFIs). The NBC is in charge of licensing, de-licensing and supervision of commercial banks, specialised banks (providing rural credit and loans to small and medium-sized enterprises, and they are not allowed to take deposits), and MFIs (serving rural poor), based on capital requirements, capital adequacy, asset quality, management, earnings, liquidity, and sensitivity to market risk rating systems.

The number of banks, referring to the total number of banks including foreign and local banks doing business in the kingdom of Cambodia, decreased from 32

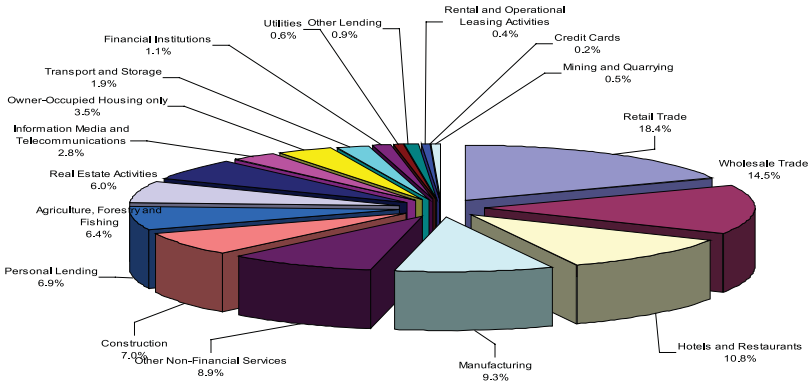
in early 1999 to 17 during the period of 2002-2005 but started increasing to more than 30 from mid 2009. Because of market-oriented reforms, the financial system has been transformed. Financial liberalisation has been introduced and foreign funded commercial banks are permitted to operate in Cambodia. Since then, the number of banks has increased significantly to 26 in 2000, and 33 in June 2010 (Figure 2). Most of the banks operating in Cambodia are foreign owned banks, in the form of locally-incorporated foreign banks or branches. In this paper however, three types of foreign owned banks have been defined: branches (100% foreign ownership share), local affiliates (less than 50% foreign ownership share), and foreign affiliates (more than 50% ownership share). On the other hand, the foreign bank is generally defined based on foreign ownership of more than 50% that is similar to the foreign affiliates defined above. The number of foreign affiliates or foreign banks went down from 24 in early 1999 to10 during the period of late 2002 and mid 2005 and then started increasing from that period to 23 from late 2009. The factors that caused those banks to decline included the impact of the relicensing programme that required all banks to increase their minimum capital requirements to US$13 million. Those that could not fulfill this requirement were forced to liquidate. Based on this definition, in June 2010, there were 23 foreign banks operating in Cambodia. This number is expected to get higher since many foreign investors are becoming increasingly interested in doing business in Cambodia due to the good investment environments.



Total banking assets amounted to more than 50% of GDP, with the commercial banks accounting for almost 99% of those assets in June 2010. The commercial banking industry is highly concentrated – the three largest banks, foreign banks in this context, accounted for 55% of total assets. The "big five" banks, classified as foreign banks for the analytical purpose of this paper, hold 71% of total assets, and account for 77% of net credits from the banking sector.

The Cambodian banking sector provides credit to rather concentrated sectors of the economy. As of June 2010, credit concentration by economic sector analysis saw the largest concentration in retail trade activities (18.4% of the total portfolio), followed by wholesale trade (14.5%) and the hotel and restaurant industry (12%). The retail and wholesale trade, which is mainly composed of small-medium enterprises, is the backbone of private businesses in Cambodia. Credit concentration in other sectors was recorded at manageable levels.

Figure 3
Banks – Credit Classified by Sectors, June 2010



2.3 Cambodia's Banking Sector and the Global Financial Crisis

Cambodia's financial sector remains vibrant and competitive. The rapid increase in deposits in the commercial banks attests to growing public confidence inspired by transparent government policies and a level playing field for investors (Figure 6).

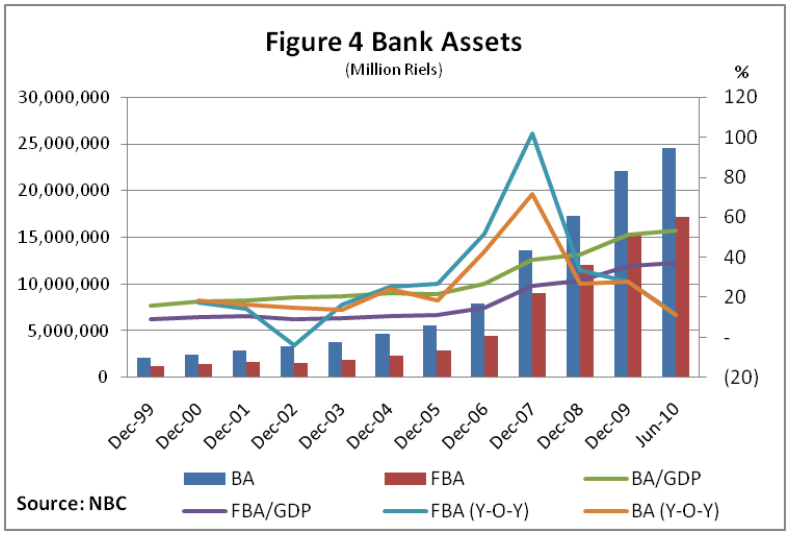
The global financial crisis had a minimal impact on Cambodia's banking sector. During 2008 and early 2009, there was no direct impact on the economy's financial system due to the developing nature of the Cambodian financial system and the insignificant participation in the global financial markets. Banks continue to perform traditional banking activities, relying on local deposits rather than

external borrowing for their business. They also have no exposure to the securitised instruments that were at the root of the crisis. Despite no direct impact on the Cambodian banking system, this crisis has, nonetheless, caused some indirect impact as shown by the decline of the year-on-year credit growth and deposit growth from more 50% before the crisis to less than 20% after the crisis.

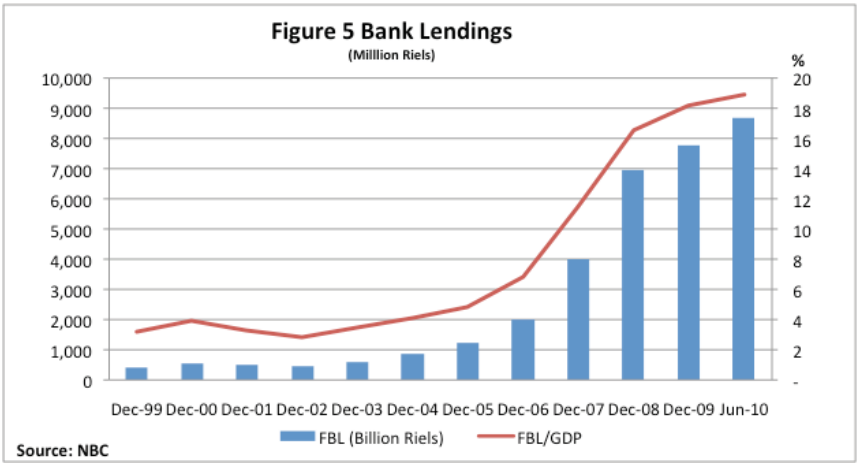
In response to the global financial crisis, measures have been taken to recapitalise banks and financial institutions, improve audits, strengthen supervision, and ensure sufficient liquidity in the banking system.

3. Analysis of Foreign Banks' Involvement Pre-and During the Global Financial Crisis in Cambodia

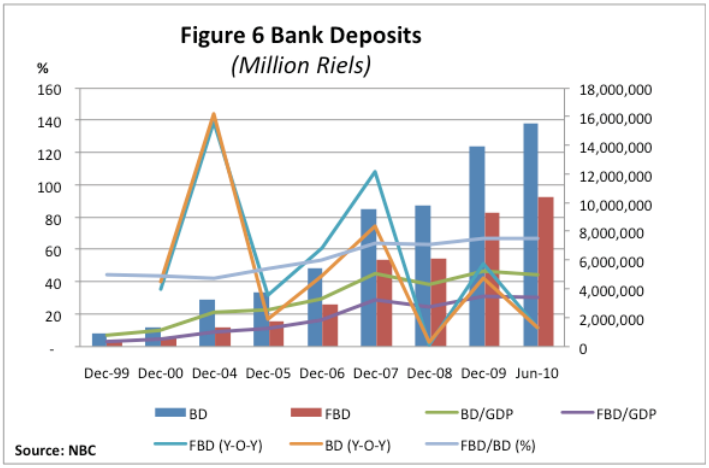
The economic growth of Cambodia was around 10% during the10 year period before the crisis. These growths were supported by the banking and financial system. This can be explained by the increase of bank assets. Significantly, bank assets rose by 1058% from almost KHR 3 trillion in December 1999 to nearly KHR 25 trillion in June 2010, of which the foreign bank assets went up by 1286% from KHR 1.7 trillion to over 13 KHR trillion during the same period. In terms of GDP, the ratio of total bank assets and foreign bank assets to GDP rose from 19% and 11% at the end of 1999 to 53% and 37% respectively at the end of June 2010.Moreover, the sharp increase of bank assets was also attributable to public confidence in banking system (Figure 4).



Regarding bank investments, foreign banks lending increased almost 2000% in June 2010 from KHR420 billion at the end of 1999. The ratio of foreign bank lending to GDP also rose noticeably from 3% at the end of 1999 to nearly 20% in June 2010 (Figure 5).

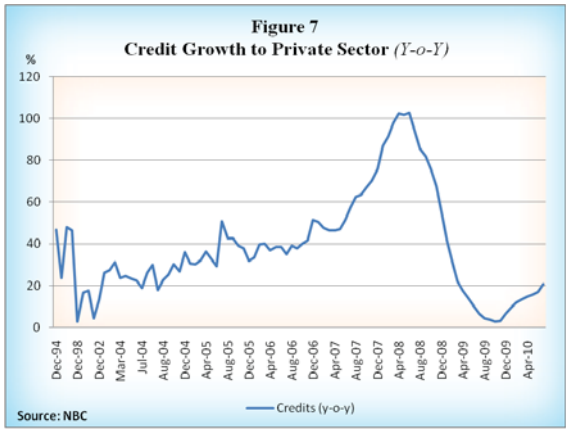


In order to support the increases in assets of the Cambodian banking system, domestic as well as foreign banks tried to look for sources of funds via many ways. Among these sources, deposits have played an important role in accelerating the growth of bank assets and values. It should be noted that total bank deposits increased by more than 1500% in June 2010 from KHR 949.8 billion at the end of 1999 while foreign bank deposits rose by 2300% from KHR 423.5 billion during the same period. In addition, the total bank deposits compared with GDP increased from 7% at the end of 1999 to 44% in June 2010 while the foreign bank deposits to GDP rose from 3% in December 1999 to 30% in June 2010. Moreover, foreign bank deposits compared with total bank deposits grew from 45% in December 1999 to 67% in June 2010 (Figure 6).

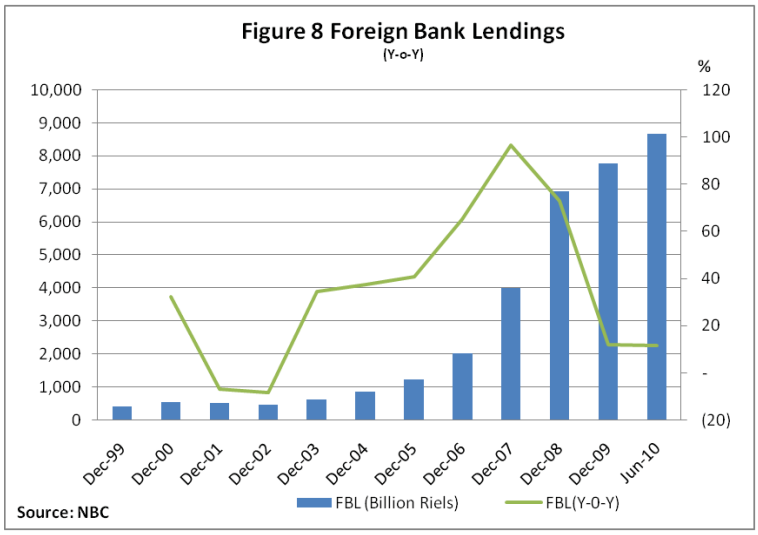


Cambodia, a small and open economy, depends on external demands, foreign visitors and foreign direct investments. Even though the Cambodian banking financial system is not complex like other developed economies, it is affected indirectly by problems in these economies since its economic growth and investments depend on foreign investors. This is depicted by some indicators, for instance, the year-on-year total bank assets and foreign bank asset growth which grew from 16% and 14% at the end of 1999 to 72% and 102% at the end of 2007 (prior to the global financial crisis), which then declined to 11% and 12% respectively at the end of June 2010 (after the global financial crisis) (Figure 3).

Moreover, before the global financial crisis, total lending in the banking system rose sharply at the annual rate of 32% at the end of 2005 to 103% in June 2008 but declined dramatically to 2.9% in November 2009 (Figure 7).



In the meantime, foreign bank claims in Cambodia increased yearly from 41% at the end of 2005 to 97% at the end of 2007 and then decreased to 11% in June 2010 (Figure 8).



The sources of funds in banking system have been affected indirectly as indicated by Figure 6 which shows that the annual deposit growth rate in the whole banking system increased from 17% at the end of 2005 to 75% at the end of December 2007 but then declined to 3% in late 2008, while the annual deposits growth rate of foreign banks rose from 32% in December 2005 to 108% at the end of 2007 but decreased to1% at the end of 2008.

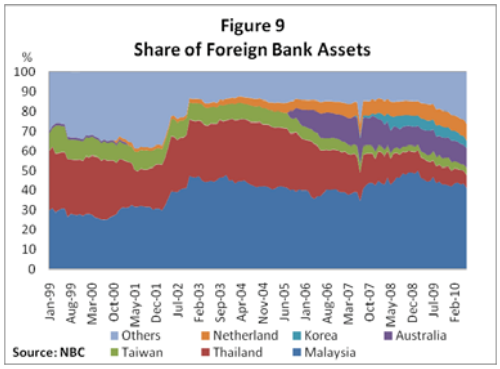
The sharp increase in credit to the private sector during the period of 2002-June 2008 is due to the economic expansion resulting from the increase of garment exports to the United States and the European Union and real estate boom, driving banks keenness to provide loans to support these sectors. The global financial crisis affected almost every economy in the world, especially developed economies including the United States and the European Union which import goods from Cambodia. The unexpected decline of consumption in these economies caused the drop in demand for Cambodian goods, which in turn led to production cut downs and stagnated credit lending in the system. Foreign bank lending from parent companies were declining due also to the liquidity problems faced in their home economies.

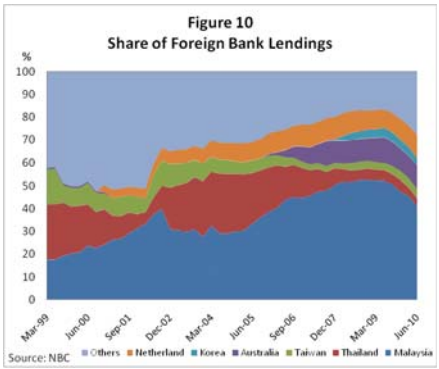
In spite of the indirect impact on the Cambodian banking system and foreign banks in the Kingdom of Cambodia, the total number of banks including foreign

banks was on the upward trend. Figure 2 shows that the total number of banks and foreign banks increased from 20 and 11 at the end of December 2006 to 33 and 23 in June 2010 respectively.

We can see that from groupings by economies using the shares of foreign bank assets over total assets of all foreign banks that economies dominating the Cambodian banking sector have been changing. Interestingly, Malaysia which accounted for only 30% of the total foreign banks' assets in the first quarter of 1999 has become the market leader in the banking sector in terms of asset shares, around 40%, even bigger than the share of other economies, which dropped from 30% in January 1999 to 26% by June 2010. (Other economies that have smaller shares or decreasing share or disappeared at the later stages of the banking system development include China, France, Indonesia, Singapore, Hong Kong, Kazakhstan, US, Japan, British, Germany, Vietnam and India). The share of Thai banks in Cambodia was around 30% in the period of early 1999-late 2000 and mid 2003-late 2005, but it declined to about 20% by late 2002. It should be noted that shares of Thai banks in Cambodia remained only around 7% in June 2010. Thailand's involvement in the system has been on a decreasing trend due to the new entry from bigger banks of other economies such as Australia, Korea and Vietnam (Figure 9).

From Figure 10, it can be seen that Malaysia has kept its lead on foreign bank lending at about 40% at the end of June 2010. The increase in share during 2007 up until early 2009 is due to the new entrants from Malaysian banks. Groupings of other economies remain at around 30%, dropping from over 40% in 1999. Other economies' participation rate in the Cambodia banking system is getting competitive in the last few years, even during the crisis period of 2007 to 2009.

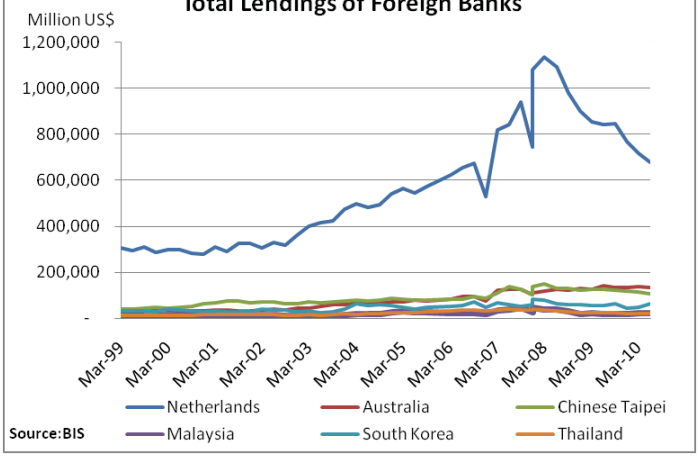




Since there is no data available on total foreign bank claims for a particular economy to all other economies, the BIS quarterly data on the BIS banks' external positions have been used to obtain the outflows of the economies in the study as a proxy of the total claims extended by foreign economies as seen in Figure 11. The data on foreign claims on Cambodia is calculated by the author using the Central Bank data. The exposure of the foreign bank claims on Cambodia over the total claims extended by selected foreign economies is used.

Since Malaysian bank lending in Cambodia comprise the largest share at 41% in terms of foreign bank claims on Cambodia in June 2010, this Section is focused mostly on the annual change of foreign claims from Malaysia on Cambodia and on the rest of the world. Figure 11 shows that the annual growth rates of foreign bank claims from Malaysia to the rest of the world increased from 49% in at the end of 2006 to 93% in the third quarter of 2007 then declined dramatically from 64% at the end of 2007 to -44% during the period of September 2008-June 2009. Specifically, Malaysian bank claims on Cambodia showed significant annual growth during the pre financial crisis period, that is, the annual growth rates of Malaysian bank claims on Cambodia increased from 82% at the end of 2006 to 150% in March 2008 then decreased dramatically to -3% during the period of third quarter of 2009-fourth quarter of 2010.

Figure 11
Total Lendings of Foreign Banks

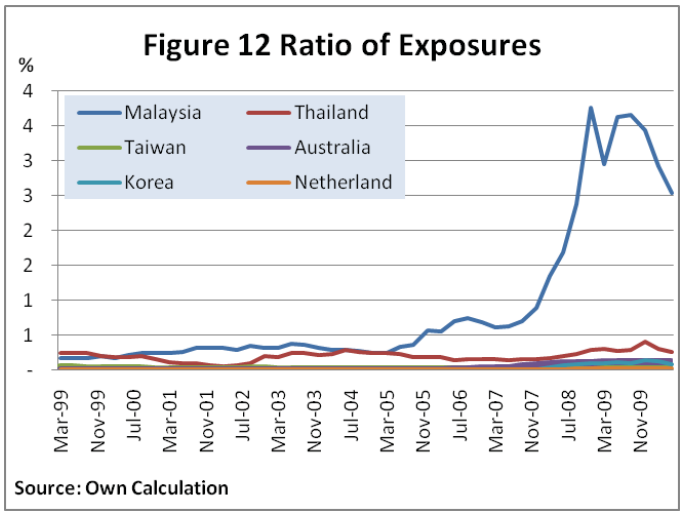


This Section analyses the exposures faced by each foreign bank providing financing to domestic investors in Cambodia. The exposure value is calculated by dividing each foreign bank lending in Cambodia by total foreign bank claims

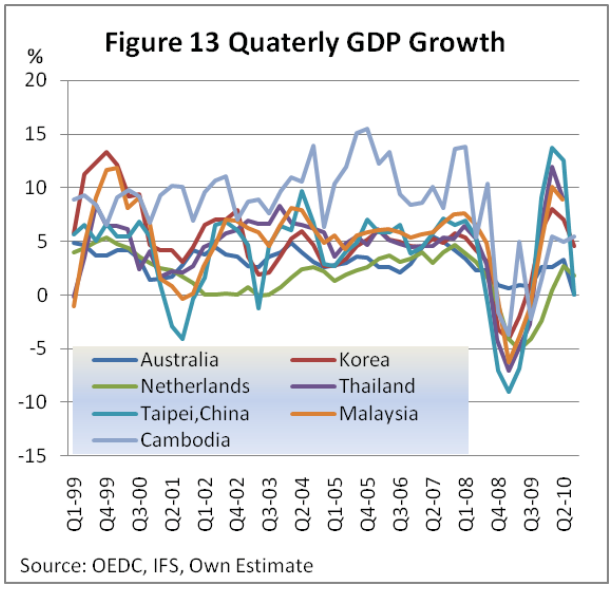
to any foreign economies including Cambodia and the number varies in the range of 0 and 1. If the exposure value is close to 1, it means that foreign bank financing in Cambodia does not face any liquidity risk or capital outflow issue since the numerator representing foreign bank claims in Cambodia by a particular foreign bank is increasing compared to the denominator representing total foreign bank claims to the rest of the world.

In particular, the exposures of Malaysian banks increased from 0.17% in the early 1999 to 3.66% in the late 2009 but got lower from 3.43% at the end of 2009 to 2.5% in June 2010. This can be explained by the fact that from early 1999, financing from Malaysia to Cambodia was very stable and safe but from the late 2009 to June 2010, there was some indirect impact of the global financial crisis for Malaysian banks in Cambodia. This can also be explained by the decline of quarterly growth of Malaysian bank lending in Cambodia from 3% in the second quarter of 2009 to -12% in the same quarter of 2010 while the total claims of Malaysian banks to the rest of the world was on the upward trend from -16% in the second quarter of 2009 to 17% in the first quarter of 2010.

On the contrary way, other foreign bank claims to Cambodia such as Thailand, Chinese Taipei, Australia, Netherlands, and Korea did not demonstrate significant threats to the Cambodian banking system during the pre- and post crisis period as can be seen in Figure 12 which shows that the exposures have remained relatively unchanged within the range of 0.04%-0.40% for Thai bank lending in Cambodia to its domestic borrowers from the early 1999 to the second quarter of 2010.



Based on the data of OEDC, IFS and author's estimate, the quarterly GDP growth seems to move in the same direction. Most of foreign economies providing credit to Cambodia had negative economic growth from the fourth quarter of 2008 to the third quarter 2009 as a result of the global financial crisis during that period.



4. Research Methodology and Empirical Results

This Section discusses the analytical results of the impact of foreign bank claims on Cambodia pre and post global financial crisis. This paper analyses the results of time series and penal data of main foreign banks doing business in Cambodia. The reasons that the two models have been used are to compare the results of those models to gauge the main and various impacts of foreign bank claims on Cambodia. However, since the times series data are very limited with only 45 observations, they may not yield good results. Thus, the panel data would be a complementary analysis. When the panel data has been used by combining the time series and cross-sectional data, the number of observations has been increased to almost 270. The following model was used for both the times series and panel data. The estimates of the effect on foreign bank claims is followed by the model set up by Martinez-Peria et al (2005) as follows:

$$\Delta \log (Foreign\_Bank\_Claims)_{jt} = \beta_0 + \beta_1 Foreign\_Country\_Lender\_Factors_{jt} + \beta_2 Your\_Country\_Factors_{jt} + \beta_3 GFC\_Dummy + \beta_4 GFC_{Dummy} * Exposure_{jt}$$

The data definitions are follows:

$\Delta \log (Foreign\_Bank\_Claims)_{jt}$ refers to the first difference of the logarithm of foreign bank claims by foreign banks in Cambodia. Foreign bank claims are referred to as the total foreign bank claims of foreign economies that were taken from the liabilities of the Bank of International for Settlements. Foreign Country Lender Factors are referred to as the quarterly GDP growth of the key foreign economies that have predominant foreign banks in Cambodia. This data was taken from OEDC, IFS and author's estimate. GFC Dummy variable was used to indicate the global financial crisis. When the dummy variable equals 1, this indicates the presence of the global financial crisis during the period 2007, 2008, and 2009 while a dummy equaling to 0 specifies the absence of global financial crisis. Exposure is the ratio of foreign bank claims on Cambodia over the total claims extended to the rest of the world by foreign banks.

In order to analyse the above equations, all the parameters, dependent and independent variables would be estimated based on the regression analysis of time series and panel data since the objective of regression analysis is used to estimate the mean or average value of the dependent variable, as well as the coefficients of β_0,β_1,β_2,β_3, and β_4 for the independent variables. The sample observations have been used to estimate the population parameters by utilising the regression analysis.

This Section divides the analysis into two parts (i) regression analysis of main foreign bank claims based on times series and (ii) regression analysis of panel data.

4.1 Regression Analysis of Times Series Data

The regression analysis of times series would be presented first. For this part, two main foreign banks from ASEAN member economies and developed economies have been selected. Only the main foreign bank claims would be analysed. The first one is to analyse the times series data of the Malaysian case because it represents the biggest foreign bank lending in Cambodia.

4.1.1 Case of Malaysian Bank Claims on Cambodia

After having run the regression, the result of time series analysis was obtained as shown in the Table 1. Based on the Table 1, the regression equation is as follows:

*△log(Malaysian Bank Claims) = – 0.02682 – 0.00017 GDP Malaysia + 0.00568 GDP Cambodia + 0.06106 GFC Dummy – 0.00794GFC Dummy * Exposure Malaysia.*

This equation could be interpreted as the coefficient of the quarterly GDP growth of Malaysia being negative and statistically insignificant, based on the 5% level of significance with two tailed test. In addition, the null hypothesis signifies that the quarterly GDP growth of Malaysia does not affect the Malaysian bank claims on Cambodia was rejected. There is a negative relationship between the quarterly GDP growth of Malaysia and the first difference of logarithm of Malaysian bank claims on Cambodia. Specifically, the partial regression coefficient of the quarterly GDP growth of Malaysia of -0.00017 means that holding other explanatory variables constant, when the quarterly GDP growth of Malaysia decreased by 1%, the Malaysian bank claims on Cambodia increases by 0.00017%.

Similarly, at 5% level of significance with two tailed test, the null hypothesis which stated that the quarterly GDP growth of Cambodia does not have any impacts on Malaysian bank claims was not accepted since the partial regression coefficient of the quarterly GDP growth of Cambodia is positive and statistically significant. As a result, there is a positive relationship between the quarterly GDP growth of Cambodia and Malaysian bank claims on Cambodia. While holding other explanatory variables unchanged, this partial regression coefficient of the quarterly GDP growth of Cambodia of 0.00568 signifies that Malaysian bank lending to the private sector in Cambodia would increase by 0.0057% for every increase of 1% of quarterly GDP growth of Cambodia.

Moreover, based on the 5% level of significance with the two tailed test, the null hypothesis stating that global financial crisis dummy variable does not have any impact on the Malaysian bank claims on Cambodia was rejected because the partial regression coefficient of the quarterly GDP growth of Cambodia is positive and statistically significant. In reality, the partial regression coefficient of global financial crisis dummy variable equasl to 0.061 meaning that Malaysian bank claims on Cambodia increases by 0.061% for every increase

of 1% for the global financial crisis while holding other explanatory variables constant.

On the other hand, with regard to the 5% level of significance with two tailed test, the null hypothesis which signifies that the exposure of Malaysia does not affect Malaysian bank claims on Cambodia was not accepted since the partial regression coefficient of the global financial crisis and exposure Malaysia is negative and statistically insignificant. This would mean that there is a negative relationship between the global financial crisis and exposure of Malaysia and the Malaysian bank claims on Cambodia. While holding other explanatory variables unchanged, this partial regression coefficient of Malaysia exposure of -0.008 means that Malaysian bank lending to the private sector in Cambodia would decrease by 0.008% for every increase of 1% of global financial crisis and exposure of Malaysia.

In general, this equation concludes that there are positive relationships between the first difference of logarithm of Malaysian bank claims on Cambodia and the quarterly GDP growth of Cambodia, and global financial crisis dummy variables and negative relationship between the first difference of logarithm of Malaysian bank claims on Cambodia and the quarterly GDP growth of Malaysia, and global financial crisis and exposure of Malaysia. This could mean that when quarterly GDP growth of Malaysia declines, many Malaysian banks would come to invest and lend more money to the private sector in Cambodia because there are more opportunities to make profits in Cambodia than in Malaysia.

Table 1: Summary Output of Malaysian Bank Claims on Cambodia

Regression Statistics	
Multiple R	0.6606919
R Square	0.4365138
Adjusted R Square	0.3801651
Standard Error	0.0327972
Observations	45

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	0.033331	0.008333	7.746662	0.000101
Residual	40	0.043026	0.001076		
Total	44	0.076357			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.02682	0.01834	-1.46250	0.15142	-0.06389	0.01025
GDP Malaysia	-0.00017	0.00176	-0.09900	0.92164	-0.00373	0.00339
GDP Cambodia	0.00568	0.00158	3.58328	0.00091	0.00247	0.00888
GFC Dummy	0.06106	0.02153	2.83546	0.00714	0.01754	0.10458
GFC Dummy X exposure Malaysia	-0.00794	0.01109	-0.71617	0.47805	-0.03034	0.01447

4.1.2 Case of Thailand Bank Claims on Cambodia

Table 2 allows the regression equation to be written as follow:

*△log(Thailand Bank Claims) = – 0.03239 + 0.0062 GDP Thailand + 0.00009 GDP Cambodia - 0.076 GFC Dummy + 0.45GFC Dummy * Exposure Thailand.*

This equation could be interpreted as the coefficients of the quarterly GDP growth of Thailand, the quarterly GDP growth of Cambodia, and global financial crisis and exposure Thailand are positive and statistically insignificant, while global financial crisis dummy is negative and statistically insignificant, based on the 5% level of significance with two tailed test. The null hypothesis signifies that the quarterly GDP growth of Thailand, the quarterly GDP growth of Cambodia, global financial crisis, and global financial crisis and exposure Thailand do not affect the Thailand bank claims on Cambodia was rejected. There is a positive relationship between the quarterly GDP growth of Thailand and the first difference of logarithm of Thailand bank claims on Cambodia. Particularly, the partial regression coefficient of the quarterly GDP growth of Thailand of 0.0062 means that holding other explanatory variables constant, when the quarterly GDP growth of Thailand rises by 1%, the Thailand bank claims on Cambodia increases by 0.0062%. In addition, while holding other explanatory variables unchanged, the partial regression coefficient of the quarterly GDP growth of Cambodia of 0.00009 signifies that Thailand bank lending to private sector in Cambodia would increase by 0.00009% for every increase of 1% of the quarterly GDP growth of Cambodia. In a similar way, the partial regression coefficient of global financial crisis dummy variable equaling to -0.076 means that the Thai bank claims on Cambodia would decrease by 0.076% for every increase of 1% for global financial crisis while holding other explanatory variables constant. Moreover, while holding other explanatory variables unchanged, the partial regression coefficient of the global financial crisis dummy and exposure of Thailand of 0.45 means that Thai bank lending to the private sector in Cambodia would increase by 0.45% for every increase of 1% of global financial crisis and exposure Thailand.

This regression equation could mean that when quarterly GDP growth of Thailand and Cambodia increase, Thai banks would invest and provide more credits to the private sector in Cambodia because there are opportunities to make profits. Moreover, Cambodia and Thailand can export goods and services to each other since both economies are neighbours with linkages of business activities such as tourist arrivals to Cambodia through Thailand's international airport but staying in Cambodian hotels.

Table 2: Summary Output Of Thailand Bank Claims on Cambodia

Regression Statistics	
Multiple R	0.207117
R Square	0.042897
Adjusted R Square	-0.052813
Standard Error	0.082444
Observations	45

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	0.012186	0.003046	0.448202	0.773042
Residual	40	0.271880	0.006797		
Total	44	0.284066			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.032386	0.051001	-0.635008	0.529039	-0.135463	0.070691
GDP Thailand	0.006180	0.004623	1.336947	0.188794	-0.003163	0.015523
GDP Cambodia	0.000091	0.004246	0.021476	0.982973	-0.008490	0.008672
GFC Dummy	-0.075684	0.115964	-0.652652	0.517714	-0.310055	0.158687
GFC Dummy X exposure Thailand	0.450465	0.613558	0.734184	0.467119	-0.789582	1.690511

The following two tables emphasise on the analysis of foreign banks from developed economies to see whether there are any different impacts on their lending in Cambodia. In particular, Table 3 allows the regression equation to be written as follows:

*△log(Australian Bank Claims) = – 6.73 + 1.48GDP Australia + 0.21 GDP Cambodia – 7.26 GFC Dummy + 101.14 GFC Dummy * Exposure Australia*

This equation indicates that the coefficients of the quarterly GDP growth of Australia, the quarterly GDP growth of Cambodia, and global financial crisis and exposure of Australia are positive and statistically insignificant, while global financial crisis dummy is negative and statistically insignificant, according to the 5% level of significance with two tailed test. Moreover, the null hypothesis stating that the quarterly GDP growth of Australia, the quarterly GDP growth of Cambodia, global financial crisis, and global financial crisis and exposure of Australia do not have any impacts on the Australian bank claims on Cambodia was rejected. The partial regression coefficient of the quarterly GDP growth of Australia of 1.48 shows that holding other explanatory variables constant, if the quarterly GDP growth of Australia increase by 1%, the Australian bank claims on Cambodia would rise by 1.48%. In the same way, while holding other

explanatory variables constant, the partial regression coefficient of the quarterly GDP growth of Cambodia of 0.21 indicates that Australian bank claims on Cambodia would increase by 0.21% for every increase of 1% of quarterly GDP growth of Cambodia. On the other hand, the partial regression coefficient of global financial crisis dummy variable equaling to -7.26 means that the Australian bank claims on Cambodia would decline by 7.26% for every increase of 1% for global financial crisis while holding other explanatory variables constant. Lastly, while holding other explanatory variables unchanged, the partial regression coefficient of the global financial crisis dummy and exposure Australia of 101.14 signifies that Australian bank lending to private sector in Cambodia would increase by 101.14% for every increase of 1% of global financial crisis and exposure Australia.

This regression analysis would mean that when quarterly GDP growth of Australia and Cambodia increase, Australian banks would come to invest and provide more loans to the private sector in Cambodia because there are the opportunities to make profits and expand their business there.

Table 3: Summary Output of Australian Bank Claims on Cambodia

Regression Statistics	
Multiple R	0.2808482
R Square	0.0788757
Adjusted R Square	-0.0132367
Standard Error	5.8190422
Observations	45

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	115.9812810	28.9953203	0.8562979	0.4983861
Residual	40	1354.4500983	33.8612525		
Total	44	1470.4313793			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-6.7337816	3.8027906	-1.7707474	0.0842233	-14.4195080	0.9519448
GDP Australia	1.4833696	1.1055533	1.3417440	0.1872467	-0.7510371	3.7177762
GDP Cambodia	0.2104677	0.2651930	0.7936397	0.4320882	-0.3255074	0.7464428
GFC Dummy	-7.2582387	6.8506710	-1.0594931	0.2957313	-21.1039611	6.5874837
GFC Dummy X exposure Australia	101.1418280	81.1324167	1.2466266	0.2197855	-62.8329010	265.1165570

According to the Table 4, the regression equation could be written as follow:

*△log(Netherland Bank Claims) = 2.23 + 0.324GDP Netherlands - 0.22 GDP Cambodia – 1.22 GFC Dummy + 8.37 GFC Dummy * Exposure Netherlands.*

The above equation means that the coefficients of the quarterly GDP growth of Netherlands and global financial crisis and exposure of Netherlands are positive and statistically insignificant, while the global financial crisis dummy and the quarterly GDP growth of Netherlands are negative and statistically insignificant, according to the 5% level of significance with two tailed test. Moreover, the null hypothesis stating that the quarterly GDP growth of Netherlands, the quarterly GDP growth of Cambodia, global financial crisis, and global financial crisis and exposure of Netherlands do not have any impacts on the Netherlands bank claims on Cambodia was rejected. The partial regression coefficient of the quarterly GDP growth of Netherlands of 0.324 means that the Netherlands bank claims on Cambodia would increase by 0.324% for every 1% increase of the quarterly GDP growth of Netherland, while holding other explanatory variables constant. On the other hand, while holding other explanatory variables fixed, the partial regression coefficient of the quarterly GDP growth of Cambodia of -0.22 indicates that Netherlands bank claims on Cambodia would decrease by 0.22% for every increase of 1% of quarterly GDP growth of Cambodia. Moreover, the partial regression coefficient of global financial crisis dummy variable equaling to -1.22 signifies that the Netherlands bank claims on Cambodia would decline by 1.22% for every increase of 1% of the global financial crisis while holding other explanatory variables constant. Finally, while holding other explanatory variables unchanged, the partial regression coefficient of the global financial crisis dummy and exposure of Netherlands of 8.37 means that Netherlands bank lending to the private sector in Cambodia would rise by 8.37% for every increase of 1% of global financial crisis and exposure of the Netherlands.

This regression analysis shows that when the quarterly GDP growth of Netherlands ncreases, Netherland banks provide more loans to the private sector in Cambodia because they can have more sources of funds from their economy to expand their business in Cambodia. In the meantime, when quarterly GDP growth of Cambodia decreases, Netherland bank claims on Cambodia are more likely to increase since during negative economic growth, he central bank of the host economy may conduct expansionary monetary policy to increase money supply. Most Netherland banks are joint ventures with local banks and has the largest market share in Cambodia.

Table 4: Summary Output of Netherlands Bank Claims on Cambodia

Regression Statistics	
Multiple R	0.1997193
R Square	0.0398878
Adjusted R Square	-0.0561234
Standard Error	4.2277260
Observations	45

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	29.70241	7.42560	0.41545	0.79647
Residual	40	714.94668	17.87367		
Total	44	744.64909			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	2.23026	1.99364	1.11869	0.26995	-1.79903	6.25955
GDP Netherland	0.32392	0.38283	0.84611	0.40253	-0.44981	1.09765
GDP Cambodia	-0.22039	0.21055	-1.04676	0.30149	-0.64592	0.20514
GFC Dummy	-1.21798	5.46363	-0.22292	0.82473	-12.26038	9.82443
GFC Dummy X exposure Netherland	8.37055	550.89739	0.01519	0.98795	-1105.03460	1121.77570

A. Regression Analysis of Panel Data

Since the time series data is limited, this research paper had to use panel data along with cross-sectional data. The ordinary least square produced the result as illustrated in the Table 5 which shows the regression equation as follows:

*△ log(Foreign Bank Claims) = -0.00126 - 0.00057GDP Foreign Countries + 0.00071 GDP Cambodia + 0.00745 GFC Dummy - 0.0034 GFC Dummy * Exposure Foreign Countries*

The above equation explains that the coefficients of the quarterly GDP growth of foreign economies and global financial crisis and exposure foreign of economies are negative and statistically insignificant, while the coefficients of the global financial crisis dummy and the quarterly GDP growth of Cambodia are positive and statistically significant, according to the 5% level of significance with two tailed test. In addition, the null hypothesis stating that the quarterly GDP growth of foreign economies, the quarterly GDP growth of Cambodia, global financial crisis, and global financial crisis and exposure of foreign economies do not have any impact on the foreign bank claims on Cambodia was rejected. The partial regression coefficient of the quarterly GDP growth of foreign economies of -0.00057 means that foreign bank claims on Cambodia would decrease by 0.00057% for every 1% increase of the quarterly GDP growth of

foreign economies, holding other explanatory variables constant. On the other hand, while holding other explanatory variables constant, the partial regression coefficient of the quarterly GDP growth of Cambodia of 0.00071 means that foreign bank claims on Cambodia would increase by 0.00071% for every increase of 1% of quarterly GDP growth of Cambodia. In the same way, the partial regression coefficient of global financial crisis dummy variable equaling to 0.00745 explains that the foreign bank claims on Cambodia would increase by 0.00745% for every increase of 1% for global financial crisis while holding other explanatory variables constant. Finally, while holding other explanatory variables unchanged, the partial regression coefficient of the global financial crisis dummy and exposure of foreign economies of -0.0034 means that foreign bank lending to the private sector in Cambodia would decline by 0.0034% for every increase of 1% of global financial crisis and exposure of foreign economies.

This regression analysis of panel data illustrates that when the quarterly GDP growth of foreign economies decreases and the quarterly GDP growth of Cambodia increases, foreign banks tend to provide more loans to the private sector in Cambodia because they could have more opportunities to invest and expand their business in Cambodia.

Table 5: Summary Output of Foreign Bank Claims on Cambodia

Regression Statistics	
Multiple R	0.23548
R Square	0.05545
Adjusted R Square	0.04119
Standard Error	0.01644
Observations	270

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	0.00421	0.00105	3.88938	0.00435
Residual	265	0.07163	0.00027		
Total	269	0.07584			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.00126	0.00281	-0.44909	0.65373	-0.00679	0.00426
GDP Foreign Countries	-0.00057	0.00031	-1.81947	0.06997	-0.00118	0.00005
GDP Cambodia	0.00071	0.00028	2.52960	0.01200	0.00016	0.00126
GFC Dummy	0.00745	0.00264	2.82024	0.00516	0.00225	0.01265
GFC Dummy X exposure Foreign Countries	-0.00340	0.00231	-1.47289	0.14197	-0.00795	0.00115

In conclusion, both regression analysis of time series and panel data could explain that panel data could provide better results than the time series as most of coefficients are statistically significant and have the right signs. However, the regression analysis equations of both times series and panel data did not yield very good fits due to the low R square value. This low value of R square was a result of limited data.

5. Policy Implications

The empirical results of the time series and panel data show that most of the economies including Malaysia, Thailand, Australia, and Chinese Taipei are willing to provide more loans to the domestic private sectors in Cambodia when there are the increases in the quarterly GDP growths in Cambodia since these are the golden opportunities for them to generate more income from their investments and their customers are also able to generate cash flows in order to pay off their debts. This would be good to spur economic growth for the host economy but the Central Bank of Cambodia has to examine and monitor foreign bank activities with closely specifically for the sectors they are providing loans to since some sectors such as real estate may not be able to generate income easily. Other external sectors could be affected by surges in oil prices and political unrest which could affect the loan repayments by borrowers even though they are qualified and creditworthy.

On the contrary, the regression results also show that some economies such as Netherlands and Korea are likely to provide more credits to their customers in Cambodia when the quarterly GDP growth of Cambodia declines since these are chances to attract more customers due to the government's implementation of expansionary monetary policy at lower policy rate or lower required reserve ratio in order to spur economic growth and investments. The central bank of the host economy should therefore monitor the intentions of some foreign banks in providing loans to their customers only during economic downturns in Cambodia. If this regression results become true, this may lead to credit risks because during adverse economic conditions, borrowers may not be able to generate sufficient cash flows to repay banks. This could also lead to liquidity risks since the foreign banks would not be able to pay depositors when they come to withdraw their funds which could lead to a banking crisis.

In addition, some foreign economies such as Malaysia and Korea are likely to extend more credits to the private sector in Cambodia when their quarterly GDP growths decline because there are opportunities to expand their business activities in Cambodia. This should also be monitored carefully since the home

economies may conduct expansionary monetary policy by lowering their policy rates to spur investments, economic growth and more job creations. Thus, foreign banks operating in Cambodia may switch their lending from Cambodia to their home economies which may lead to liquidity risks and country risks. This requires the Central Bank of Cambodia to cooperate with foreign banks to share information on foreign bank performances to avoid these risks. The switch of lending from Cambodia to their home economies also depends on the return on investments. If the returns on investments in Cambodia are higher than those in the hosting economies, the foreign bank claims on Cambodia would still be high.

Moreover, the results show that in some economies such as Malaysia, Korea and Chinese Taipei, with the global financial crisis, foreign bank claims from those economies on Cambodia are likely to start going up, while other economies like Thailand, Australia, and the Netherlands, whose foreign bank claims on Cambodia would likely increase when the global financial crisis subsides. If these regression results can be verified, the National Bank of Cambodia should monitor and keep a close eye on their banks and bank customers especially during the global financial crisis when most economies perform below par. The sources of economic growth should be also further analysed. If growth emanates from domestic consumption and agricultural sectors rather than the external demand, it would be very good for Cambodia since banks would be willing to provide more loans during the global financial crisis.

On the other hand, in terms of bank numbers, deposits, and assets, foreign banks take a 60% of the market share in Cambodia from the end of 2007. Thus, during the global financial crisis, the Cambodian banking system still faced some financial issues, even though the banking system did not have complex financial instruments like other emerging and advanced economies. This can be seen from the credit movements and fluctuations in line with external factors. The driving forces of Cambodian economic growth emanates from external demand including the demand of garments from US and EU. The credit growth of the Cambodian banking system also relies on economic growth. Therefore, the Central Bank should pay more attention on the sources and uses of funds of foreign banks since these foreign banks may use funds collected domestically to facilitate parent banks in terms of overseas investments. Moreover, the Central Bank of Cambodia should cooperate with foreign banks to share information on bank performance to avoid liquidity risks since foreign banks may transfer funds from Cambodia when there are liquidity problems in the headquarters or vice versa.

In addition, when there are more foreign banks entering Cambodia operating their business in Cambodia, there will be increased competition between local and foreign banks. Some may loosen the criteria on their loan policies to attract more customers who are the main driving forces for the bank business growth. Rapid credit growth in the private sector could cause credit risk, liquidity risk and finally, solvency risk. In order to respond to the rapid increase in the number of banks and assets, the National Bank of Cambodia should continue to strengthening bank supervision even as it had implemented very rigorous policy actions during the recent global financial crisis.

Since Cambodia is a highly dollarised economy, the National Bank of Cambodia cannot play an important role as the lender of last resort. If the foreign and local banks make loans in foreign currency and the borrowers cannot repay their debts to banks, they may face liquidity risk. Thus, in order to resolve that issue, the central bank of the host economy should establish swap arrangements between the Cambodian Riel and American Dollars with other foreign economies that have many banks in Cambodia.

6. Conclusion

While economic globalisation and financial liberalisation have allowed foreign bank participation, it has also made the transmission of shocks across economies easier. The transmission of the current crisis had affected the balance sheets of local and foreign banks in Cambodia.

As of June 2010, Cambodia's financial system consisted of the National Bank of Cambodia (NBC) as the Central Bank, 27 commercial banks, 6 specialised banks, and 21 microfinance institutions (MFIs). Most of the banks operating in Cambodia are foreign owned, in a form of locally-incorporated foreign banks or branches. Based on the definition of a foreign bank being foreign owned by more than 50%, there are 23 foreign banks operating in Cambodia as of June 2010. This number is expected to get higher since many foreign investors are becoming increasingly interested in doing business in Cambodia due to the good investment environment. In terms of number, deposits and assets, foreign banks holds over 60% of market share in Cambodia from end-2007, thus dominating the Cambodian banking system. Thus, a banking or economic crisis in their economies may affect the Cambodian banking system. The National Bank of Cambodia has to, therefore, examine and monitor these foreign banks very carefully in order to avoid credit risks, liquidity risks, country risks and solvency risks. The implementation of monetary policies in home economies may also

affect foreign bank lending in Cambodia. This requires the National Bank of Cambodia to cooperate closely with the central banks of the said economies with foreign banks in Cambodia, especially in terms of sharing information on foreign bank performances overcome the various risks.

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Chapter 3

INTERNATIONAL AND CROSS-BORDER BANK LENDING IN KOREA AND IMPLICATIONS: BALANCE SHEET PERSPECTIVES

By
Bokyong, Jung and Dongwoo, Kim[1]

1. Introduction

1.1 General Objective

Excessive capital inflows during boom periods and sudden outflows in times of bust create severe financial crises. Even with its strong economic fundamentals, Korea witnessed sudden capital outflows due to the global financial crisis in late 2008. Like many other emerging and developing economies, Korea with small and open economy was highly vulnerable to the fluctuations in the global economy and consequent capital flows.

The capital and financial account of Korea had shown a net annual inflow since 2002, but shifted to a net outflow of US$ 50.1 billion in 2008, mainly due to the global liquidity crisis. During 2009, the capital and financial account shifted to a net inflow of US$ 26.4 billion, as foreigners' portfolio investment returned to a large scale net inflow on expectations of a rapid Korean economic recovery.

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Table 1
Capital Flows[1] to and from Korea

(in billions of US$)

	2005	2006	2007	2008	2009	2010.1H
Capital and financial account	4.8	18.0	7.1	-50.1	26.4	1.1
Direct investment	2.0	-4.5	-13.8	-15.6	-9.1	-4.9
Portfolio investment	-3.5	-23.2	-26.1	-2.4	50.7	17.3
Financial derivatives	1.8	0.5	5.4	-14.8	-5.5	-0.7
Other investment[2]	4.5	45.4	41.7	-17.2	-9.6	-10.7

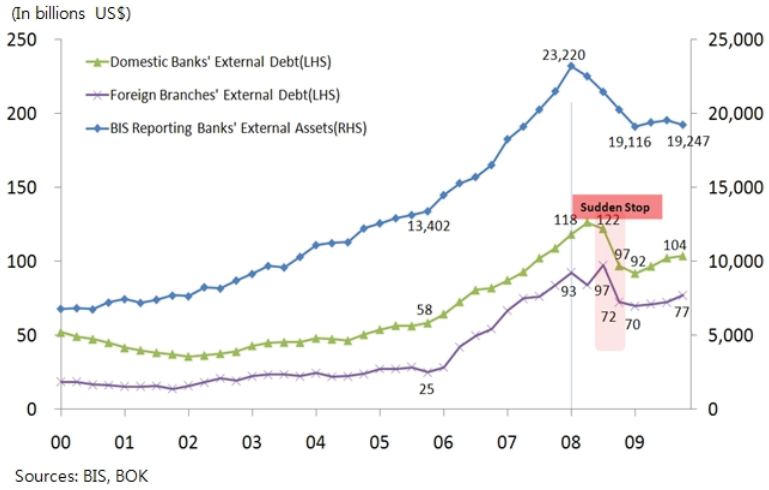
Note : 1) Based on net-in(out) flows; (+) : net inflows, (-) : net outflows
2) Including other capital transfers

Among the various categories of capital flows, those associated with increases in banks' borrowing merit special attention. From 2006, the volatility in banks' external borrowing began to grow prior to onset of the crisis, and the level of volatility was higher than that related to portfolio investment.

As of the end of September 2008, domestic banks' external debt stood at US$ 122 billion. Due to the Lehman Brothers collapse, it decreased by US$ 25 billion to US$ 97 billion at the end of December 2008. The case was the same at foreign bank branches. It decreased from US$ 97 billion to US$ 72 billion, also by US$ 25 billion.

This was a sudden stop in the banking sector, especially for foreign currency funding. One interesting factor which can be gleaned from international banks' external claims on Korea as compiled by BIS, is the global deleveraging occuring from the second quarter of 2008.

Chart 1
BIS Reporting Banks External Claims on Korean Banks, Korea's External Debt In Banking Sector



Sources: BIS, BOK

1.2 Outline

Section 2 will introduce the evolution of foreign banks in Korea, including the number of foreign banks, and examine the extent of effect of the 2007-2009 financial crisis on foreign bank lending activities. Section 3 will review the related literature, with a particular focus on Korea. section 4 will present the research methodology and empirical results, after which Section 5 will conclude and discuss the policy responses in Korea.

2. Analysis of Foreign Banks' Involvement in Korea Before and During the Global Financial Crisis

2.1 Key Emphasis Regarding Foreign Bank Involvement in Korea

2.1.1 Categories of Foreign Banks in Korea

In general, a foreign bank is defined as a bank whose headquarters is located in a foreign country. In Korea, the foreign bank affiliates are classified largely into three categories — local subsidiaries, branch offices and liaison offices — in accordance with the purpose of establishment, range of business activities, equity, etc.

A local subsidiary, first of all, comes under the domestic bank classification, because it is regarded as a foreign invested corporation. In this case, foreigners (foreign banks) may invest or establish subsidiaries in Korea by means of acquisition of new stocks or other assets in accordance with requirements under the Foreign Investment Promotion Act. On the other hand, it can establish and administer branch offices and liaison offices in order to carry on banking business activities or non-business functions in the domestic area.

As indicated above, foreign bank branches and liaison offices differ from each other in some aspects, such as scope of business activities, establishment standards, etc. A foreign bank branch can conduct banking business activities generating profits in the domestic area; however, a liaison office cannot. A liaison office can only do non-business functions such as the mere purchasing of domestic assets, office business, advertising and public relations, collecting and providing of information, conducting market survey, R&D, and other such things to support the foreign bank's business activities carried out for profits. In addition to this, a foreign bank branch must observe stricter requirements, related to such matter as standards or conditions for establishment, than a liaison office.

2.1.2 Development of Foreign Bank Branches in Korea

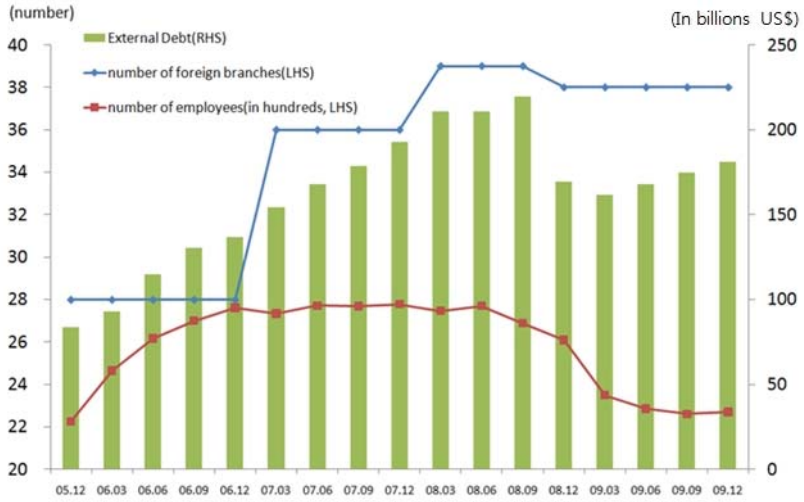
Foreign bank branches' advancement into Korea has continued to increase since Chase Manhattan Bank founded the first foreign branch in Seoul in July 1967.

There was a drastic increase in the number of foreign branches in Korea particularly in the mid-1990 due mainly to the removal of restrictions on establishment of foreign bank branches or subsidiaries as a part of foreign openness policy.

International interest rate differentials and the attractions of arbitrage transactions following disequilibrium in the swap market also accelerated foreign banks' advancement into Korea. At the end of 2009, there were 38 local branches of foreign banks in Korea, down from the maximum of 39 before the global financial turmoil. This number was 28 at the end of 2006, three years before.

During the same period, the external debt of banks in Korea increased from US$ 136.5 billion to US$ 180.9 billion. It then decreased sharply from US$ 219.5 billion at the end of Q3 2008 to US$ 161.8 billion at the end of Q1 2009, affected by the global deleveraging amid the financial crisis.

Chart 2
Number of Foreign Bank Branches in Korea



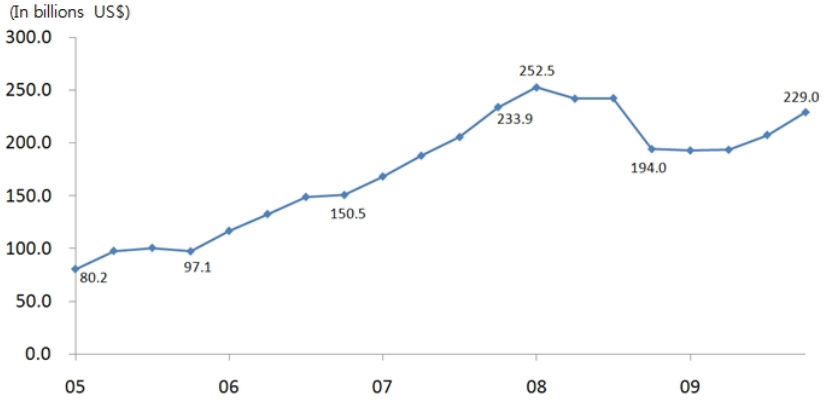
2.1.3 Foreign Bank Lending to Korea in Respect of both Cross-border and Its Affiliates

The amount of cross-border loans as well as the lending by foreign affiliates continued to increase until Q1 2008 before the global financial turmoil.

According to BIS consolidated banking statistics, foreign banks' foreign claims on domestic banks in Korea accounted for US$ 229.0 billion (local currency liabilities excluded) at the end of Q4 2009. It had stood at just US$ 80.2 billion at the end of Q1 2005, and then expanded continuously to US$ 252.5 billion in Q1 2008 due to the increase in FX derivatives trading, corporate demand trade finance, and so on. It declined ,however, severely during the global financial crisis to total for US$ 194.0 billion at the end of 4Q 2008.

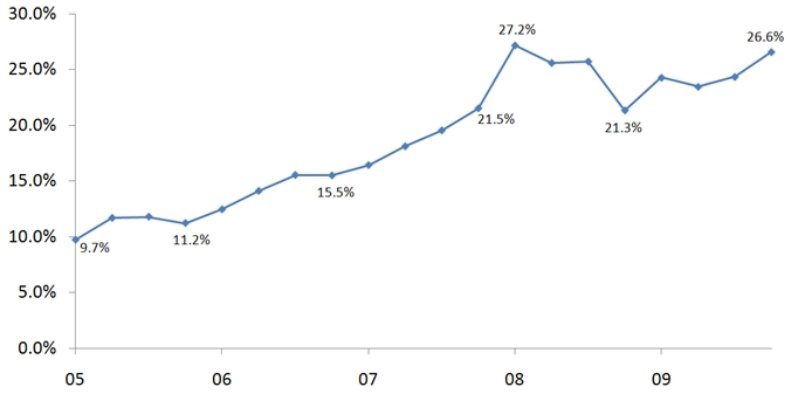
The ratio of foreign banks' foreign claims to GDP has increased in the same way, from 9.7% at the end of Q1 2005 to 27.2% at the end of Q1 2008. It experienced a sharp drop during the global financial crisis to 21.3% at the end of 4Q 2008. After that, it recovered considerably to reach 26.6% at the end of 4Q 2009.

Chart 3
Foreign Banks' Foreign Claims[1)]



1) local currency liabilities are excluded from foreign banks' foreign claims. This is because half of foreign banks' local claims are borrowed in liabilities in Korean won. As of end-2009, local currency claims of foreign banks' offices were US$ 171 bil, while their local currency liabilities were US$ 85 bil.
Source: BIS

Chart 4
Foreign Banks Foreign Claims[1)] as Percentage of GDP



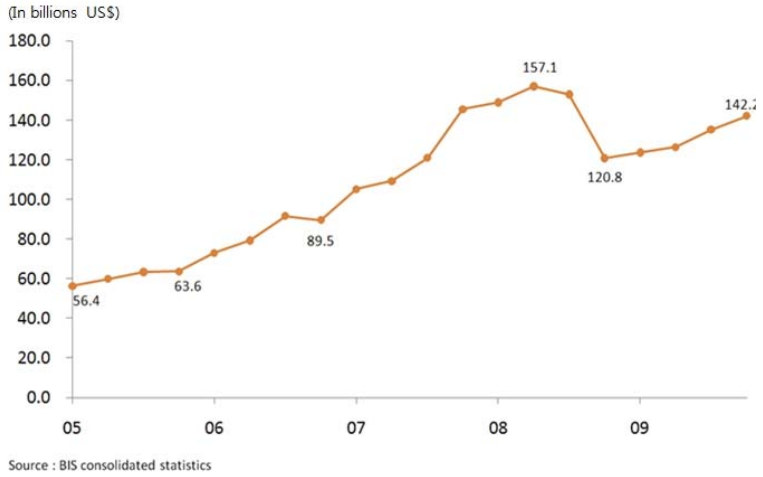
1) local currency liabilities are excluded from foreign banks' foreign claims. This is because half of foreign banks' local claims are borrowed in liabilities in Korean won. As of end-2009, local currency claims of foreign banks' offices were US$ 171 bil, while their local currency liabilities were US$ 85 bil.
Source: BIS

Foreign banks' foreign claims (local currency liabilities excluded) are composed of the cross-border claims of foreign banks and the local claims of foreign affiliates. Foreign banks' cross-border claims amounted to US$ 142.2 billion at the end of Q4 2009, while at the same time, the local claims of foreign affiliates stood at US$ 86.8 billion.

In terms of type of foreign bank business, foreign banks' cross-border claims had increased continuously to account for US$ 157.1 billion at the end of Q2 2008, after standing at just US$ 56.4 billion at the end of Q1 2005. They had declined sharply during the financial crisis to US$ 120.8 billion at the end of Q4 2008 though, and after that steadily recovered to reach US$ 142.2 billion at the end of Q4 2009. On the other hand, the ratio of foreign banks' cross-border claims to GDP was 16.5% at the end of Q4 2009, close to the historic high of 16.6% at the end of Q2 2008 prior to onset of the financial crisis.

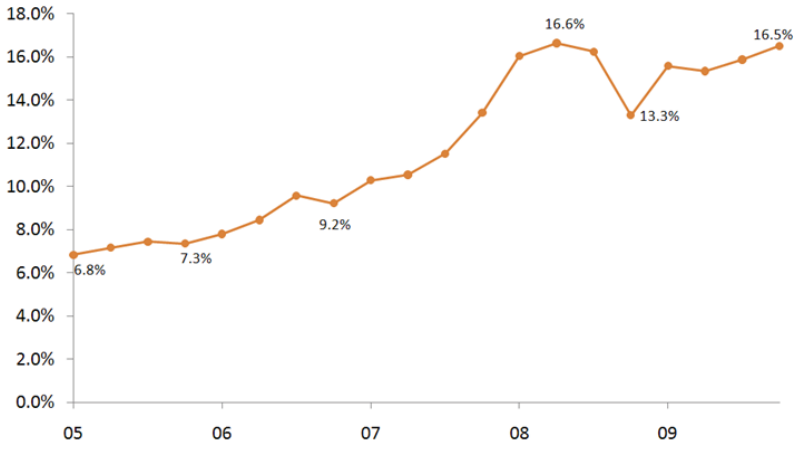
The local claims of foreign affiliates stood at US$ 23.8 billion at the end of Q1 2005, but at end of Q4 2009, this totaled US$ 86.8 billion. In between, they had decreased severely from US$ 103.5 billion at the end of Q1 2008 to US$ 73.2 billion at the end of 4Q 2008. Meanwhile, the ratio of local claims of foreign affiliates to GDP was 10.1% at the end of Q4 2009.

Chart 5
Foreign Banks' Cross-Border Claims



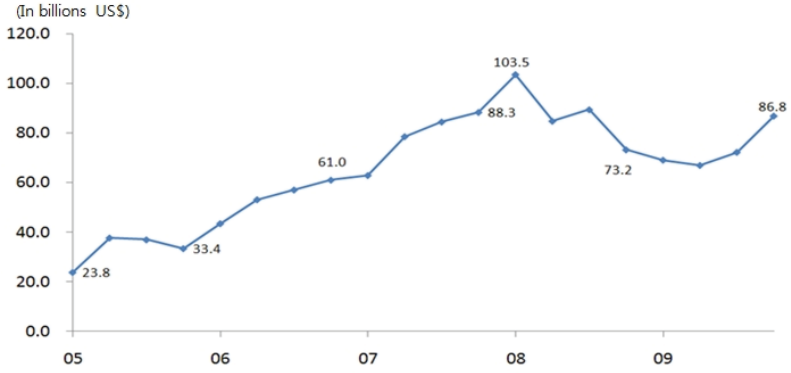
Source : BIS consolidated statistics

Chart 6
Foreign Banks' Cross-Border Claims as- Percentage of GDP



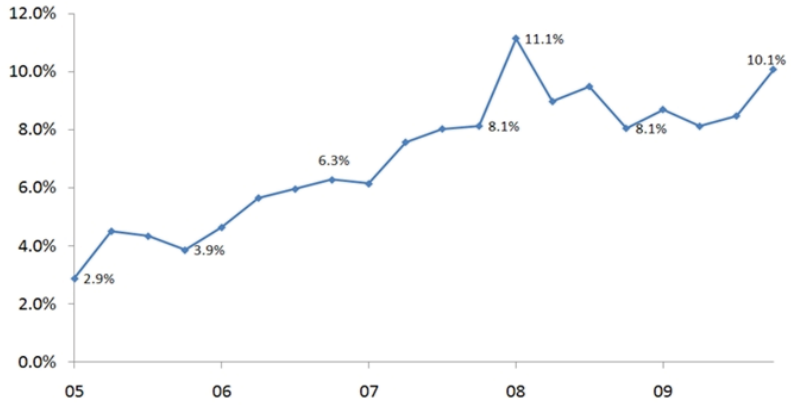
Source : BIS consolidated statistics

Chart 7
Local Claims of Foreign Affiliates[1)]



1) Cross-border claims are first excluded from foreign banks' foreign claims, and local liabilities in Korean won are then excluded. The result is foreign affiliates' local claims, which they have due to borrowing money abroad.
Source: BIS

Chart 8
Local Claims of Foreign Affiliates[1] as Percentage of GDP



1) Cross-border claims are first excluded from foreign banks' foreign claims, and local liabilities in Korean won are then excluded. The result is foreign affiliates' local claims, which they have due to borrowing money abroad.
Source: BIS

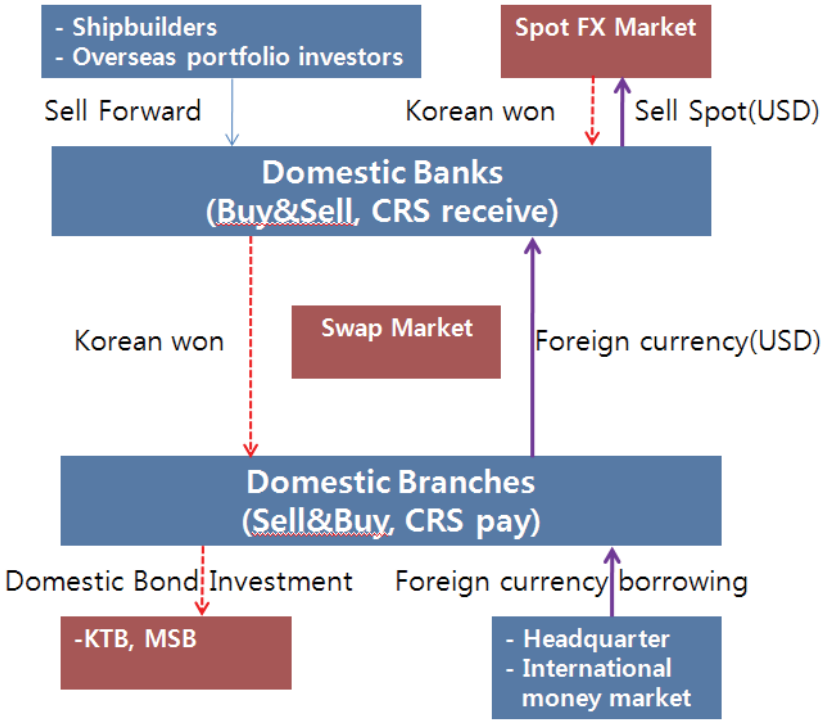
2.2 Main Factors Behind Surge in Short-term External Debt

The main factors behind the surge in external debt (mainly short-term debt) in 2006~2007 can be summarised as two factors.

First, FX derivatives trading (including FX forwards, FX swaps, cross currency interest rate swap (CRS), non-deliverable forward (NDF), etc.) between banks and shipbuilders or asset management companies increased as a result of massive forward exchange sales by Korean shipbuilders, overseas portfolio investors. The attraction of arbitrage transactions was also magnified due to international interest rate differentials.

The second factor was the increase in the demand of corporate ratings for foreign currency bank loans including trade finance due to Korea's heavy dependence on foreign trade.

Figure 1
Arbitrage Transactions of Foreign Branches



3. Review of Related Literature in Korea

Although the number of foreign bank branches in Korea has increased since 2005, the research on their influence has been relatively lacking. The past literature on foreign capital inflows focused usually on bond and stock investments. Recently, however, foreign banks and affiliates have been regarded as more important channels of capital inflows. Therefore, some recent work dealing with how the domestic financial system is influenced by the entry of foreign banks has been published.

Many researchers thought before 2008, when the global financial crisis happened, that an increase in the entry of foreign banks into the domestic financial markets could stabilise them. According to Kang and Kim (2005), domestic banks generally encounter a more competitive environment when foreign banks enter the domestic markets, and therefore would have to make themselves more efficient in terms of costs, revenues, and risk management. In addition, domestic banks can gain knowledge of leading edge financial technology from foreign

banks. Researchers expected that these efforts would significantly increase the efficiency and soundness of the domestic banking sector.

They also believed that foreign banks' affiliates could be safe havens when global or domestic economic conditions deteriorated rapidly. Domestic depositors tend toward a "flight-to-quality" during a recession, and foreign banks are regarded as safer than domestic banks because they commonly have abundant liquidity and more reliable reputations. Based upon this proposition, the notion was that the entry of foreign banks could make the domestic financial system more stable.

Moreover, foreign banks and their branches can also supply continuous liquidity to the domestic economy when financial distress caused by recession deepens. When the domestic economy slows, domestic banks collect and reduce the amounts of their loans, whereas foreign banks can lend money procured from abroad to domestic businesses and financial institutions. If the domestic market consists of domestic banks only, lending will be managed procyclically. For that reason, the entry of foreign banks can relieve the procyclical lending problem, thereby making the financial system more stable.

However, they also pointed out several risk factors — such as market concentration, global banks' cherry picking attitudes, and spill-over effects. First, the entry of foreign banks could force small and medium-sized banks to merge, shrink or die, by creating a more competitive market environment. If the domestic market share was more concentrated, the 'too big to fail' problem would be more serious, thus increasing the systemic risk of the financial markets.

Second, global banks usually prefer to lend to big firms and prime customers as they do not have sufficient information on domestic business and economic conditions. When this practice is generalised, domestic institutions need to extend loans to small and medium-sized businesses and customers with lower credit ratings, worsening the soundness of domestic institutions.

Finally, global banks can also be a channel of spill-over effects. If the economy that a global bank's main office is located in suffers from a slowdown or financial distress, the effects from this could spread quickly to domestic financial markets, increasing their external vulnerability.

The literature since the global financial crisis has focused on the risk side more than before. Song and Kim (2008) analysed that foreign banks' branches had played a major part in foreign borrowings. Since 2003, the Korean covered

interest rate differential has increased significantly due to the decline in the swap rate. Massive selling of forward contracts of shipbuilders, which expected KRW appreciation, caused the swap rate to drop. Foreign affiliates, which can procure foreign currency loans at lower prices, therefore obtained large amounts of foreign currency borrowed from their main offices to buy forward contracts. They could then realise gains by arbitrage transactions by way of buying forward contracts along with government bonds, MBSs and CDs. This incentive led to excessive foreign borrowings by foreign affiliates, and increased the external vulnerability of the domestic markets as well. Most foreign borrowings were procured by very short-term contracts, but then invested in long-term assets such as government bonds. If global economic conditions deteriorated, the foreign borrowings could flow out rapidly.

Suh and Kim (2009) also pointed to similar problems, albeit focusing especially on currency and maturity mismatches. They argued that the foreign liquidity shortage that Korea experienced during the global financial crisis was due to the currency mismatch problem of the domestic banking sector. From 2000, currency mismatch problems were easily observable in both domestic and foreign banks. Foreign affiliates' currency mismatch problems in particular grew rapidly from 2006.

Foreign affiliates could obtain arbitrage incentives from the Korean forward market because of Korean export enterprises' excessive selling. At that time, Korea's economic fundamentals were strong while exports and the current account surplus were on a continuous increase. In line with this situation, Korean export firms, and especially shipbuilders, expected that the KRW would appreciate constantly and therefore sold their cash flows from shipbuilding contracts in the form of forward contracts. This immoderate forward selling caused a decline of the swap rate, enabling foreign affiliates to procure foreign currency loans from their home offices at much lower costs, realising arbitrage profits by buying forward contracts. Foreign affiliates' loans in foreign currency increased towards this end and the rapid expansion of foreign claims without the appropriate increase of foreign assets brought about a currency mismatch problem - a factor threatening domestic financial stability.

Yang and Kim (2008) analysed the influence of the incentives for undertaking arbitrage transactions on foreign investment in Korea. They explained that the incentive for arbitrage transactions has been one of the major determinants of foreign investment. From the third quarter of 2007 especially, non-residents' domestic bond investment increased greatly, almost simultaneously with the rise

in incentive for arbitrage transactions influenced by the U.S. subprime mortgage crisis. These bond investments grew rapidly in the process of massive buying of forward contracts. In these deals, foreigners had to buy spot KRW for their position management, meaning that until they finally pay the KRW to their counterparties, they had to manage that money safely and profitably through risk-free financial instruments like bonds.

Meanwhile, looking at the pattern of domestic bond investment by foreign capital, which had grown sharply since 2006, we see that it was led by foreign bank branches in Korea until the first quarter of 2007. However, from the third quarter of 2007 it was driven directly by foreign investors such as foreign banks and institutions. In spite of the yield on arbitrage transactions increasing sharply, foreign affiliates could not expand their investment since both foreign currency loans and domestic bond investments by foreign banks' branches had reached the country limits for Korea set by their head offices. Instead, it was the foreign investors (non-residents) that invested in the domestic bond markets for arbitrage gains.

The authors pointed out that massive foreign capital inflows can raise the probability of sudden stops. A future outflow of foreigners' bond investment funds owing to sudden changes in domestic or overseas financial conditions would likely widen the scale of fluctuations in the domestic financial and foreign exchange markets.

Many of the former literature have focused on the determinants of foreign investment in- and outflows. Some researches have analysed the effects of foreign banks' entry into Korea, but there yet has to be any research using subtle econometric methods. Above all, the research on the issue of the influences of foreign banks and branches on financial stability is still wanting.

4. Research Methodology and Empirical Results

In this Section, we will verify whether global banks contributed to the financial distress in Korea during the recent systemic, global crisis, by adversely scaling back their Korea market lending especially when global interbank liquidity deteriorated dramatically. Our purpose is to examine the links between bank exposures in the recent financial crisis and international bank lending to Korea, as well as to examine the links of the latter with the funding conditions in advanced economies and pull factors in Korea.

In order to analyse these relationships, we employ a standard econometric method that can take into account the stationary time-series properties and cross-sectional heterogeneity of the home country data such as exposure and funding condition variables. To simplify the model, we select only two kinds of explanatory variables – for the funding conditions of foreign economies and for the Korea's own pull factors.

The growth rates of foreign countries are expected to measure the funding conditions in foreign banks' home countries. In general, a high growth rate means the home country's economy is in the boom part of the business cycle. Therefore, banks in the home countries having higher growth rates can afford to invest more in Korea. Next, interest rates can be another measure of funding conditions. A lower interest rate means lower funding costs. Foreign affiliates whose home offices are in the countries maintaining lower interest rates can procure funds at a lower price. We can thus expect that the foreign banks from home countries with have higher growth rates and lower interest rates can make greater investments in Korea.

This logic can also apply to the factors making Korea attractive to foreign investors. Korea's high growth rate can mean that it is more attractive for foreign banks while higher Korean interest rate may mean that foreign investors can obtain higher profits from the Korean domestic financial markets. We expect foreign banks to increase investments in Korea when it is experiencing higher growth and higher interest rates.

Based on the above argument, we establish the following panel model which is a modification of Martinez-Peria et al. (2005), taking into account the recent global financial crisis:

$$\begin{aligned}\log(\Delta\text{Foreign bank claim})_{jt} &= \beta_0 + \beta_1 \text{Foreign country growth rate}_{jt} \\ &+ \beta_2 \text{Foreign country interest rate}_{jt} + \beta_3 \text{Korean growth rate}_t \\ &+ \beta_4 \text{Korean interest rate}_t + \beta_5 \text{Asian crisis dummy} + \beta_6 \text{GFC dummy} \\ &+ \beta_7 \text{Asian crisis dummy} \times \text{exposure}_t + \beta_8 \text{GFC dummy} \times \text{exposure}_t\end{aligned}$$

Where:

ΔForeign bank claim = the first difference of the logarithm of foreign country j bank claims (sum of cross-border claims and local claims of foreign affiliates) on Korea

Foreign country growth rate = real GDP growth rate of foreign country j

Foreign country interest rate = government bond (long-term) rate of foreign country j

Korean growth rate = real GDP growth rate of Korea

Korean interest rate = government bond (long-term) rate in Korea

Asian crisis dummy = dummy variable taking the value of one in 1997 and 1998

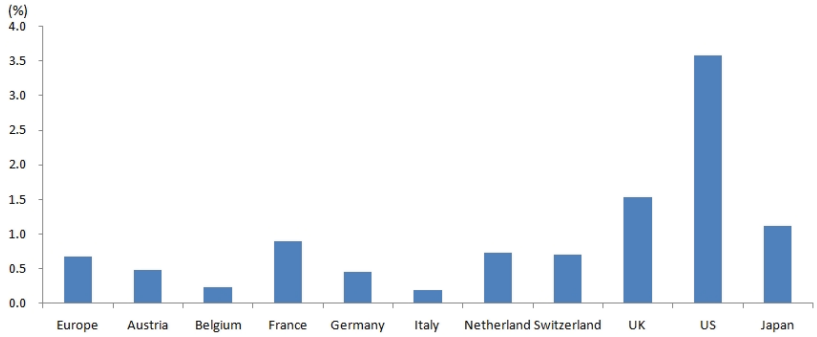
GFC dummy = dummy variable taking the value of one from the third quarter of 2008 to the first quarter of 2009

Exposure = the share of foreign country j claims on Korea in total foreign country j claims on all countries

All time series data for this analysis are obtained from the BIS consolidated banking statistics, the IMF International Financial Statistics, and the Economic Statistics System of the Bank of Korea. The time period of analysis is from the 1Q 1995 to the 2Q 2010. To estimate the model, we use the panel regression method. Based on the Hausmann test, we employ a random effect model.

The foreign countries used in the model are selected by their relative sizes of claims on Korea. We choose the 10 countries having the biggest claims on Korea. Chart 9 below shows the 10 countries with the highest proportions in their total international exposures of exposures to Korea. These exposures are calculated by averaging the values of 2000~2010. The U.S. has the highest ratio of exposure to Korea, followed by the U.K. and Japan. European countries have relatively smaller ratios.

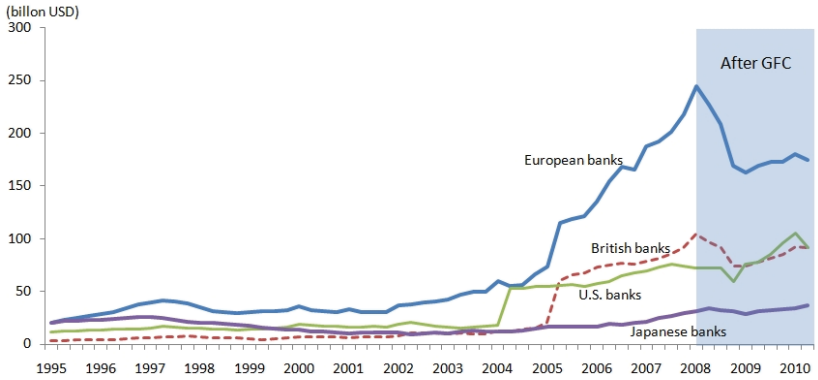
Chart 9
Foreign Country Ratios of Exposure to Korea



Source: BIS Consolidated Banking Statistics

Prior to estimating the model, we plot the time series data of foreign country claims on Korea and interest rate trends in Charts 10 and 11. Chart 10 shows us that countries with higher Korean exposure ratios such as the U.S., U.K. and Japan reduced their claims on Korea by relatively small margins. The U.S and Japan have even increased their claims since the GFC. On the other hand, European countries having relatively lower exposure ratios, sharply withdrew their claims on Korea. We thus can expect that higher exposures can translate into more stable financing, other factors remaining unchanged.

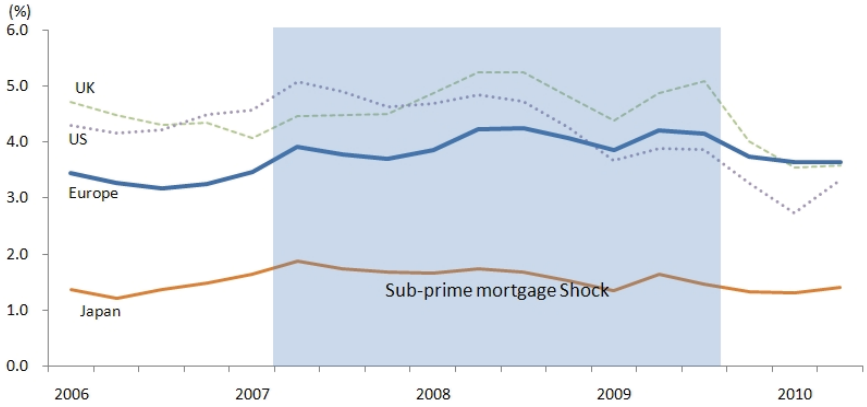
Chart 10
Major Foreign Country Bank Claims on Korea



Source: BIS Consolidated Banking Statistics

Chart 11 shows the interest rates (on short-term government bonds) of major foreign economies. After the sub-prime mortgage crisis broke out, the long-term interest rates in major economies increased sharply and maintained relatively higher levels than before the crisis. During the GFC especially, interest rates increased sharply. However, ever since the advanced economies' quantitative easing policies, interest rates have gone down slightly. This means that interest rates can indicate global liquidity conditions. We, therefore, expect that the higher interest rates of major economies can cause a rapid reduction in their claims on Korea, by exacerbating global liquidity conditions and undermining relatively the attraction of the Korean markets.

Chart 11
Major Foreign Country Long-Term Interest Rates



Source: Bloomberg

Based on the former discussion, our model specification is likely to be feasible. We estimate the coefficients of the explanatory variables by the panel GLS method. The most important part is β_8, the interaction term between the GFC dummy and the exposure ratio. If that coefficient is positive and significant, we can tell that the higher exposure ratio of foreign banks can make the domestic financial markets more stable. Table 2 shows the results of panel regression:

Table 2
Results of Panel Regression Analysis

Variable	Expected	Coefficient	S.E	t-stat.	Prob.
Constant		0.024	0.015	1.619	0.106
Growth rate of country i	(+)	-0.001	0.003	-0.470	0.638
Long-term interest rate of country i	(-)	-0.034	0.019	-1.761	0.079
Growth rate of Korea	(+)	0.006	0.004	1.648	0.100
Long-term interest rate of Korea	(+)	0.009	0.008	1.109	0.268
Asian crisis dummy	(-)	-0.118	0.038	-3.142	0.002
GFC dummy	(-)	-0.225	0.041	-5.466	0.000
Asian crisis dummy * $EXPOSURE_i$	(+)	-0.003	0.012	-0.258	0.796
GFC dummy * $EXPOSURE_i$	(+)	0.054	0.025	2.145	0.032
R^2		0.112			
Adjusted R^2		0.100			
Durbin-Watson stat		1.800			

Note: 1) The grey columns indicate the coefficients of the explanatory variables to be significant within the 90% confidence level.

The results are consistent with our expectations. The values of β_2, β_3, β_5, and β_8 are significant. First, the high growth rate of Korea increases foreign banks claims considerably. This means that foreign investors are of the view that Korea is a more attractive market for investments when the economy is in the boom period of the business cycle. The Korean interest rate also increases foreign banks' investments. However, the coefficient is not really significant. Second, lower long-term interest rates in foreign countries can increase foreign claims on Korea. Usually, low long-term interest rates in major economies mean that global liquidity is flooding the markets. In addition, it means that the expectations of return on investments to Korea are relatively higher than those for investments in other major economies. Contrary to our prior expectation, however, high growth rates in banks' home economies do not have an effect on investments into Korea.

The coefficients of the dummy variables are significant and negative, consistent with our expectations. Obviously, the Asian crisis and the GFC had great effects on foreign claims on Korea. The most important coefficient, β_8, is significant and positive. This is the most interesting finding of this analysis as it means that the economies having higher ratios of exposure to Korea tend to withdraw smaller amounts of their claims from Korea than other economies having lower exposure ratios.

It is feasible that economies having bigger claims on Korea compared to their total claims are able to access more information on the Korean economy, enabling them to better judge whether the Korean economic fundamentals are sound. Furthermore, these economies sustain greater capital losses when they withdraw their claims from Korea, because their risk distributions are relatively concentrated on Korea. In other words, the claims of countries' higher exposure ratios are more stable in a crisis.

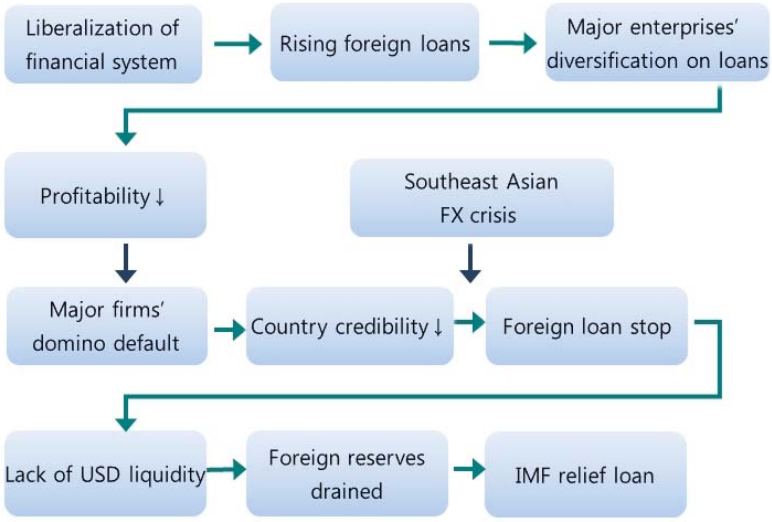
In contrast, the coefficient β_7 is not significant. This is the coefficient of combination term of the Asian crisis dummy and the exposure ratio. During the GFC, a higher exposure ratio meant a smaller withdrawal. In AFC period, however, even economies with higher exposure ratios withdrew their claims rapidly. The difference between the two crises was caused by several factors. First, during the AFC, the major foreign borrowing agents were not banks, but corporations. These major enterprises invested excessively and expanded their business operations even beyond their capacities through by foreign borrowings. Thanks to the government guarantees, they were able to procure foreign loans at relatively low prices. Consequently, this excessive business expansion caused a domino default of major firms, causing a deterioration in Korea's credibility.

Many foreign investors judged that the Korean economy was not sound during the AFC. During the GFC, in contrast, the financial conditions of Korean major and medium- sized enterprises were very sound.

Second, during the AFC, Korea's trade credit account recorded a large deficit. In the 1990's, Korean banks' foreign borrowings were relatively small compared with the GFC period, and therefore withdrawal of foreign claims on the banking sector was not really significant. At the same time, however, trade credit outflows were bigger than outflows of foreign banks' loans. Due to the decline of Korean firms' credibility, they could not procure foreign credit, and were therefore provided with credit by the Korean banking sector. Meanwhile, the Bank of Korea, also supplied capital denominated in US dollars to the banking sector. The Bank also concurrently intervened in the foreign exchange market to maintain the foreign exchange rate at a certain level. This policy mix, therefore, drained Korean foreign reserves. During the GFC period, however, the real business sector was very sound and the trade credit account was in relatively good condition. The Bank of Korea's foreign reserves were substantial as well.

Third, foreign investors could not gather sufficient information on the Korean economy. At the onset of the AFC, the Korean capital markets were relatively closed. In addition, the composition of foreign investments in the Korean stock and bond markets was very small. In 1999, foreign investors registered only 18.5% of stock market capitalisation and 0.3% of Korean bonds. After the IMF loan and the restructuring policy, however, the Korean capital markets opened in stages and foreign investors' market composition has increased greatly since then. In 2009, foreign investors held 30.5% of stocks and 5.7% of bonds. Moreover, they can now have more access to information on Korean economic fundamentals than during the AFC period. In both scenarios the Korean economic conditions were reasonably sound, but during the AFC period particularly, foreign investors were not convinced of the robustness of the fundamentals and withdrew their investments due to insufficient information.

Chart 12
AFC Case in Korea



5. Conclusion and Policy Responses in Korea

5.1 Conclusion

In general capital inflows, especially bank lending, do not only have positive effects but also negative effects on emerging and developing economies which are small and open.

The amount of cross-border loans as well as the lending by foreign affiliates in Korea continued to increase until Q1 2008 before the onset of the global financial turmoil. The two main factors behind the surge in external mainly short-term debt in 2006~2007 are firstly, FX derivatives trading between banks and shipbuilders or asset management companies increased as a result of massive forward exchange sales by shipbuilders, and overseas portfolio investors. In addition the attractions of arbitrage transactions were magnified due to international interest rate differentials. The second factor was the increase in demand of corporations for foreign currency bank loans including trade finance, due to Korea's heavy dependence on foreign trade.

In Korea, capital inflows have made some contributions to the growth and development of the financial markets by supplying foreign exchange and providing various hedge trading opportunities for market participants. However, since the

business motives are mainly profitability, the sudden withdrawals during periods of global financial turmoil, have made the foreign exchange and money markets unstable.

This paper has explored the determinants of the relationship between international bank lending and funding conditions in Korea. Its main findings are as follows. First, the high levels of growth and interest rates in Korea significantly increased foreign banks' claims. Second, lower interest rates in foreign countries can increase foreign claims on Korea. Contrary to prior expectations, high growth rates in foreign economies do not have an effect on investments.

Obviously, the Asian crisis and GFC had definite impacts on foreign claims on Korea, especially, the interaction term between the GFC dummy and the exposure ratio (β_8) which shows a significant and positive value. This means that an economy with a higher Korean exposure ratio tends to withdraw a smaller amount of its claims from Korea than an economy having a lower exposure ratio. In other words, the claims of economies with higher exposure ratios were more stable during the GFC.

5.2 Specific Policy Responses in Korea

The Korean government has recently adopted macro-prudential measures to curb excessive volatility of capital flows within the current framework of the open and liberalised economy. It also plans to establish a minimum pre-captive "safety net", in accordance with internationally agreed standards, so as to avoid potential risks and increase its resilience to a financial crisis.

There are three parts to the government's policy efforts. The first is introducing new ceilings on banks' FX derivatives positions. The second is aimed at reinforcing the regulations on use of foreign currency bank loans. The last part includes improving the FX soundness of financial institutions.

5.2.1 New Ceilings on Net FX Derivatives Positions

New limits for the net FX derivatives positions of domestic banks and branches of foreign banks have been set up. The ceiling on domestic banks' net FX derivatives contracts is no more than 50% of their capital in the previous month. In the case of foreign bank branches, the ceiling has been set at 250% of their capital in the previous month, given that the level prior to the regulation was around 300%.

The ceilings are to be adjusted on a quarterly basis depending upon future economic conditions, the market situation, their impact on business activities, etc. The principle of "grandfathering" will also be considered: for example, in a case where the existing net FX derivatives position is more than the positions of the new ceilings, a bank can maintain its existing net FX derivatives positions for a maximum of two years.

5.2.2 Reinforcing Regulations on Use of Foreign Currency Bank Loans

The regulations on use of bank loans in foreign currency will be tightened. Recently, banks' foreign currency funding, which declined sharply in the wake of the recent financial crisis, has been judged likely to increase significantly on the back of the economic recovery and arbitrage transactions. It is, therefore, necessary to prevent a return to excessive foreign currency bank loans causing systemic risks.

Under the old rules, foreign currency bank loans had to be for overseas use only, but corporate purchases of domestic facilities were an exception. These fundamental rules will be maintained: foreign currency financing should be targeted for overseas use only. However, the exception is applied now only to small and medium-sized manufacturers, who are allowed to operate foreign currency loans for the purpose of purchasing domestic facilities — to the extent that total foreign currency bank loans of all small and medium-sized manufacturers as a group stay at the current level. The reinforced regulations are also applied only to new bank loans, to alleviate their impact on business activities

5.2.3 Improving FX Soundness of Financial Institutions

The authorities have tightened the existing regulations on domestic banks' foreign currency liquidity. The "Regulations on Foreign Currency Liquidity Ratio" and "Regulations on the Ratio of Mid- to Long-term Financing" applied to domestic banks have been reinforced. In the same context, branches of foreign banks are recommended to set up their own liquidity risk management mechanisms, a recommendation already applied to domestic banks in Korea, in order to enhance their ability of liquidity risk management capacities.

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Chapter 4

FOREIGN CLAIMS BY GLOBAL BANKS: THE ROLE AND IMPLICATIONS IN INDONESIA

By
Piter Abdullah[1]

1. Introduction

The banking liberalisation process in Indonesia[2] has globalised the Indonesian banking system. Indonesian banks not only have linkages with local banks but also with global banks. On the one hand, such conditions can act as a stabilising force for the Indonesian banking system as they provide Indonesian banks with increased access to liquidity[3] while also precipitating institutional and regulatory/ supervisory improvements in the banking system . On the other hand, they can pose risks to the domestic banking system because globalised banks act as a contagion channel for financial shocks. The global financial crisis in 2008-2009 has demonstrated that the globalised banking system plays a crucial role in the transmission of shocks from one particular economy to other economies. For that reason, the banking crisis triggered by the subprime mortgage debacle in USA was immediately transmitted to the entire global economy.

Considering these pro & cons, Bank Indonesia as the banking authority in Indonesia must fully comprehend the magnitude and nature of global banks'

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2. The Indonesian government initiated banking liberalisation in 1983 through a deregulation package known as Pakjun 1983. It removed interest rate controls and credit ceilings for all banks. Consequently, the banking sector, which up to then was channeling oil revenues to priority sectors, began to face competition. The Indonesian Government reduced liquidity credit and replaced effective credit ceilings with monetary tools and Bank Indonesia Certificates (SBI). This resulted in significant increases in the deposit rate and lending activities, particularlyin private banks. The dominance of state banks began to erode. However, priority credits still enjoyed subsidised interest rates and funding from the Central Bank (Husnan, 2001).

3. Foreign claims including cross-border bank lending of globalised banks vis-à-vis Indonesia's rapid expansion,especially after financial liberalisation in 1988. Since then, it has provided much-needed private capital flows to finance economic development in Indonesia. During the 1990s, Indonesia's economy expanded with impressive speed.

involvement in the Indonesian economy. Such an understanding - including the role of global banks and the financial shock transmission mechanism - will assist Bank Indonesia in strengthening financial regulation and supervision.

Against this backdrop, this paper focuses on examining the development and role of global banks, as well as determining their implications on Indonesia's economy. Our aim is to identify the most appropriate policies to be instituted with regard to the recent rapid and significant penetration of global banks in the domestic banking industry. In particular, we strive to address the following key issues:

- Has the global bank enhanced the Indonesian economy by providing liquidity needed to finance economic growth?
- Does the global bank have a prominent role in the spread of financial crisis in Indonesia?
- Which is more stable, cross border lending or local lending, global bank lending or domestic bank lending?

This paper is organised into the following sections. Section 2 explains the prevailing stance of existing literature and views on the role of global banks, which is followed by a description of the development and role of global banks in the Indonesian economy in Section 3. A corresponding empirical analysis is presented in Section 4 and the conclusion in Section 5.

2. Literature Review

Over the previous generation, there has been a drastic reduction in global barriers to competition in financial services, including the banking industry. Deregulation around the world and improvements in information technology have facilitated consolidation across distant and different types of banks in numerous countries around the world. In addition, growth in the cross-border activities of non-financial companies has catalysed a stronger demand for banking services. As a result, banking has become more globalised and growth in a bank's foreign claims has outpaced that of economic activity.

As banking in most countries has become more globalised, the need to understand the role of bank globalisation has increased. In general, it is claimed that banking globalisation not only provides more access to liquidity and boosts lending activity but also encourages efficiency improvements in domestic banks. Structure conduct performance hypothesis supports this positive role of global banking, arguing that global banking stimulates competition, which in turn enhances efficiency.

On the other hand, the global financial crisis in 2008 bore witness to a more sinister side of banking globalisation, namely the international transmission of shocks and cycles. This more nefarious role of banking globalisation is supported by Mishkin (2009), Goldberg (2009), Cetorelli and Goldberg (2008, 2009), Garcia-Herrero and Martinez Peria (2007).

Mishkin (2009) argues that if financial globalisation is not managed properly it will lead to financial crises that trigger wide spread economic hardship. Mishkin (2009) added that ensuring financial globalisation works well is not a simple task; it requires policies that promote property rights and good-quality financial information, encourage effective prudential supervision, and promote a stable macroeconomic environment. According to Mishkin (2009), policies concerning financial globalisation should be homegrown. Nevertheless, international financial institutions such as the International Monetary Fund and the World Bank can create incentives to promote these policies in emerging market economies. Citizens in advanced countries can also help by supporting the opening up of their markets to goods and services from poorer economies, thereby encouraging expansion of their export sectors, which creates increased support for financial development and less vulnerability to financial crises.

In line with Mishkin, Goldberg (2009) argues that global banks play a significant role in the transmission of shocks through their activities, contributing to a more integrated global business cycle. According to Goldberg (2009), the most recent global financial crisis is clear evidence of the role played by global banks in the international transmission of shocks.

Cetorelli and Goldberg (2008) support the argument regarding the potential role global banks play in the international transmission of shocks with their finding that capital flows to emerging market regions declined dramatically during the global financial crisis, and concomitantly there was a significant decline in internal lending from the parent and other overseas affiliates to foreign-owned banks in emerging markets. In further analyses, Cetorelli and Goldberg (2009) indicate that lending supply in emerging markets was affected through separate channels: a contraction in direct, cross-border lending by foreign banks, a contraction in local lending by foreign banks' affiliates in emerging markets, and a contraction in lending supply by domestic banks, as a result of the funding shock to their balance sheets induced by the decline in interbank or cross-border lending.

Garcia-Herrero and Martinez Peria (2007), focusing on stability, lend support to the argument concerning the role of global banks in the transmission of shocks during a crisis. Based on their analysis of Latin American cases, Garcia-Herrero

and Martinez Peria (2007) found that cross-border lending by global banks is less stable compared to local lending by global bank branches and subsidiaries. Cross-border lending diminishes during economic slowdowns, whereas local lending by foreign banks appeared to be much more stable. This finding is congruous with research conducted by Peek and Rosengren (2000). According to Peek and Rosengren (2000), reductions in cross-border lending were generally met by increases in lending by foreign bank subsidiaries, either because new subsidiaries were established or because the lending of the existing affiliates increased.

A large number of studies report similar findings that cross-border bank lending tends to be less stable compared to local bank lending (Goldberg, Dages and Kinney (2000), Detragiache and Gupta (2006), de Haas and van Lelyveld (2006)).

Regarding the case of Indonesia, it is generally agreed that the domestic banking industry has become more globalised. Abdullah (2010), using foreign claims data from BIS, found that the Indonesian banking industry has become more open and integrated with global banks since banking liberalisation in the late 1980s. According to Abdullah (2010), in the case of Indonesia, tighter integration with global banks has not led to greater competitiveness and efficiency. In fact, compared to other ASEAN economies, the banking industry in Indonesia is the least competitive.

Parallel to Abdullah's findings, Hui (2009) reported that between 1991 and 1996 some US$41 billion in net investments flowed into Indonesia compared to US$15 billion in the preceding six years. This deluge was in the form of bank loans that bloated the banking sector. The ratio of total bank assets to GDP rose from 35% in 1985 to 114% in 1997. This huge surge in liquidity created opportunities to expand economic activities and as a result the Indonesian economy grew rapidly at an average of 7-8% per annum. The torrent of bank loans, however, intoxicated lenders and borrowers alike, and resulted in poor credit discipline on the part of the lenders and financial mismanagement on the part of the borrowers. Lenders lent more than what the borrowers required. Borrowers, for their part, inflated their project costs and siphoned off excess money into their own pockets. This resulted in a frail Indonesian banking system that ultimately collapsed when the financial crisis befell Indonesia.

Abdullah (2010) and Hui's findings (2009) confirm that global banks in Indonesia have played a positive role in providing liquidity to expedite economic growth. In addition, the findings also prove that the efficiency hypothesis does

not hold true in the case of Indonesia. However, the role played by global banks in international shock transmission is not discussed.

3. The Role of Global Banks in the Indonesian Economy: Trend Analysis

3.1 A Closer Look at the Indonesian Banking Industry

Foreign banks have had a long and checkered history in Indonesia, playing a prominent role in the domestic economy since the days of Dutch colonialism despite stagnation during the revolution after Indonesia proclaimed its independence in 1945. Foreign banks regained a foothold after Indonesia liberalisd its financial and banking sector in 1988, opening the domestic banking industry to new entrants, reducing restrictions on foreign exchange transactions and increasing the access of domestic banks to international financial markets.[4] Along with the liberalisation process, the number of foreign and joint venture banks skyrocketed as presented in Table 1.

Table 1
The Development of Foreign and JointVenture Banks in Indonesia

Type of Bank	Number of Banks		
	1988	1998	2008
State-owned banks	7	7	5
National Private Banks	63	144	69
Regional Development Banks	27	27	26
Foreign and Joint Venture Banks	11	44	28

Source: Bank Indonesia

4. The deregulation package known as Pakto 1988 represented another cornerstone of banking liberalisation in Indonesia. Pakto 1988 reduced the requirements for bank establishment, including foreign and joint venture banks in Indonesia. The minimum capital requirement for foreign and joint venture banks was reduced to US$ 28 million, and the limit on foreign ownership was increased to 85%. Pakto 88 also allowed foreign banks to open sub-branches in six cities (prior to 1988, foreign banks were only permitted to have two branches in Jakarta). The financial liberalisation process, especially in the banking sector, continued. In March 1989, government control of offshore lending was removed. Then in 1992, the Indonesian Government allowed foreigners to purchase banking sector stock on the capital market (creating the opportunity for foreigners to own bank shares). After the banking crisis in 1998/1999 the Indonesian government raised foreign ownership limits to 99%, which far exceeds the level set by the World Trade Organization (WTO) at 85%.

As shown in Table 1, the number of foreign and joint venture banks in Indonesia increased sharply from 11 in 1988 to 44 in 1998. Notwithstanding, after the financial and banking crisis in 1998-1999, the number of foreign and joint venture banks declined to 28.

The burgeoning role of foreign banks in Indonesia was not only reflected by the total number of foreign and joint venture banks but also by the ownership structure of national private banks[5]. Subsequently, based on ownership, several national private banks, for example Bank CIMB Niaga, Bank Danamon, and Bank UOB Buana, became foreign banks. The ownership structure of several private national banks is presented in Table 2.

Table 2
Foreign Ownership of Several Private National Banks in Indonesia

Bank	Share of Foreign Ownership (%)
Bank UOBBuana	99
Bank International Indonesia Tbk	97.5
PT Bank CIMBNiagaTbk	93.8
PT Bank ICBC Indonesia	90
Bank Maspion Indonesia	85.59
Bank OCBCNISPTbk	81.9
Bank Danamon	67.63
PT Bank Muamalat Indonesia Tbk	64.31

Source: Bankscope

3.2 Global Banks'Cross-Border and Local Lending: Impact of the Crisis

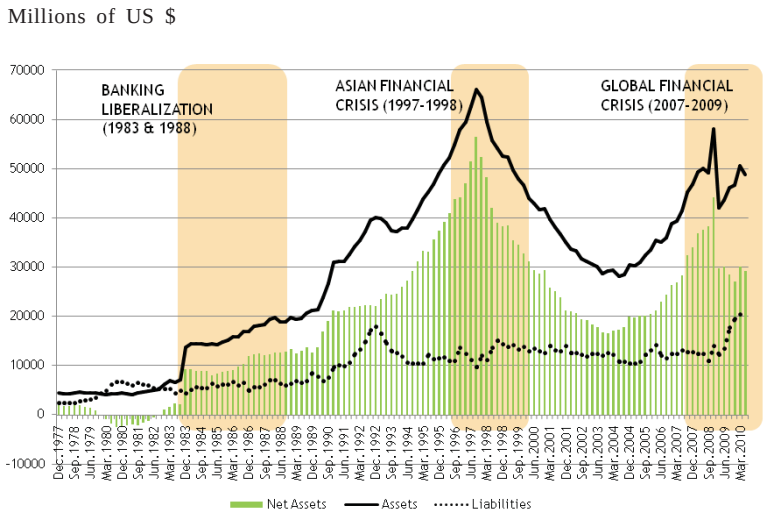
As displayed in Table 1, the number of foreign banks in Indonesia increased sharply following banking liberalisation in 1983 and 1988. This development was followed by the expansion of global banks in Indonesia. Figure 1 illustrates that during the period of 1983-1997 the total assets of global banks vis-á-vis Indonesian banks increased almost seven times while liabilities rose two folds[6]. As a result, the net external position increased drastically. The expansion of global banks was interrupted in 1997-1998 by the Asian financial crisis, which triggered a long and deep contraction in global banks' assets. The role of global banks began

5. Banks in Indonesia are categorised into four groups based on license, namely: state-owned banks, national private banks, foreign and joint venture banks, and regional development banks.

6. The principal data sources for the remaining of the paper include the Bank for International Settlement (BIS) International Banking Statitstics and Bank Indonesia (BI) Statistics. BIS data is consolidated across banks in all countries reporting to the BIS.

to recover in 2004. However, in 2008-2009, the global financial crisis undermined the global economy which impacted on Indonesia, causing a break in the recovery of global banks.

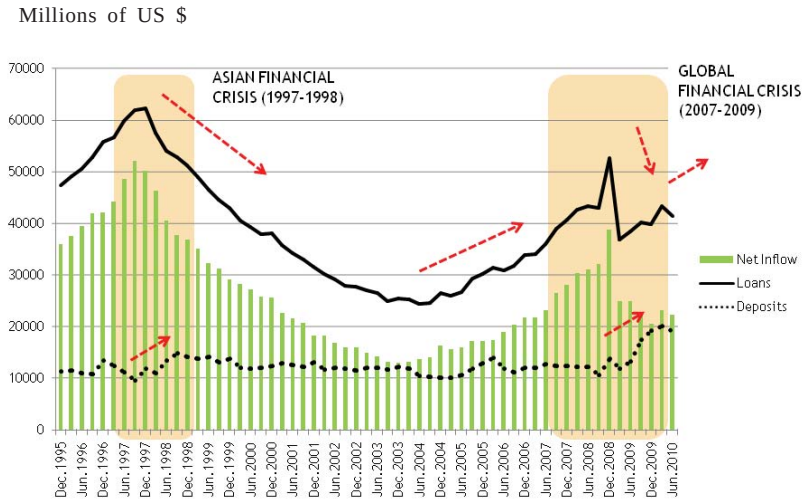
Figure 1
Indonesia's Net External Position (1977-2010)



Source: BIS Banking Statistics

Figure 2 tells the same story in terms of cross-border deposits and loans, confirming that Indonesia, since 1983 (banking liberalisation), has experienced net inflows from global banks. After peaking in 1997, as an impact of the Asian financial crisis, cross-border loans from global banks compared with domestic banks dropped dramatically, while deposits increased slightly. In 2008, when the country was beset by the global financial crisis, a similar occurrence transpired; cross-border loans declined drastically, while deposits increased slightly.

Figure 2
External Loans and Deposits vis-á-vis Domestic, 1977-2010



Source: BIS Banking Statistics

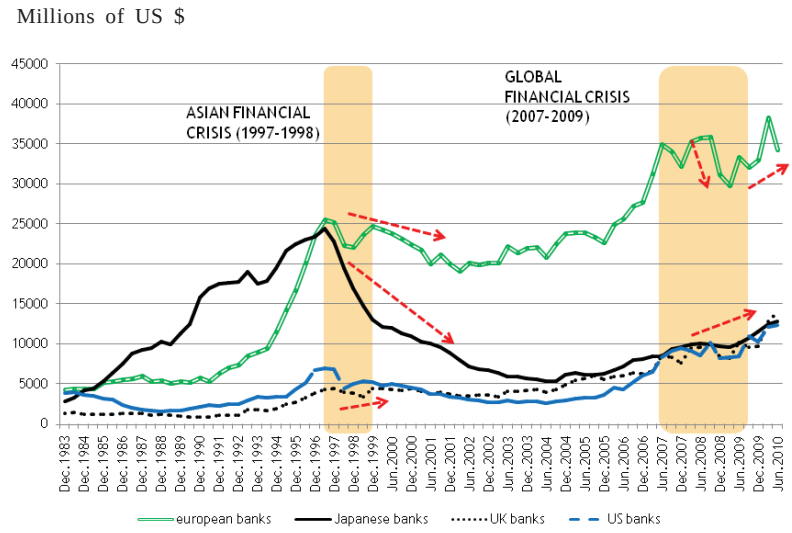
Figures 1 and 2 illustrate the differences between the impact of the two crises, namely the Asian and the global financial crisis, with regard to the role of global banks in Indonesia's economy. The Asian financial crisis precipitated a long and deep contraction while the global financial crisis merely sparked a short and mild contraction. The Asian and global financial crises also revealed similar characteristics, specifically that during the crises the assets or loans dropped significantly while the liabilities or deposits increased to some extent. This phenomenon indicates that during the crises, foreign banks were more trustworthy compared to domestic banks.

On a bilateral basis, before the Asian financial crisis, Japanese banks accounted for the bulk of outstanding stock of cross-border loans to Indonesia, followed by European, US and UK banks. Nevertheless, the order changed subsequent to the crisis. Cross-border loans from Japanese global banks waned while those from European, US and UK banks were almost unaffected by the crisis. As a result, European banks became the most significant global banks in Indonesia followed by Japanese, US and UK banks.

Figure 3 shows the different pattern of effects attributed to the Asian and global financial crises. During the Asian financial crisis Japanese banks' foreign

claims declined sharply for a protracted amount of time. Conversely, European banks' foreign claims were only slightly affected. During the global financial crisis, however, the pattern reversed with Japanese banks' foreign claims increasing slightly while those of European banks were disrupted by occasional sharp reductions. US and UK global banks were almost unaffected by the two crises.

Figure 3
Foreign Claims in Indonesia by Origin of Global Bank, 1977-2010



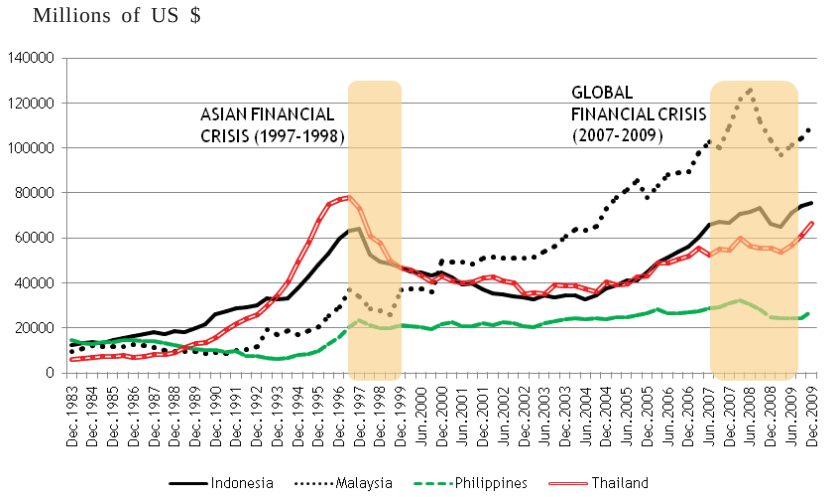
Source: BIS Banking Statistics

Based on the previous description, it is clear how the global banks' role in Indonesia has changed and how the two crises had differing impacts. An alternative method to examine the development and uniqueness of global banks in Indonesia is through a comparison with several peer economies, namely ASEAN economies. Figure 4 demonstrates that prior to the Asian financial crisis in 1997, total foreign claims from global banks in Indonesia and other ASEAN economies especially Thailand, Malaysia and the Philippines[7] increased significantly.

7. Malaysia and Thailand began liberalising their banking industry in the early 1980s, while the Philippines commenced liberalisation in 1994 through the Republic Act No.7721. As a result, the banking industry in those economies became more globalised and foreign claims increased abruptly.

Total foreign claims in Indonesia and Thailand from1983-1988, increased by 8.59% and 8.45% respectively on average per annum. During the same period in Malaysia, foreign claims increased by just 0.84%, while the Philippines posted a -2.98% decrease. From1989-1997, after the second stage of liberalisation (PAKTO 1988), foreign claims in Indonesia increased by 15.18% on average annually. Similarly, foreign claims on other ASEAN economies increased by more than 10% on average per year.

Figure 4
Total Foreign Claims in Indonesia and Other ASEAN Countries (1983-2009)



Source: BIS Banking Statistics

In the subsequent period, from 1998-2000, foreign claims by global banks plummeted due to the Asian financial crisis that undermined foreign confidence in the ASEAN economy. The impacts of the crisis, however, were not symmetrical across all ASEAN countries. Foreign claims in Indonesia and Thailand declined respectively by -4.88% and -1147% on average per annum. Conversely, the impact of the crisis in Malaysia and the Philippines was limited and temporary. In addition, Malaysia was the only country in the region to achieve a hasty recovery from the crisis. During the period from 1998-2000, foreign claims by global banks in Malaysia increased by 23% per year; far exceeding previous growth rates.

Subsequent to the Asian financial crisis, beginning in 2001, foreign claims in Indonesia recovered gradually increasing by 7.02% on average annually. Growth was interrupted momentarily by the global financial crisis in 2008. In contrast to the previous crisis, the impact of the global financial crisis in Indonesia and other ASEAN economies was limited and temporary. Accordingly, foreign claims in Indonesia dipped by just 0.85% in 2008 and subsequently rebounded to 14.01% in the following year (see Table 3).

Table 3
Average Annual Growth Rates of Foreign Claims in Indonesia and Selected ASEAN Economies, 1983-2009

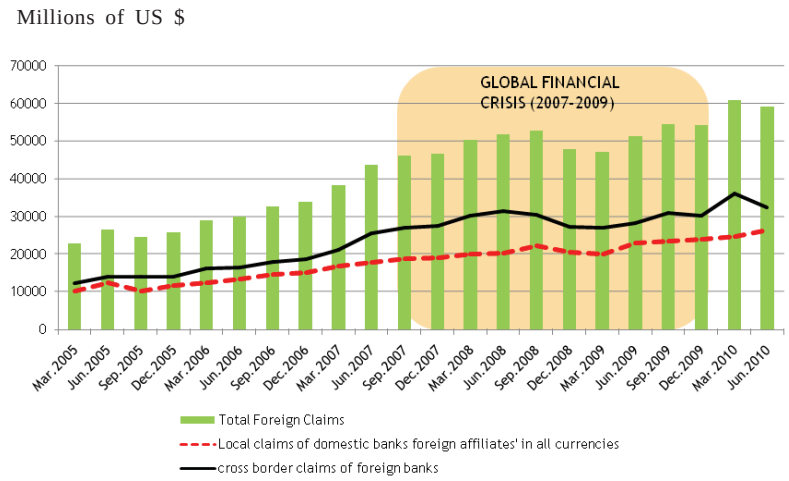
	1983-1988	1989-1997	1998-2000	2001-2007	2008	2009
Indonesia	8.59	15.18	-4.88	7.02	-0.85	14.01
Malaysia	0.84	15.91	23.03	12.32	-5.91	6.15
Philippines	-2.98	10.62	1.78	5.46	-20.35	10.89
Thailand	8.45	26.65	-11.47	4.03	1.61	19.38

Source: BIS Banking Statistics

The impact of the crisis on total foreign claims of global banks in Indonesia to some extent confirms their role as a contagion channel for international financial shocks. Global banks are able to readily penetrate the Indonesian market directly (through cross-border lending) and indirectly (through local claims by branches and subsidiary offices), which beckons the question of which channel is more stable. This question is indeed important in order to comprehend the role of global banks and their implications on policy making.

Figure 5 shows a comparison between cross-border lending and local lending of global bank branches and subsidiary offices in Indonesia. It can be seen from Figure 5 that cross-border lending is more volatile compared to local lending. During the global financial crisis in 2008, cross-border lending in Indonesia declined significantly, while local lending by global bank branches and subsidiaries in Indonesia remained unaffected. This is indisputable evidence that global banks in Indonesia can play a negative role as a contagion channel for international financial shocks through direct financing but not through branches or subsidiaries.

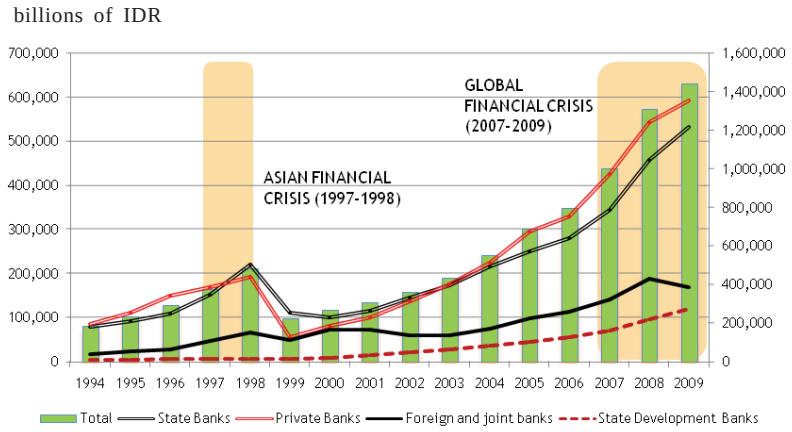
Figure 5
Cross-border versus Local Lending in Indonesia, 2005-2010



Source: BIS Banking Statistics

Figure 6 depicts domestic bank lending by type of bank in Indonesia. It can be seen from the graph that during the Asian financial crisis, bank lending by state-owned and private banks in Indonesia diminished while that of foreign and joint venture banks experienced merely a small decline. Indeed, from 2008-2009 when Indonesia was at the mercy of the global financial crisis, local lending by foreign and joint venture banks declined significantly but only for a short period of time. This confirms the stability of local claims by the affiliates of global banks in Indonesia, thereby supporting the argument that the negative role of global banks in Indonesia stems from direct financing (cross-border lending). Meanwhile, the positive aspects of global banks belong to foreign and joint venture banks.

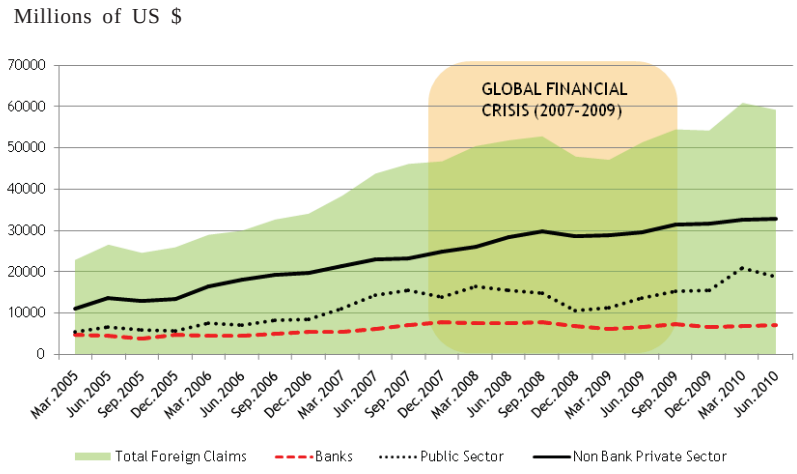
Figure 6
Domestic Bank Lending by Bank Type , 1994-2009



Source: Bank Indonesia

Figure 7 illustrates a decomposition of foreign claims by sector in Indonesia. According to the graph, flows to the public sector exacerbate the volatility of foreign claims by global banks in Indonesia. Meanwhile, flows to the banking sector and non-bank private sector remained stable.

Figure 7
Consolidated Foreign Claims of Reporting Banks in Indonesia by Sector from 1983-2009



Source: BIS Banking Statistics

4. The Role and Implications of Foreign Claims by Global Banks: Panel Data Analysis

4.1 Methodology

In order to verify the role played by global banks in channeling shocks from their respective home countries to Indonesia, especially during the financial crisis, a modified econometric model by Martinez-Peria et al (2005) is utilised in this paper. The modified model explains changes in foreign bank claims taking into account the Asian financial crisis in 1997-1999 and the recent global financial crisis (2007-2009). The model is as follows:

$$Foreignclaims\_growth_{j,t} = \beta_0 + \beta_1 Homefactors_{j,t} + \beta_2 Hostfactors_t + \beta_3 AFCDummy_t + \beta_4 GFCDummy_t + \beta_5 AFCDummy * Exposure_t + \beta_6 GFCDummy * exposure_t \quad (1)$$

Where j = 1 to 4 identifies the four BIS home countries that have strong banking relationships with Indonesia, namely Japan, United States, Germany and United Kingdom. t refers to the time period considered, specifically 1994 to 2009. The dependent variable, $Foreignclaims\_growth_{j,t}$, is semi-annual change in real consolidated foreign claims from banks in their home country j to Indonesia, the host country, between 1994 and 2009. *Homefactors* are control variables that capture the macro economic conditions in the country of the foreign bank (j), for example real interest and GDP growth rates. *Hostfactors* are control variables that capture the macro economic conditions in Indonesia such as real interest rates, GDP growth and exchange rate vis-á-vis the home country's currency. *AFCDummy* is a dummy variable with a value of 1 for the period 1997 to 1999. *GFC_Dummy* is a dummy variable with a value of 1 from2007 to 2009, while *exposure* is the ratio of foreign country/bank (j) claims on Indonesia over total claims extended by the foreign country/bank (j).

The test of the effect of the Asian and global financial crisis is based on the sign and significance of the β_5 and β_6 coefficients. Indeed, controlling for other factors, if higher exposure is translated into more stable financing, interaction between the GFC dummy and exposure is expected to be positive and significant.

From the model above, we take into account the role of both home (or push) and host (or pull) factors. Home/push factors are considered to be exogenous to the host country and refer to structural or cyclical features of the home country, which affects the banks' desire to invest abroad. Following

Martinez-Peria et al (2005), the model uses real interest rates and real GDP growth rates in the home country as a proxy of push factors. On the other hand, to account for pull factors, real interest rates, real GDP growth and the rupiah exchange rate are used. Aside from the impact of push and pull factors on foreign bank claims in Indonesia, the exposure of each home country to Indonesia is also considered.

In order to differentiate between cross-border and local lending, model 1 is modified as follows:

$$Localclaim\_growth_{j,t} = \beta_0 + \beta_1 Homefactors_{j,t} + \beta_2 Hostfactors_t + \beta_3 AFCDummy_t + \beta_4 GFCDummy_t + \beta_5 AFCDummy * Exposure_t + \beta_6 GFCDummy * exposure_t \quad (2)$$

The dependent variable is replaced with *localclaim_growth*$_{j,t}$, the semi-annual change of local claims from global bank branches or subsidiaries in Indonesia between 2002 and 2009. Hence, j = 1 to 4 identifies the four BIS home countries that have branches or subsidiaries in Indonesia, namely Japan, United States, Germany and United Kingdom.

Models 1 and 2 were estimated using two general methods to analyse panel data, specifically the fixed effects model (FEM) and random effects model (REM). The two models are based on the assumption of correlation between individual specific effects and the independent variables. If the individual specific effects are uncorrelated with the independent variables, then the random effects model is more efficient than the fixed effects model. However, if this assumption is incorrect, then the random effects model is not consistent, thus the fixed effects model is better. In this paper, the appropriateness of the fixed and random effects models are tested using the Hausman test.

Models 1 and 2 are applied using a data set taken primarily from BIS, Bank Indonesia and IFS. Table 4 summarises the definition and sources of all variables included in the model.

Table 4
Data Definition and Sources

Variable	Definition	Source
Foreignclaims_growth	Semi-annual change (as a percentage) of foreign bank claims by global banks in Indonesia	BIS
localclaims_growth	Semi-annual change (as a percentage) of local bank claims by global bank branches or subsidiaries	BI
Real_interest_home	Control variable that representsmacroeconomic conditions inthe home country (j)	IFS
Gdp_growth_home	Control variable that represents macroeconomic conditions in the home country (j)	IFS
Real_interest_host	Control variable that represents macroeconomic conditions in the host country; Indonesia	Bank Indonesia
Gdp_growth_host	Control variable that represents macroeconomic conditions in the host country	Bank Indonesia
Ex_rate_host	Control variable that represents macroeconomic conditions in the host country	Bank Indonesia
Exposure	The ratio of foreign claims made by the home country (*j*) on Indonesia to total foreign claims extended by the home country to all countries worldwide	BIS
AFC_dummy	Dummy variable for Asian Financial Crisis with a value of 1for1997 and 1998	
GFC_dummy	Dummy variable for Global Financial Crisis with a value of 1for2007, 2008 and 2009	

4.2 Empirical Results

4.2.1 Panel Unit Root Tests

Pooled time series data, much like uni-variate time series data, tends to exhibit a time trend and is, therefore, non-stationary. Engle and Granger (1987) argue that the direct application of OLS or GLS to non-stationary data produces spurious regressions. These regressions tend to produce inflated performance statistics, such as high R^2 and t-statistics, which often lead to a high frequency of type I errors (Granger and Newbold, 1974).

Levin, Lin and Chu (2002), Breitung (2000), Hadri (1999), and Im, Pesaran, and Shin (2003) developed panel based unit root tests that are similar to tests carried out on a single series. They proved that panel unit root tests are more powerful compared to unit root tests applied to individual series because the information in the time series is enhanced by that which is contained in the cross-section data. In contrast to individual unit root tests, which have complicated and limiting distributions, panel unit root tests lead to statistics with a normal distribution in the limit (Baltagi, 2001).

Table 1 below reports (summary) panel unit root tests for the relevant variables given in equations (1) and (2) above. Most of the tests reject the unit root null hypothesis for all of the variables at all levels. These results suggest that the variables in question do evolve as stationary processes and the application of OLS or GLS to equations (1) and (2) will result in non-biased and consistent estimates.

Table 5
Panel Unit Root Tests

Variable	Level				First Difference			
	LLC	IPS	MW	Hadri	IPS	LLC	MW	Hadri
FOREIGN_CLAIMS_GROWTH	-1.1636	-2.6411*	22.9431*	48.1996*	-3.2505*	-6.7518*	54.1435*	88.3631*
GDPGROWTH_HOME	-1.2563	-3.0623*	26.7511*	17.6779*	-5.1360*	-5.7035*	45.8960*	45.1299*
REAL_INTERESTS_HOME	-1.3897**	-2.4226*	20.7864*	29.2901*	-3.5184*	-6.9413*	55.9542*	72.7881*
GDPGROWTH_HOST	-3.3731*	-4.0977*	31.2849*	19.2765*	-5.1361*	-5.7035*	45.8960*	45.1299*
REAL_INTERESTS_HOST	-6.9512*	-5.2405*	40.9426*	42.6695*	-8.4344*	-8.2097*	67.0042*	81.9363*
CURRENCY_CHANGE	-6.0816*	-4.9209*	38.2274*	46.9806*	-9.1798*	-8.9571*	74.1404*	75.4921*

Note: LLC=Levin, Lin, Chu (2002), IPS=Im, Pesaran, Shin (2003), MW = Maddaladan Wu. Sign (*) indicates reject H0.

4.2.1 Estimation Results

The test results for Model (1) are presented in Table 6. The Hausman test confirms that the random effects model should be used when estimating Model (1). Focusing on the subset of home country *j* variables, we find that the coefficient of GDP growth is significant and positive. This implies that banks from Japan, Germany, United Kingdom and United States increased their claims in response to greater profit opportunities at home (in response to stronger growth at home). On the other hand, we also find that the coefficients of all host factors are not significant. These findings contradict the hypothesis that foreign claims made by global banks are determined by opportunities to gain profit at home and in the host country (push and full factors).

Table 6
Determinants of Change in Foreign Claims by Global Banks in Indonesia

Variable	Fixed Effects Model		Random Effects Model	
	Coef	p> | t |	Coef	p> | t |
REAL_INTERESTS_HOME	0.7052	0.354	1.1207	0.115
GDPGROWTH_HOME	1.1368	0.200	1.5151	0.054**
DUMMY_AFC	-11.5873	0.008*	-10.0052	0.013*
DUMMY_GFC	-16.9737	0.055**	-13.8500	0.085**
DUMMY_AFC*EXPOSE	1.7372	0.375	0.6840	0.713
DUMMY_GFC*EXPOSE	50.08528	0.047*	44.3772	0.049**
REAL_INTERESTS_HOST	0.1012	0.565	0.0717	0.679
GDPGROWTH_HOST	-0.44064	0.093**	-0.4122	0.111
CURRENCY_CHANGE	-0.0630	0.093**	-0.0601	0.101
Hausman Test	Chi2(9) = 3.45 Prob>chi2= 0.9438			

Note: (*) and (**) indicate statistically significant at the 5 and 10 percent level respectively.

Table 6 also demonstrates that the dummy coefficients of the Asian and global financial crises are negative and significant. This is evidence that foreign banks did, indeed, propagate the financial crisis through their foreign claims in Indonesia. The dummy coefficient of the global financial crisis multiplied by exposure, on the other hand, confirms that greater global bank exposure to the Indonesian economy improves the banks' role. Accordingly, greater exposure translates into more stable financing.

Regression results for Model (2) are presented in Table 7. Regarding the growth of local claims, the coefficients of host GDP growth and exchange rate change are positive and significant, denoting that local claims of global banks' affiliates are principally determined by pull factors. These findings reveal a contrast between cross-border lending and local lending, for which cross-border lending is more dependent on conditions in the home country, while local lending depends more on the host country environment.

Table 7
Determinants of Change in the Local Claims of Global Banks' Affiliates in Indonesia

Variables	Fixed Effects Model		Random Effects Model	
	Coef	p> | t |	Coef	p> | t |
REAL_INTERESTS_HOME	0.4802	0.707	0.0315	0.979
GDPGROWTH_HOME	0.4815	0.728	0.7597	0.560
DUMMY_AFC	30.0383	0.864	20.1726	0.908
DUMMY_GFC	7.5115	0.559	4.1908	0.711
DUMMY_AFC*EXPOSE	-87.4543	0.858	-67.9431	0.889
DUMMY_GFC*EXPOSE	-19.1765	0.586	-10.0560	0.736
REAL_INTERESTS_HOST	-1.3927	0.147	-1.1897	0.205
GDPGROWTH_HOST	6.0579	0.031*	5.6809	0.036*
CURRENCY_CHANGE	0.5160	0.020*	0.5551	0.009*
Hausman Test	Chi2(9) = 3.17 Prob>chi2= 0.9574			

Note: (*) and (**) indicate statistically significant at the 5 and 10 percent level respectively.

Table 7 also indicates the differing roles played by cross-border and local lending in terms of aggravating the financial crisis in Indonesia. As can be seen, the dummy coefficients of the Asian and global financial crises are not significant, which suggests no substantial fallout from the crises on the growth of local claims made by global banks' affiliates. Furthermore, the local claims of such banks depend more on host factors.

5. Closing Remarks

In this paper, a comprehensive data set was employed to explore the behaviour of foreign bank claims in Indonesia, a nation that has witnessed a significant increase in foreign bank financing since banking liberalisation in the 1980s. The data set, primarily taken from BIS, is rich in two dimensions. From a cross-sectional perspective, the behaviour of banks was captured from four home countries that differ both in their degree of exposure and in their importance as a source of finance to Indonesia. From a time-series perspective, the data set covered all the salient periods from serenity, to low foreign bank penetration, to high and very high foreign bank penetration, as well as two major crisis periods (Asian financial crisis and global financial crisis).

The data used in this paper was valuable but still had limitations. First, the data is aggregated at the country level, therefore, lacking individual bank level data. Second, the time period observed was relatively short. Due to these limitations, the paper cannot fully answer all questions relating to the behaviour of foreign banks. Nevertheless, this paper does contribute by highlighting the role of global banks in Indonesia in terms of providing liquidity required to finance economic growth and channel shocks from the respective home countries to Indonesia, especially during crisis periods.

Concerning the role played by global banks in providing liquidity, this paper confirms that such banks in Indonesia became more significant during the 1980s and1990s (after banking liberalisation). The net external position of global banks escalated sharply, whereby assets increased six-fold and liabilities two-fold. Net external loans of global banks indicate that these banks have played and continue to play a significant role in providing access to liquidity for the Indonesian economy.

With reference to the role global banks play in channeling shocks, experience from the two crises has revealed particular phenomena. Firstly, the impact of the crises on loans exceeded that on deposits. During the two crises, global bank loans declined rapidly, while deposits skyrocketed. These findings to some

extent, confirm that global banks are considered more trustworthy than domestic banks, especially during a crisis. We also discovered that the impact of the crises primarily affected cross-border claims, particularly on the public sector (claims on the government).

Secondly, the repercussions of the Asian and global financial crises were quite dissimilar. During the Asian financial crisis, Japanese banks attributed for the steepest decline in foreign claims followed by European, US and UK banks. The global financial crisis, however, bucked this trend. As a result, European banks experienced the largest drop in foreign claims, while US, UK and Japanese banks were almost unaffected by the crisis. Furthermore, the impacts of the two crises were not symmetrical across Indonesia and other ASEAN economies.

Thirdly, the two crises showed that cross-border lending is more volatile compared to local lending, which confirms that global banks in Indonesia do act as a contagion channel for international financial shocks through direct financing, although not through local branches or subsidiaries. These findings are congruent to the results of empirical models, which revealed that global banks' cross-border claims depend more on push (home) factors, while local claims are more contingent upon pull (host) factors. In addition, cross-border claims are significantly affected by crises, compared to local claims that are more stable even during a crisis. Greater foreign bank exposure appears to be a stabilising force - foreign banks' responsiveness to crisis conditions, therefore, becomes more counter-cyclical as exposure increases.

The empirical results suggest a number of policy implications. First, it would make for sensible policy to limit the shocks that may result from relying on foreign bank financing. This can be achieved by maintaining economic conditions. Second, regarding the issue of counter-cyclicality, empirical results suggest that Indonesia might benefit more from dealing with foreign banks with high exposure than from foreign banks with low exposure and no commitment to the country.

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Chapter 5

FOREIGN BANKS, CROSS BORDER BANK LENDING AND IMPLICATIONS ON MALAYSIA: BALANCE SHEET PERSPECTIVES

By
Allison Loke Yen San*

1. Introduction

The decade prior to the global financial crisis witnessed a strong revival of cross-border capital flows from advanced economies to emerging markets. Notably, cross-border bank flows from advanced economies to emerging markets and developing economies grew from a level around zero in 2000 to over USD130 billion in the second quarter of 2007[1]. The trend in cross-border flows ended abruptly in the aftermath of the collapse of Lehman Brothers in September 2008. Cross-border bank lending fell dramatically during the global financial crisis, but the impact varied significantly across regions and countries.

International banks have been the major source of finance for the catching-up process of the emerging market economies in recent years. It is, therefore, not surprising that financial linkages and in particular, bank lending has been identified as one of the main channels of transmission of the latest crisis from advanced economies to the emerging markets (IMF, 2009). Indeed, the dramatic changes in capital flows to emerging markets are cited as evidence of such concerns. Strong growth was recorded for this type of capital flows through 2007 which was then followed by pronounced contraction across Emerging Asia, Latin America and Emerging Europe. As shown in Cetorelli and Goldberg (2009), during the 2007-2008 crisis, while all components of private capital flows declined, the largest among these reductions were in cross-border bank loans. However, given the stable deposit-based funding structure of banking institutions in Malaysia,

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1. See Vogel, U. and Winkler, A. (2010). "Foreign banks and financial stability in emerging markets: evidence from the global financial crisis". Frankfurt School -Working Paper Series, 2010.

coupled with continued ample liquidity environment in the system, the reliance of Malaysian banking institutions on cross-border wholesale funding has continued to remain minimal.

The recent crisis has drawn attention to the far-reaching impacts that internationally active financial institutions have on the stability of individual economies and financial systems that host their presence. Given their widespread businesses and the complexity of the operations and governance processes, concerns arose on the role these institutions play in the transmission of external shocks into host markets. Since there are a number of globally renowned financial institutions operating in the Malaysian financial system, it has become increasingly important for the Central Bank to better understand the balance sheet of these global banks. The important role these global banks played as a contagion channel of the recent financial crisis has also further underscored the urgency to strengthen financial regulation and supervision, and the greater emphasis given to cross-border supervision.

This paper aims to firstly understand the transmission of shocks from the global market to the Malaysian economy via the balance sheet of foreign banks, focusing in particular on the lending behaviour of foreign bank affiliates during the global financial crisis. Secondly, the paper attempts to examine systematically, using econometric techniques, the effect of the global financial crisis on the internal capital market of cross-border banks and thirdly, it examines whether foreign affiliates have a stabilising effect on the financial system after a shock induced by the crisis. This assessment provides an important contribution to greater understanding of the drivers of cross-border bank lending to emerging markets, facilitating conducive analysis of sources of financial vulnerabilities.

For the purpose of this study, this paper follows Cetorelli and Goldberg (2010) and defines the pre-crisis period as 2006 Q2 to 2007 Q2 and the post-crisis period from 2008 Q3 to 2009 Q2. This paper is organised as follows. Section 1 of the paper provides an overview of the banking system structure and regulatory philosophy that shaped the presence of foreign banks in Malaysia. Section 2 provides a brief discussion on the evolution of foreign banks in Malaysia and examines the extent of the effect of the 2007-2009 global financial crisis on foreign bank lending activities. Section 3 contains a review of related literature, which is followed by the exposition of the estimation methodology and empirical results. Policy recommendations and concluding remarks are presented in the final Section of the paper.

1.1 Background

1.1.1. Overview of the Banking System in Malaysia

Malaysia has a comprehensive financial system that continues to evolve in response to the changing domestic and international landscape. Malaysia has a dual banking system (conventional and Islamic banking) consisting mainly of commercial banks (both domestic and foreign), investment banks and Islamic banks (Table 1). The Islamic banking landscape comprises 17 full-fledged Islamic banks. Of these, six Islamic subsidiaries of foreign-owned conventional banking institutions are involved in the international currency business. Domestic commercial banks have the largest share of the market.

Table 1
Structure of the Malaysian Banking System as at end of June 2010

Type	Number of institutions	Share in Total Asset (%)
Domestic Commercial Banks	9	59.9
Foreign Commercial Banks	14	18.8
Domestic Islamic Banks	11	14.9
Foreign Islamic Banks	6	2.3
Investment Banks	15	4.1
Total	55	100

Source: Bank Negara Malaysia

1.1.2 The Forces that Shaped the Presence of Foreign Banks in Malaysia

Following the enactment of the Banking and Financial Institutions Act (BAFIA) in 1989, the regulatory and supervisory responsibility of Bank Negara Malaysia (the Bank) which is also the central bank of Malaysia, expanded to include a larger spectrum of financial institutions, with direct responsibility to regulate and supervise all licensed financial institutions. The licensed financial institutions are banking institutions, insurance companies and Takaful operators.

Foreign-owned banks, which were previously operating branches of global entities, were required to be locally incorporated. The local incorporation was to ensure that the foreign-owned banking institutions would be supported by permanent capital and would be subject to the same prudential requirements prevailing on domestic banking institutions. The local incorporation also created a legal separation between the domestic entity and its foreign parent company, whereby assets and capital of the domestic entity would be 'ring-fenced´ to ensure that obligations in Malaysia, especially to the banks' domestic depositors, would be given first priority. Coupled with the existing comprehensive financial safety net in place, the operations of foreign banking institutions in Malaysia and the interest of their customers are well safeguarded. For the rest of the paper, foreign banks will referred to as locally incorporated foreign-owned commercial as well as Islamic banking institutions.

One of the key catalytic drivers in shaping the Malaysian financial system was the Financial Sector Master Plan (FSMP), a 10 year plan launched in 2001. FSMP's vision was to improve efficiency, innovation, flexibility, resilience and dynamism of the financial system. The Master Plan spanned three phases focusing primarily on building the capabilities of domestic banking institutions and enhancing their performance. Today, more than 90% of the recommendations in the Plan have been implemented. The significantly transformed Malaysian financial system is now more diversified with well developed financial markets and broadened product offerings. As the Bank moved into the final phase of the FSMP, more liberalisation measures for the financial sector were announced in 2009, encompassing three broad strategies namely, the issuance of new licences, the increase in foreign equity limits and the offering of greater operational flexibilities to incumbent foreign players. The Bank has received strong interest in new licences from Asia, the Middle East, Europe and the United Kingdom which bring with them, strong value propositions that will add significantly to the depth and breadth of the financial sector in Malaysia.

Capitalising on the competitive advantage that Malaysia has in the area of Islamic finance, namely a strong and comprehensive Islamic financial system with a robust regulatory regime and well established legal framework, the Malaysia International Finance Centre (MIFC) was launched with the aim of promoting Malaysia as an international Islamic financial centre in August 2006. The objective of the MIFC is to establish Malaysia as a centre for the origination, distribution and trading of Islamic capital market instruments, Islamic funds and wealth management. Products and services under the MIFC may be structured in any currency and may be offered to both residents and non-residents. In line with the aspirations of the MIFC, the Bank has issued several new offshore Islamic

banking and takaful licenses, including the International Islamic Bank (IIB) licences under the Islamic Banking Act 1983 which provides for the licensed entity to undertake international banking business in international currencies[2]. In addition, the existing Islamic banks and takaful operators are allowed to set up International Currency Business Units that may provide the full range of Islamic banking or takaful services with residents and non-residents in international currencies. The first IIB licence was granted in 2007. There are now 4 IIBs established in Malaysia. Given that most of the IIBs are set up as branches and are only required to submit interim and audited financial statements to the Bank, these IIBs are not included in this study.

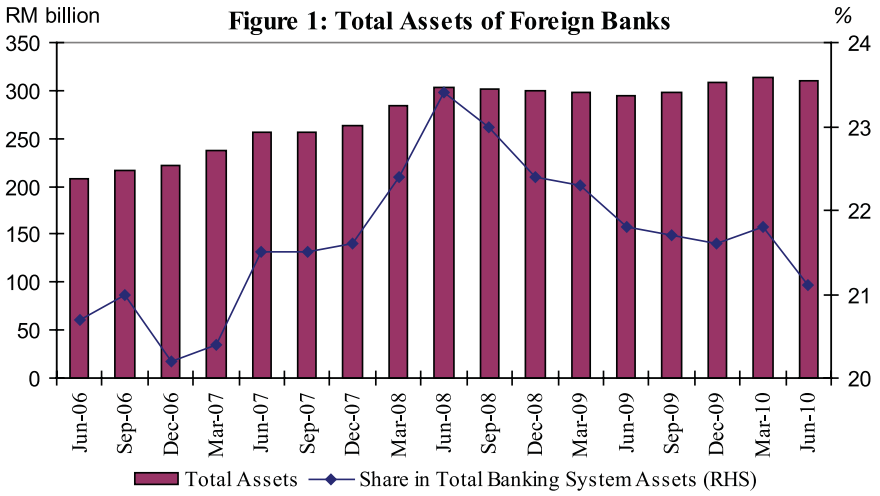
2. Involvement of Foreign Banks Prior to and During the Global Financial Crisis in Malaysia

2.1 Stylised Facts

The financial system of Malaysia hosts a diverse group of foreign financial institutions, with many of them possessing an entrenched presence, having been pioneers during the formative years of the financial system in the 19th century. After the Asian financial crisis, there were 13 foreign-owned commercial banks in Malaysia. At present, 20 foreign-owned banks have set up 266 branches in the country, each with distinct business strengths and niches, focusing mainly on retail and corporate banking.

Foreign commercial banks held over 90% of the share of the banking system in 1957, when Malaysia achieved independence. By 1997, the share has declined, accounting for only 14.2% of the total assets of the banking system. The market share of foreign banks was relatively stable in the early 2000s, but recorded higher growth after 2005 with the increased contribution from Islamic bank assets. Total assets of foreign banks registered an average annual growth of 12% between 2000 and 2005, amounting to RM221 billion by end-2006 or accounting for 20.2% of the total banking system assets. As the financial turmoil began to unfold, the total assets of foreign banks as a share of total banking system assets remained stable at 21.1% to record RM310 billion by mid-2010 (Figure 1).

2. International currencies refer to all foreign currencies excluding the currency of Israel.



Source: Bank Negara Malaysia

2.1.1 Funding and Lending Activities of Foreign and Domestic Banks

The funding structure of foreign banks has been predominantly deposit-based, with customer deposits accounting for 70% of total funding. In terms of composition, more than half of the funds raised are intermediated into customer loans, followed by inter-bank loans and lending to overseas affiliates and investments in domestic and foreign securities.

Between the early part of 2006 and mid-2007, the deposits placed with foreign banks grew an average of 14% while loans extended remained relatively stable, recording between 5%-9% growth during the period. This resulted in the deposit-to-loan ratio of foreign banks reaching 142.9% by mid-2007. At the same time, the deposits placed with domestic banks recorded similar trends as that of the foreign banks, growing at an average of 10.7% while loans extended recorded an average growth rate of 10% during the period, resulting in a deposit-to-loan ratio of 126.8% for domestic banks by mid-2007.

The amount of deposits placed with foreign banks grew at a moderated rate of 20.4% by mid-2007 to register 11.7% by September 2008. Meanwhile, the amount of loans extended outpaced that of deposits placed during the period, leading to a decline in the deposit-to-loan ratio of foreign banks to 131.6% at end September 2008. Following the collapse of Lehman Brothers in September 2008, the increase in deposit placement with foreign banks throughout September 2008 to September 2009 moderated further. During this period, anecdotal evidence

pointed to incidents of deposit withdrawals from the branches of foreign banks located outside of the Klang Valley area. Anecdotal evidence also indicated that these funds were then deposited into domestic banks. However, we found no evidence of causal relationship[3] between deposits placed with foreign banks and deposits placed with domestic banks at the 5% significance level suggesting that the shifts in deposits from foreign banks to domestic banks had been isolated cases and not prevalent throughout the system.

As labour market conditions weakened towards the early part of 2009 and capital expansion activities slowed, businesses deferred or cancelled investment decisions following the sharp global economic downturn. Therefore, the amount of loan extended by foreign banks moderated from RM152.7 billion in September 2008 to RM150.9 billion towards the early part of 2009. With deposits placed and loan extended exhibiting moderation, the deposit-to-loan ratio of foreign banks remained above 130% against the backdrop of domestic economic contraction in 1Q 2009. In tandem with the economic recovery in the second half of 2009, loans extended by foreign banks turned around to record an expansion of 2.7% during the period and 11.5% in the first half of 2010. Given the expansion and coupled with moderation in deposits placed with foreign banks, the deposit-to-loan ratio of foreign banks declined further to register 129.6% by mid-2010 (Figure 4).

In contrast, the loans extended by the domestic banks expanded at a higher pace during the period relative to deposits received. This led to the deposit-to-loan ratio of domestic banks remaining within the range of 127-130% during the same period. However, after the crisis, loan extended and deposits placed with domestic banks exhibited a similar trend as that of the foreign banks (Figure 5).

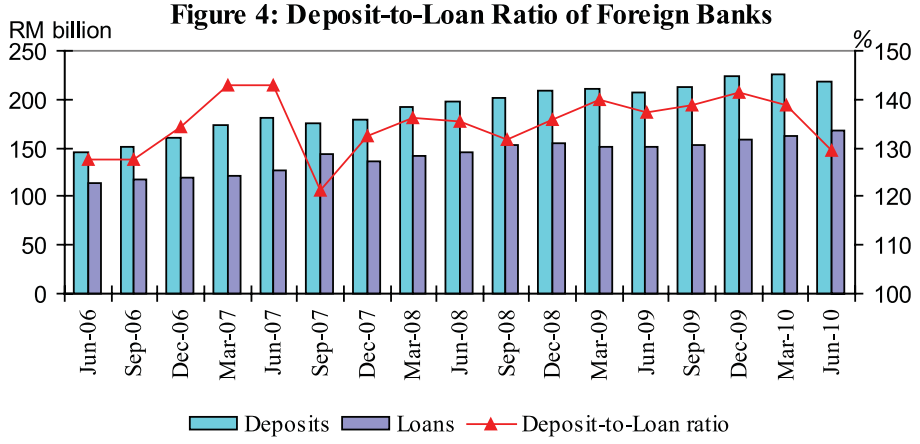
3. Granger causality test was performed in search of a direction of causation between deposits placed with foreign banks and deposits placed domestic banks utilising monthly data from June 2007 to September 2008. At 5% critical value, we cannot reject the hypothesis that deposits placed with foreign banks does not Granger cause deposits placed with foreign banks.

Table 2
Deposits Received and Loans Extended by Banks in Malaysia

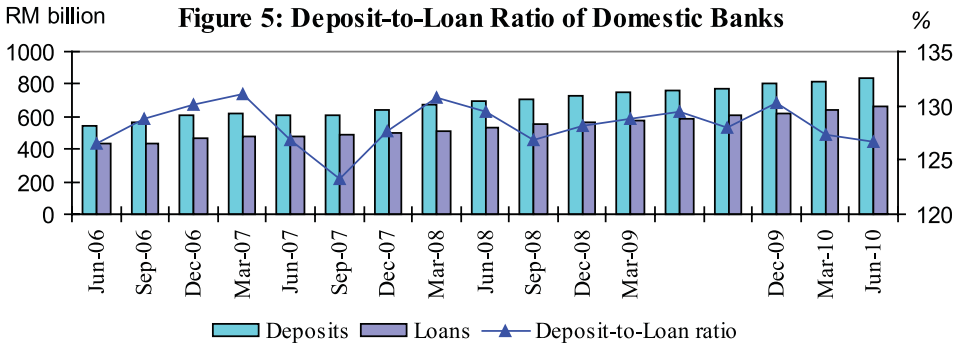
Annual Growth (%)		2006	2007	2008	2009	June 2010
Foreign banks	Deposits received	21.6	31.5	20.8	16.8	8.6
	Loans extended	9.6	14.2	13.5	2.7	11.5
Domestic banks	Deposits received	23.3	26.0	17.4	21.0	19.0
	Loans extended	11.6	7.3	13.4	9.4	12.8

Source: Bank Negara Malaysia

Figure 4: Deposit-to-Loan Ratio of Foreign Banks



Source: Bank Negara Malaysia



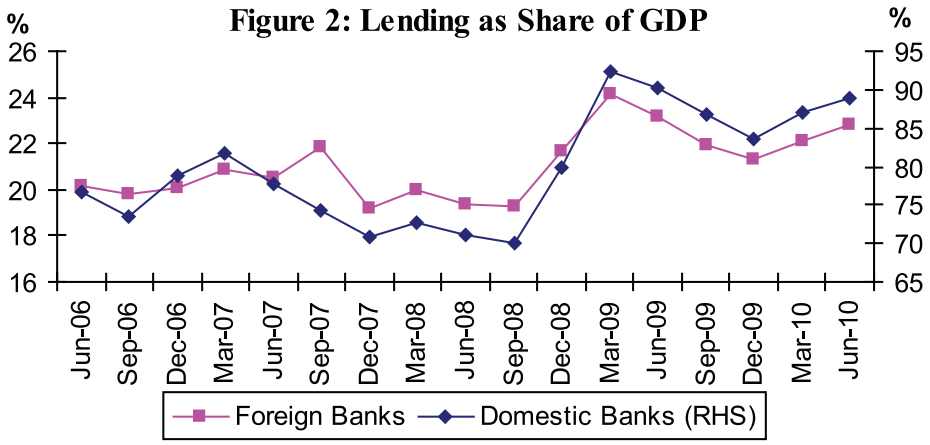
Source: Bank Negara Malaysia

The Malaysian banking system remained on a strong foundation when the global financial crisis erupted. The strong capitalisation of and ample liquidity in the banking system had ensured that the intermediation function remained uninterrupted, as reflected in the continued expansion of loans outstanding throughout the crisis. The total lending provided by domestic and foreign banks in Malaysia remained stable despite the liquidity squeeze experienced by the developed economies from late 2007.

However, the full impact of the global financial crisis, which spilled over to the real economy was only felt by the Malaysian economy in the first quarter of 2009. Arising from the significant deterioration in external demand and the decline in domestic demand, the Malaysian economy declined by 6.2% in the first quarter of 2009. Demand for financing declined significantly in the first half of 2009 amidst weaker domestic economic conditions as households and businesses remained cautious and reprioritised expenditure plans in anticipation of a more challenging employment outlook and economic environment. The loans extended by the foreign banks moderated gradually after end-2008, registering a growth of 3.4% in 1Q 2009 to -0.8% in 3Q 2009. Coupled with the contraction in the domestic economy for the first three quarters in 2009, lending by the foreign banks as a share of GDP moderated from 24.1% in 1Q 2009 to 21.9% in 3Q 2009 (Figure 2). With the Malaysian economy recording a contraction of 1.7% in 2009, lending by the foreign banks as a share of GDP stabilised to 21.3% by end-2009 as the demand for financing rebounded strongly in tandem with the improved prospects for growth.

In contrast to the foreign banks, loan extended by domestic banks remained firm throughout 2009, registering between 8% in the first quarter of 2009 to 7.4% by the end of the year. Moderation in the loans extended by the domestic

banks, resulted in lending by the domestic banks as a share of GDP record an average of 89.8% in the first three quarters of 2009 and subsequently to decline to 83.6% by end-2009. Notably, the domestic banks played an even more significant role in extending credit in Malaysia during and post-crisis period.



Source: Bank Negara Malaysia

2.2 Cross-border Lending and Foreign Claims[4] vis-a-vis Malaysia

Following Herrmann and Mihaljek (2010), the data series in this Section are taken from the Bank of International Settlement (BIS) locational and consolidated banking statistics. The database comprises data on the gross international financial claims and liabilities of banks, which are residents of a given country, on the bank and the non-bank sectors in other countries (hence the term "cross-border"). In the alternative set of the international banking data compiled by the BIS - the consolidated banking statistics – creditor data are reported on the nationality (home country) rather than residence (host country) basis.

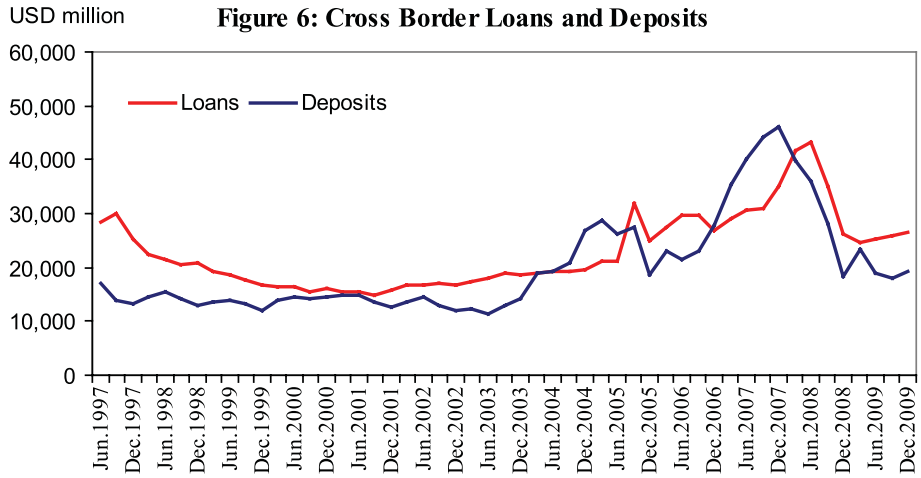
The main purpose of both data sets is to provide information on the role of the internationally active banks in intermediating cross-border capital flows. The locational data are more relevant for economies receiving external loans, because

4. Total foreign claims equals total international claims (cross-border claims in all currencies and foreign currency claims extended locally by foreign offices) plus locally extended claims in local currency. Foreign claims comprise loans, deposits placed, holdings of debt securities, equities and other on-balance sheet items. Note that foreign claims do not include other exposures, such as derivative contracts, guarantee and credit commitments.

the way the lending flows are measured is consistent with the balance of payments statistics. In particular, the "external loans" correspond to the "other investment" category of capital flows in the balance of payments statistics. This allows for better matching of cross-border bank flows and various macroeconomic and financial system characteristics in emerging markets. The consolidated data are more relevant for creditor countries, because the data provide indication of the size of international banks' country and liquidity exposures.

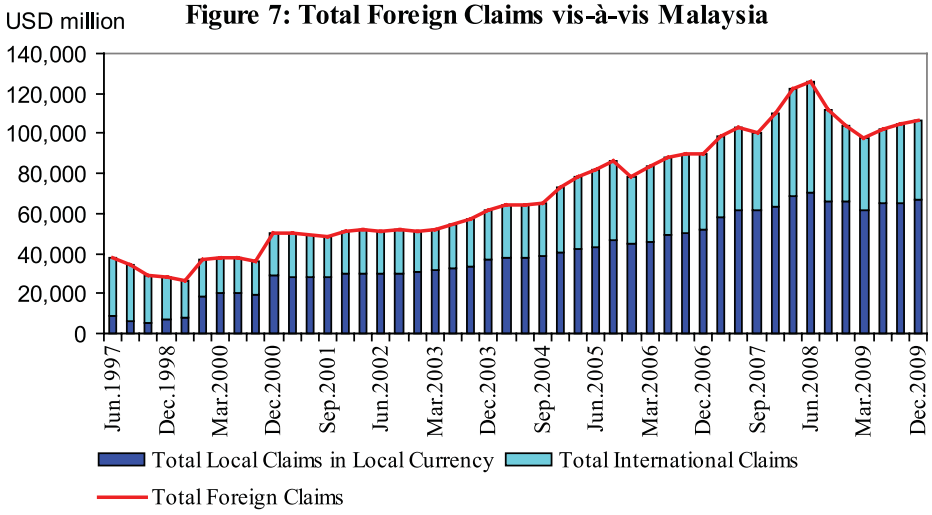
The expansion in cross-border financing was most pronounced in 2005 to 2007, growing by 40.5% by end-2007. The external positions and cross-border loans outstanding post the global financial crisis were higher than the positions during the Asian financial crisis. Cross-border loans accounted, on average, for about 80% of external positions of the BIS reporting banks vis-à-vis Malaysia.

Figure 6: Cross Border Loans and Deposits



Source: BIS Locational Statistics- Table 7A

Figure 7: Total Foreign Claims vis-à-vis Malaysia



Source: BIS Consolidated Statistics

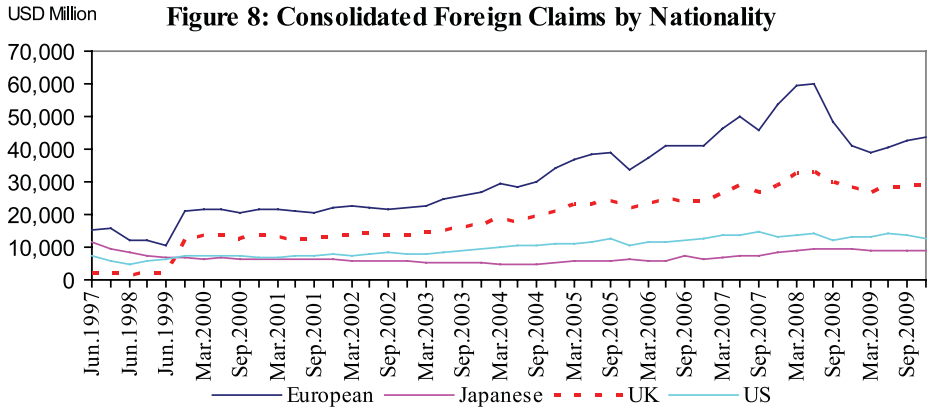
Using the BIS consolidated banking statistics, McGuire and von Peter (2009) documented that the internationally active banks' foreign positions have surged since 2000. The outstanding BIS reporting banks' foreign claims grew from USD11 trillion at end-2000 to USD31 trillion by mid-2007 with a year-on-year growth in foreign claims approaching 30% by mid-2007, rising from around 10% in 2001. This acceleration coincided with significant growth in the hedge fund industry, the emergence of the structured finance industry and the spread of 'universal banking', which combines commercial and investment banking and proprietary trading activities. Total foreign claims of international banks on Malaysia began to surge with a year-on-year growth of 5.8% by mid-2003 to 16.6% by mid-2007, or USD103 billion, driven largely by the growth in local claims in local currency (Figure 7).

Local claims in local currency (measured in USD) grew by 8.7% on a compounded annual basis to USD67 billion at end-2009 (end-2000: USD29 billion) while total international claims rose by 6.6% on a compounded annual basis to more than USD18 billion during the same period (end-2000: USD20.8 billion). Both local and international claims were observed to have grown on a similar trend since March 2004. However, scrutiny of the data over shorter horizon especially during the crisis period, indicated a contrasting trend. Total international claims surged sharply since September 2007, growing on an average of 30.3% over the next three quarters to reach USD56 billion in mid-2008. The marked increase in the total international claims after September 2007 may have been driven by the US dollar shortage in the global market reflected in the increase

in the spread of the inter-bank market rate due to the higher risk aversion among the internationally active banks. In contrast, the growth in local claims in local currency moderated from 22.7% as at end September 2007 to 14.2% as at mid-2008.

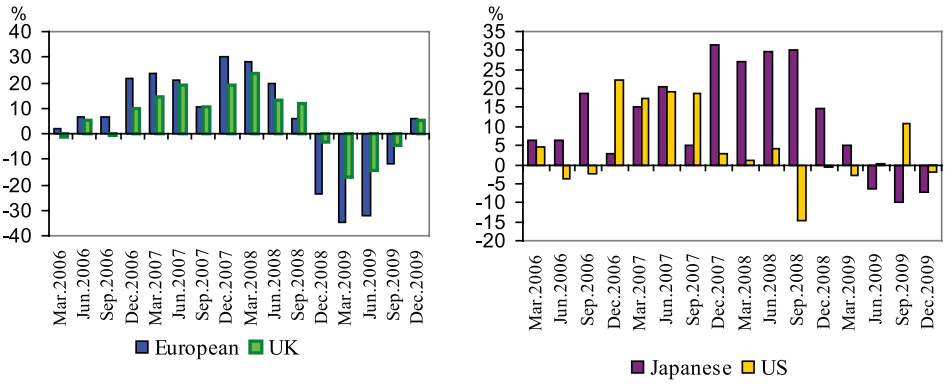
McGuire and von Peter (2009) found that European banks, in particular, accumulated foreign claims at a pace that outpaced domestic credit growth. At the same time, European banks also took on more foreign liabilities, reflecting a growing dependence on cross-border funding. Among the internationally active banks, European banks increasingly accounted for the bulk of the outstanding foreign claims on Malaysia followed by the UK and the US banks since the early part of 2000 (Figure 8 and Figure 9). Foreign claims by European banks on Malaysia increased at an average rate of 17% from 2006 through mid-2008. The growth became more pronounced amid the on-set of the crisis, reaching almost 30% between end-2007 and March 2008. However, foreign claims fell sharply towards the end of 2008 and declined further during the first half of 2009.

Figure 8: Consolidated Foreign Claims by Nationality



Source: BIS Consolidated Statistics

Figure 9: Annual Growth of Foreign Claims by Nationality



Source: BIS Consolidated Statistics

3. Literature Review

Foreign banks or multinational banks have a role to play in facilitating financial intermediation in the domestic financial system. However, formal studies on the specific roles of foreign banks in the development of Malaysian banking system have been scant. Detragiache and Gupta (2004) compare the performance of domestic banks and a group of long-established foreign banks during the 1997/98 crisis in Malaysia. They found that the foreign banks which are not specialised[5] in Asia performed better than the domestic and some foreign banks during the crisis, maintaining higher profitability due to their higher interest margins and lower non-performing loans. In addition, foreign banks (especially the non-Asia-oriented group) did not flee the Malaysian market in the immediate aftermath of the crisis. On the contrary, their lending and deposits contracted less than those of the domestic banks.

There is an intense ongoing debate as far as the consequences of increased internationalisation or globalisation of banking is concerned. There is evidence to support the view that a foreign bank's entry into the domestic banking system is a stabilising force for the host economy and will result in a more efficient allocation of scarce resources. Much of the analysis, however, has been in the context of shocks originating in the emerging markets (Cetorelli and Goldberg, 2009; Goldberg, 2009). The recent global financial crisis has highlighted several vulnerabilities of which foreign banks did play a role in the transmission of shock

5. Detragiache and Gupta (2004) distinguish specialised foreign banks as those foreign banks with Asia as the main region of the bank's operation.

to emerging economies. Cetorelli and Goldberg (2009) argue that global banks played a significant role in the transmission of the impacts from the recent crisis to emerging market economies through the flows of internal funds within the banking and cross-border lending channels. Using data from the banking system of developed economies, Cetorelli and Goldberg (2010) examine the liquidity shocks on emerging markets across Europe, Asia and Latin America by isolating lending supply from lending demand. They found that lending supply in emerging markets was affected via three distinct channels: a contraction in direct, cross-border lending by foreign banks; a contraction in local lending by foreign banks' affiliates in emerging markets; and a contraction in lending supply by domestic banks.

In contrast, De Haas and Lelyveld (2009) present evidence of the existence of internal capital markets that facilitate multinational banks' management of the lending activities by their subsidiaries. Their dataset includes 45 multinational banks from 18 home economies with 194 subsidiaries across 46 economies. Subsidiaries of multinational banks with financially strong parents are able to expand their lending at a faster pace. As a result of parental support, foreign bank subsidiaries also do not need to rein in their credit supply during a financial crisis, while domestic banks need to do so. Hence, the presence of such globalised banks in domestic economies acted as a stabilising force during times of financial distress.

The third strand of the literature analyses the effect of the presence of multinational banks on the aggregate bank lending of host economies. McGuire and Tarashev (2008) establish a link between cross-border loans and measures of bank health in host economies. They find evidence that the deterioration in a bank's health is associated with a decline in the growth of credit to 19 emerging markets in the 1990s. Takáts (2010) using the Bank of International Settlement (BIS) locational statistics, finds that the impact of supply factors (the volatility of the S&P 500 financial index) is stronger than that of demand factors (seasonally adjusted nominal GDP of each economy in USD) in causing the sharp decline in bank lending to 21 emerging market economies during the financial crisis.

4. Research Methodology and Empirical Results

The following Section presents the determinants of foreign bank lending using a standard panel estimation similar to Navaretti et al. (2010). Navaretti et al. (2010) examines whether multinational banks have a stabilising or a destabilising role during times of financial distress. With a focus on Europe, it

looks at how these foreign affiliates of the multinational banks have fared during the recent financial crisis. The paper finds that retail and corporate lending of these foreign affiliates have been stable and even increasing between 2007 and 2009. This pattern is related to the functioning of the internal capital market through which these banks funnel funds across their units.

In order to verify whether the internal capital market or the funding conditions of the global banks provided support functions in extending credits during the recent global financial crisis, we also examined whether the change in a bank's loan-to-deposit ratio during the recent crisis has been significantly different for foreign affiliates.

4.1 Model Specification and Data

Similar to Navaretti et al. (2010), we estimate the following specification on the data during the period of the recent global financial crisis.

$$\frac{CLoans}{CDeposits}_{ij,t} = \beta_0 + \sum \beta_k Dummy\_Crisis \times Dummy\_Foreign\_Bank(Country)_{ij} + \sum \beta_1 Dummy\_Foreign\_Bank(Country)_{ij} + \sum \beta_2 Bank\_Specific\_Char_{ij,t-1} + \varepsilon_{ij,t}$$

where the dependent variable, $\frac{CLoans}{CDeposits}$ is the ratio of customer loans and deposits of foreign bank *i* in Malaysia at time *t*. *Dummy_Crisis* is a dummy variable taking the value of one in the period of 2007, 2008 and 2009. *Dummy_Foreign_Bank* is a dummy variable taking the value of one if bank *i* in Malaysia of country *j* at time *t* is a foreign bank subsidiary of a holding company located in country *j* (or region) in parentheses. With most of the home countries of the foreign banks in Malaysia being located in North America, Europe and Asia, when bank *i* is located from those regions, the region dummy takes the value of one. *Bank_Specific_Char* are characteristics of bank *i* of country *j* in Malaysia, at time *t-1*. The model not only tests the effect of foreign bank subsidiaries' financial characteristics on their loan-to-deposit ratio, but it also tests whether the access to the internal capital market will affect their loan-to-deposit ratio.

In order to simplify the country factors, a region dummy is used in another equation to replace the country dummy as follows:

$$\frac{CLoans}{CDeposits}_{ij,t} = \beta_0 + \sum \beta_k Dummy\_Crisis \times Dummy\_Foreign\_Bank(District)_{ij} + \sum \beta_1 Dummy\_Foreign\_Bank(District)_{ij} + \sum \beta_2 Bank\_Specific\_Char_{ij,t-1} + \varepsilon_{ij,t}$$

The model uses dummies to capture systemic differences among panel observation results in what is known as a fixed-effect model using pooled data. The data set runs from January 2000 to December 2009, amounting to 1440 monthly observations comprising 12 foreign banks in Malaysia.

The test of the effect of the global financial crisis on the internal capital market of cross-border banks is based on the sign and significance of each of β_2 coefficients with k ≠ 1 and 2. A positive and significant value would imply that foreign banks with access to the internal capital market would reduce their loan-to-deposit ratio less than the control group of banks[6], and therefore would have a stabilising effect on a potential shock caused by the financial crisis.

As for the factors of bank characteristics, we have considered the ratio of return on assets (ROA) as a measure of profitability. If β_2 is positive and significant, it may imply that banks with more profit would extend more credits. On the contrary, if β_2 is negative and significant, it means that unprofitable banks may assume more credit risks to gain greater profits. Therefore, the expected sign of the variable is indeterminate. We also considered leverage (total equity over total assets, *LEVERAGE*) as a measure of the bank's risk aversion. A low leverage ratio could mean relatively risk-adverseness and the bank may extend credit more conservatively during crisis period, implying a negative relationship between bank's leverage and loan growth. In contrast, a low leverage ratio could also represent liabilities constraints being less severe so that banks have the capability to expand lending. Therefore, the sign of leverage ratio is indeterminate. Finally, we examine the implication of the bank's asset size (*ASSETS*) and growth (*DLOG(ASSETS*)) for loans. Table 3 summarises the definition and sources of all the variables included in the model.

6. Navaretti et al. (2010) retain a control group of stand-alone banks that represent their benchmark for banks that have no access to the internal capital markets.

Table 3
Data Definition and Sources

Variable	Definition
LOG(Lending_Dep)	The logarithm of loans over deposits of bank *i* in Malaysia at time *t*.
DLOG(Lending_Dep)	The difference of LOG(Lending_Dep)
Dummy_Crisis	A dummy variable taking the value of one in the period of 2007, 2008 and 2009.
Dummy_Country(*i*)	Dummy variables taking the value of one in if bank *i* in Malaysia at time *t* is a foreign bank subsidiary of a holding company located in the foreign country (*j*). These foreign countries include United States (USA), United Kingdom (UK), Thailand (THAI), Singapore (SG), Japan (JPN), Germany (GER), China (CHINA) and Canada (CAN).
Dummy_Region(*r*)	Dummy variables taking the value of one if bank *i* is in Malaysia at time *t,* is a foreign bank subsidiary of a holding company located in the region (*r*). The regions are North America, Europe and Asia.
ROA_LAG	The ratio of return on assets at time *t-1*.
D(ROA_LAG)	The difference of ROA_LAG
LOG(ASSETS_LAG)	The logarithm of bank *i* assets at time *t-1*.
DLOG(ASSETS_LAG)	The difference of LOG(ASSETS_LAG)
LEVERAGE_LAG	The logarithm of bank *i* equity over assets at time *t-1*. It also measures bank *i* risk aversion and the capital constraints of the bank.
D(LEVERAGE_LAG)	The difference of LEVERAGE_LAG

Source: Bank Negara Malaysia

4.2 Empirical Results

Table 4 shows the estimation results of the models using the country and region dummy. None of the interaction coefficients between the crisis dummy and country dummy (or region dummy) is significant. The results suggest that the effect of the global financial crisis on the internal capital market of cross-

border banks may not exist in all of the foreign banks' parent home countries and the region of North America, Europe and Asia. These findings are inconclusive in determining whether all foreign bank subsidiaries with access to the internal capital market provided stabilising effects on Malaysia in response to the shock caused by the global financial crisis. The findings could also suggest that the foreign banks in Malaysia may not be reliant on the support of internal capital of their parents.

The coefficient of *D(ROA_LAG)* is negative and statistically significant in both models. Given with the negative signs, less profitable banks may assume more credit risks to garner bigger profits. In addition, the positive and statistically significance of the coefficient of *DLOG(ASSETS_LAG)* implies that foreign banks with bigger assets would extend more credits. However, we found that *D(LEVERAGE_LAG)* has a negative but negligible effect.

The adjusted-R squared of both models was 1.5% and 1.8% of variance loan-to-deposit ratio of foreign banks respectively. A low adjusted-R squared could be a result of the small sample size. Nonetheless, we have identified which determinant does affect the loan-to-deposit ratio of the foreign banks during the crisis period. The value of Durbin-Watson statistics of close to 2 in both models suggests that autocorrelation correction is not needed.

Table 4: Panel Least Square Test - Fixed Effects

(Dependent variable is the difference of the logarithm of loans over deposits of bank)

Period (Adjusted): 2001 M4 to 2009 M12		
	Model by Country Dummy	Model by Region Dummy
DCRISIS*DUMMY_CAN	0.025 (0.952)	
DCRISIS*DUMMY_CHINA	0.006 (0.241)	
DCRISIS*DUMMY_GER	0.029 (1.123)	
DCRISIS*DUMMY_JPN	0.007 (0.279)	
DCRISIS*DUMMY_SG	0.000 (-0.007)	
DCRISIS*DUMMY_THAI	-0.015 (-0.595)	
DCRISIS*DUMMY_UK	0.001 (0.072)	
DCRISIS*DUMMY_USA	0.011 (0.721)	
DCRISIS*DUMMY_NORTH_AMERICA		0.014 (1.011)
DCRISIS*DUMMY_ASIA		0.000 (-0.037)
DCRISIS*DUMMY_EUROPE		0.011 (0.707)
D(ROA_LAG)	-0.002** (-2.030)	-0.002** (-2.032)
D(LEVERAGE_LAG)	-0.003 (-1.245)	-0.003 (-1.218)
DLOG(ASSETS_LAG)	0.018** (2.332)	0.018** (2.348)
AR(1)	-0.069***	-0.069***
Constant	-0.007* (-1.686)	-0.007* (-1.689)
Number of panel observations	1260	1260
Adjusted R^2	0.015	0.018
Durbin-Watson	2.125	2.124

Note: In the panel, t-statistics are reported in parenthesis. The symbol *** indicates a significance level of 1% or less, ** indicates 5% and * indicates 10%.

5. Policy Recommendations and Conclusion

As the move towards greater international financial integration persists, the potential for risk transmission and contagion across borders will also be heightened. Against this background, this paper aims to understand the transmission of shocks from the global market to the Malaysian economy via the balance sheet of foreign banks, focusing in particular on the lending of foreign bank affiliates during the global financial crisis.

Malaysia's banking system has a sizeable presence of foreign players which accounts for approximately a fifth of the market share of the banking system assets. In terms of lending activities, foreign banks recorded approximately double-digit annual loan growth between 2006 and 2008 before showing signs of moderation in 2009.

Cross-border loans accounted on average for about 80% of external positions of the BIS reporting banks vis-à-vis Malaysia. Total foreign claims of international banks on Malaysia began to surge from mid-2003 to mid-2007, driven largely by the growth in local claims in local currency. The bulk of the outstanding foreign claims on Malaysia is dominated by European banks which became more pronounced amid the on-set of the crisis.

This paper attempted to answer the questions of whether the internal capital market or funding conditions of global banks provided support to the subsidiaries in extending credits during the recent global financial crisis, by using a standard panel estimation on monthly data of 12 foreign banks in Malaysia for the period of January 2000 to December 2009. The results indicate that firstly, there is no robust evidence supporting the existence of the internal capital market effect on the subsidiaries of global banks with home countries and in the regions of North America, Europe and Asia. These findings are inconclusive in determining whether all foreign bank subsidiaries with access to internal capital from parent companies provided stabilising effects on Malaysia from shocks caused by the global financial crisis. The inconclusive result could possibly be due to the fact that all foreign banks in Malaysia are locally incorporated and the lending and deposits taking activities are mainly directed towards the domestic economic activities. Secondly, unprofitable banks may assume greater credit risks to gain bigger profits while foreign banks with bigger assets size would extend more credits. This supports the well accepted notion that profitability and assets size are important factors in driving foreign bank lending activities.

While cross-border lending and internal capital markets could be the channels for international shock transmission, our empirical study suggests the importance of national authorities in reducing the concentration of foreign banks from specific countries or regions. The findings of this paper also bring to the fore, the importance of prudential regulations. Global recommendations on cross-border bank supervision and resolution are much discussed and debated currently. Among the suggestions are for the national authorities to promote better coordination in cross-border resolutions; strengthen risk mitigation mechanisms that reduce contagion and systemic risks during a crisis; and for home and host authorities to agree on arrangements that would ensure the timely production and sharing of needed information both for purposes of contingency planning during normal times and for cross-border crisis management and resolution during times of distress. Inevitably, these recommendations need to be further strengthened and adapted to suit the local context. This would require much by way of the harmonisation and coordination of national laws. In tandem with the more extensive cross-border operations of the major domestic financial conglomerates, greater collaboration between the Bank and host regulators within the region has also become a key priority to support the effective supervision of financial groups. The Bank is also actively participating in supervisory collaboration to facilitate the timely sharing of information and improved cross-border collaboration with other home and host supervisors.

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Chapter 6

INTERNATIONAL AND CROSS BORDER BANK LENDING IMPLICATION IN SEACEN: BALANCE SHEET PERSPECTIVE IN MYANMAR

By
Win Htein Min[1]

1. Introduction

1.1 Background

Myanmar is the largest country in South East Asia with a total land area of 261,228 square miles (677,000 square kilometers). The population of Myanmar in the year 2008-2009 (provisional data) is estimated at 58.4 million. After 1985-1986, the value of export sdecreased whereas the price of imports became higher and hence, imports of raw materials and spare parts declined leading to a contraction in domestic production. Consequently, the Gross Domestic Product (GDP) declined by 15.8% during the period from1986-1987 to 1988-1989 while that of per capita GDP also declined by 20% during that period.

In order to induce investments with accompanying technology and capital to exploit the rich natural resources endowment and to speed up the development process, the Foreign Investment Law was enacted in 1988. This main aim of the Law is to provide incentives and rights to foreign investors. Following this Law, the Myanmar Citizens Investment Law was enacted, enabling Myanmar's private entrepreneurs to enjoy privileges on tariffs and taxes.

1.2 Objective of Study

Almost SEACEN economies were affected by the global financial crisis to varying degrees and Myanmar was not immune from its effects. However, as Myanmar is not yet fully integrated into the global economy, the financial crisis has not directly affected its economy. Myanmar may have to face indirect adverse effects of the crisis such as declines in trade, foreign investments and tourism.

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In these aspects, it is expected that the effects will not be as bad for our economy as others.

Within the context of this study, the development of domestic and foreign bank lending, the strategies for attracting foreign direct investments (FDI) will be reviewed. This paper will also analyse the major determinants of both claims and loans of foreign banks following crisis in Myanmar.

The Central Bank of Myanmar's major responsibilities includes inspecting, supervising and regulating the financial system. Another important goal is to ensure the soundness and development of the financial system. Currently, the banking system is quite rudimentary with mainly commercial banks. Attention is thus given to supervision and regulation of the commercial banks.

1.3 Macroeconomic Performance in Myanmar

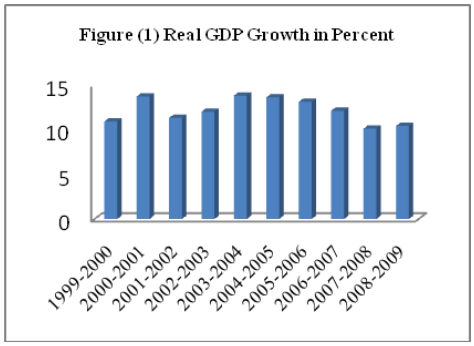
After shifting the economic system into a market-oriented one, various reform measures have been taken with a view to stimulating and accelerating the economy's development. Due to the consistent and coherent manner in which the reform measures were taken and also due to the fundamental strength of the economy, the downward trend of the economy had been halted and recovery achieved as indicated by GDP growth rates achieved in 1989-90 and 1990-91 despite problems and difficulties that usually accompany reforms.

The First Short-term Four Year Plan (1992-1993 to 1995-1996) has been implemented with a very satisfying average annual growth rate of 7.5%. During the Second Short-term Five Year Plan (1996-1997 to 2000-2001), real GDP growth in 1997-1998 and 1998-1999, slowed down to an average annual rate of 6.23 %. This was partly a result of the contagion effects of the regional financial crisis. In FY 1999-2000, it increased to more than 10%, with the agriculture sector leading the expansion. In addition, the manufacturing and processing, energy and mining sectors have also grown rapidly.

In the Third Five Year Short Term Plan spanning from 2001-2002 to 2005-2006, significant growth have been achieved with the high average annual growth rate of 13.09 %. The agriculture sector remains the driving force of the economy's growth.

Myanmar is now implementing the fifth year of Fourth Five-Year Short Term Plan spanning from 2006-2007 to 2010-1011. Due to concerted efforts, remarkable growth rates were recorded at 13.1 % in 2006-2007, 12.1 % in

2007-2008. However, growth declined to 10.1% in 2008-2009 due to the slight decrease in the Agriculture Sector which was hit by Cyclone Nargis on 2 May 2008. It slightly increased to 10.4% in 2009 due to the growth of major economic sectors such as the 5.4% growth in agriculture sector, 17.6 % in industrial sector and 11.9 % in services sector, respectively. The agriculture sector took a 31.9% share in the 2009-2010 GDP. Myanmar has huge potential for higher growth with many other sources of growth, including oil and gas, fishery, forestry, gems and services sector improvements. Therefore, the Fourth Five-Year Short Term Plan was drawn with an average annual growth rate of 12%.



Source: Ministry of Planning and Economic Development

The share of the service sector in Gross Domestic Product (GDP) decreased slightly from 39.6 % in 1991-92 to 34.7 % in 2005-06 in the presence of the market oriented reforms. However, the agriculture sector is still the most important sector, accounting for about 50% of GDP at current price and employing about 60% of labour force.

Table 1
Share of Service Sector in GDP and Growth Rates in Myanmar (Percentage)

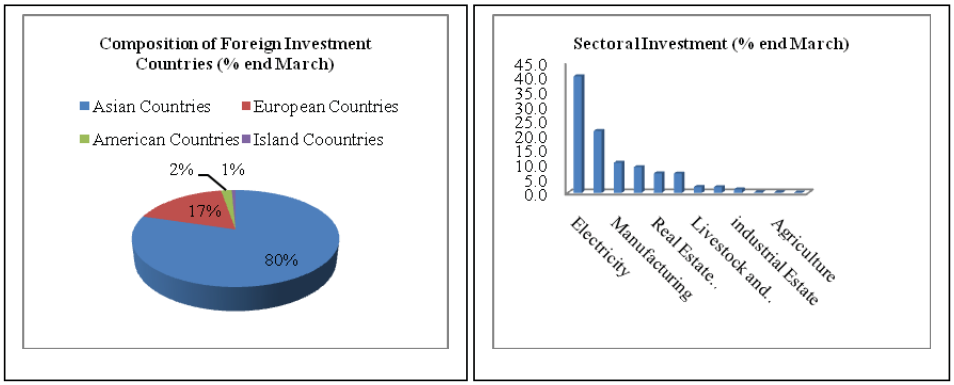
Year	Share of Sectoral in GDP				Annual Growth Rate (%)		
	Agriculture	Industry	Services	Total	Agriculture	Industry	Services
1991-92	47.0	13.4	39.6	100	-	-	-
1995-96	45.0	15.6	39.4	100	6.4	11.6	7.3
2000-01	42.8	17.7	39.5	100	7.3	11.4	8.5
2005-06	50.0	15.3	34.7	100	9.9	23.7	13.9

Source; Central Statistical Organization, Statistical Year Book, Ministry of Planning and Economic Development, Myanmar

The inflation rate has been decreasing significantly since 1999-2000 from 16.09% to (-) 1.6% in 2000-2001, the first year of the Third Short-Term Five Year Plan. The second year, it rose again and stood at 58% in 2002-2003 which gradually declined to 24.9% in March 2004 and dropped to 3.8% in 2004-2005. Soaring global oil prices during that period did not have much effect on domestic prices as the government sold energy at a subsidised rate. However, due to the increase in government salaries as well as the abolishment of subsidised energy prices, it rose again in 2007- 2008 to 28.8 %. Although inflation has returned to the low single digits of 9.2 % in 2008-2009, due to the reversal in the trend of ing rnational food and fuel price, declining domestic demand as credit to the private sector and public sector moderated caused a sharp drop in food and market fuel prices.

The Foreign Investment Law which was enacted in November 1988 has permitted foreign investments since 1989-90. The inflow of foreign investments started to contract since 1997-98, mainly due to the indirect impact of the Asian financial crisis and reductions in investment of some developed economies. Under the Foreign Investment Law, 423 enterprises from 29 economies were permitted to invest in Myanmar with a total amount of US$ 15,726 million up to the end of March 2009.

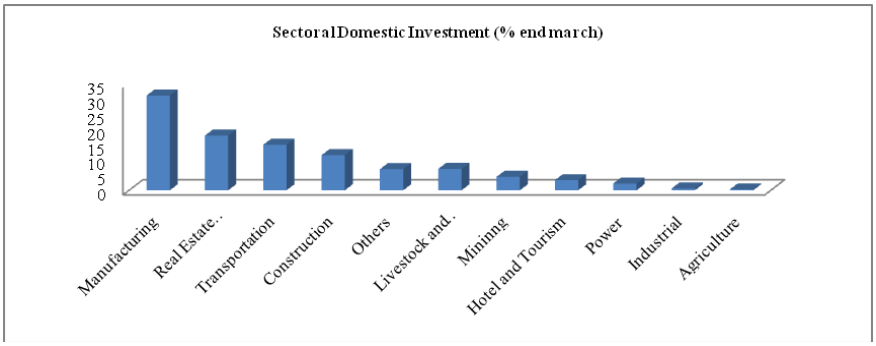
Figure 3: Composition of Foreign Investment Countries and Sectoral Investment



Source: Ministry of National Planning and Economic Development

Domestic investments by enterprises in accordance with the Myanmar Citizen's Investment Law which was enacted in 1994 has been increasing. There are 700 enterprises permitted to invest with the amount of Kyat 167.79 billion under the Myanmar Citizen Investment Law up to December 2008.

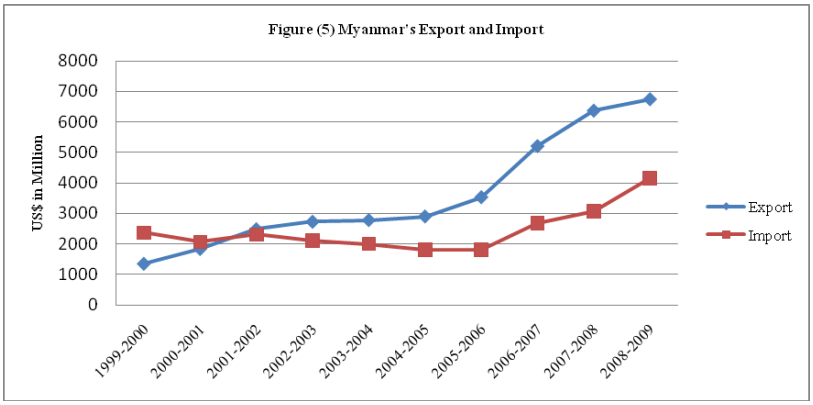
Figure 4: Sectoral Domestic Investments



Source: Ministry of National Planning and Economic Development

The trade sector's growth performed impressively under the market oriented economy. Trade value increased from US$ 400 million in 1988-1999 to US$ 11.77 billion in 2009-2010. Myanmar experienced deficits in the external sector before 2002-2003 and achieved surplus starting from 2004-2005 due to the government's implementation of export promotion measures and systematic management of the foreign trade system. The demand for Myanmar's forestry, marine and agricultural products in foreign markets was stronger than before. Both exports and imports decreased by 22.3 % and 14.5% in 2007-2008 and increased again by 5.85% and 32.92% in 2008-2009 and the annual average growth of exports and imports in 2009-2010 continued to increase by 17.7% and 21.1% respectively.

Myanmar's major trading partner economies are Thailand, India, China and Singapore and so foreign trade is mainly with Asian economies (exports 70% and imports 90%). The share of foreign trade with ASEAN constitutes an average share of about 54% in total exports and 46.2% in total imports. Among Asian economies, trade with China is highest followed by India and Japan. Gross international reserves are adequate to finance 11.7 months of imports cover due to increases in export earnings and other capital flows.



Source: Central Bank of Myanmar

Myanmar has a fixed exchange rate system. The Myanmar currency, Kyat is officially pegged to the SDR at Kyat 8.50847 per SDR 1. Myanmar applies margins of 2% to spot transactions, based on the fixed Kyat-SDR rate. Although Myanmar has kept foreign exchange control, it has the vision to make its currency convertible in the long run.

2. Analysis of Foreign Banks' Involvement Pre and During the Global Financial Crisis in Myanmar

2.1 Myanmar Banking Structure

The financial system in Myanmar has been restructured since 1989-90 at the inception of the market oriented economic system. In order to establish a sound and efficient financial system, which would facilitate the conduct of market economic system, new laws were promulgated in banking sector. The banking sector consists of the Central Bank, four state-owned banks, eight semi-government banks, eleven private-owned banks and thirteen representative offices of foreign banks.

Central Bank of Myanmar implements a banking sector development strategy with three phases as follows;-

Phase 1 :- promoting institutional development;
- promoting skills and efficiency among the domestic banks within a medium term, while foreign banks are allowed to establish their representatives offices. Initially foreign banks are allowed to open representative offices which may work only as liaison offices of their head quarters;

Phase 2 :- permitting selected domestic banks to establish joint venture banks with foreign banks;

Phase 3 :- permitting foreign banks to open bank branches and operate banking activities in Myanmar.

2.1.1 State Owned Banks

The Myanma Economic Bank which has the largest commercial banking network in Myanmar maintains a deposit base (over Kyat 70 billion) consisting of and heavily weighted towards mobilising domestic savings. The bank's loan portfolio consists of 70% to the private sector. It has a total number of 314 branches throughout the economy while its paid up capital amounts to Kyat 220 million.

The Myanma Foreign Trade Bank concentrates on international banking business, rendering banking services for exports, imports, guarantee issuance, remittances, credit card services, sales and purchases of foreign currencies and

traveler's cheques, collection of foreign currency cheques and drafts. The Myanma Foreign Trade Bank maintains correspondent relations with 148 foreign banks from 52 economies.

The Myanma Investment and Commercial Bank, as mentioned above, specialises in corporate and investment banking for local customers and foreign companies. The Bank accepts deposits in both kyat and foreign exchange. It has established correspondent relations with 250 foreign banks from all parts of the world, of which 35 are Myanma Investment and Commercial Bank's depository institutions.

The Myanma Agricultural and Rural Development Bank, the successor of the State Agriculture Bank of 1953, continues to emphasise on loan provision and rendering services to the agricultural sector, amid a broader scope of activities. The Myanma Agricultural and Rural Development Bank has a countrywide network of 14 regional offices, 165 branches and 47 agency offices providing short and long-term credit to over 2 million farmers. The title of the Bank was changed to the Myanma Agricultural Development Bank.

2.1.2 Private Banks

With the promulgation of the Central Bank of Myanmar Law and Financial Institutions of Myanmar Law, the government allowed the establishment of private banks, as part of the banking sector reform process. Private banks have played an increasingly substantial role in financial sector development as well as the nation's economic development. This has been reflected in a growing share of deposits held by the local private banks, and substantial increase of bank deposits at an average rate of 50% per annum. Private banks hold about 60% of total deposits and total loans in recent years. To date, there are 19 domestic private banks operating in Myanmar. By the end of October 2010, there were 257 branches of domestic private banks.

Table 2
List of Private Banks as of end-October 2010

Yoma Bank	Myanma Livestock and Fisheries Development Bank*
Myanmar Oriential Bank	Sibin Tharyar Yay bank*
Kanbawza Bank	Myanmar Citizens Bank*
First Private Bank	Yangon City Bank*
Tun Foundation Bank	Yadanarbon Bank*
Asia Yangon Bank	Asia Green Development Bank
Co-operative Bank	Ayarwady Bank
Innwa Bank*	United Amara Bank
Myawaddy Bank*	Myanma Apex Bank
Myanma Industrial Development Bank*	

*Semi-government Bank
Source: Central Bank of Myanmar

2.1.3 Representative Offices

There are currently 13 foreign banks, which have opened representative offices in Myanmar. These offices cannot conduct any commercial banking business yet. Some of these representative offices often monitor Myanmar based projects for which their parent banks have extended financing while some assist in the smooth operations of commercial transactions between Myanmar banks and their parent banks.

Table 3
List of Representative Office of Foreign Bank as of end-October 2010

DBS Bank	First Oversea Bank
United Overseas Bank	First Commercial Bank
Oversea-Chinese Banking Corporation	CIMB Bank Berhad
Malayan Banking Berhad (MAY BANK)	Sumitomo Mitsui Banking Corporation
Bangkok Bank	The Bank of Tokyo-Mitsubishi UFJ
National Bank	Bank for Investment and Development of Vietnam
Brunei Investment Bank	

Source: Central Bank of Myanmar

2.2 Recent Banking Sector Development

During the socialist period from 1962 to 1988, Myanmar had practiced a centrally planned economic system with no foreign investments. Since 1988, Myanmar has transformed its economic system from a centrally planned one to a market oriented system, with special emphasis made on stepping up investments. One of the most important new measures undertaken was the promulgation of the Foreign Investment Law in November 1988 which was immediately followed by an endorsement of its procedure in December. The main aim of this Law was to provide incentives for the inflow of foreign capital and technology, which is essential to expedite the development of the national economy.

In Myanmar, liberalisation in the financial sector has allowed for sector participation in financial businesses, in accordance with the new banking laws enacted in 1990. The new banking laws contain all necessary provisions to govern and nurture the banking system and are also consonant with internally accepted banking principles. Enhancing the efficiency of financial services is an important contributory factor for economic development. Consequently, fiscal and monetary policies that facilitate the development of the economy were laid down and implemented. In 1988-1989, there were four state-owned banks. However, in line with the market economic system, private entrepreneurs were allowed to participate in banking services and hence, up to end of March 2010 there were four state-owned banks, 15 private banks with 233 branch offices in operation. Moreover, 13 representative offices of foreign banks were also operating as representative offices for information and marketing purposes.

The financial system in Myanmar is strongly dominated by banks, while the insurance sector and the securities market are nascent. As of March 2010, the total assets of the banking system stood at Kyat 2,929.87 billion. The banking sector consists of 32 institutions, of which 4 are State Banks, 15 local banks and 13 representative offices of foreign banks.

Table 4
Myanmar Banking System, as of end-March 2010

Type of Banks	Number of Institutions	Assets (Billion of Kyat)	Assets as Percentage of GDP (%)
State Banks	4	1,037.56	3.07
Private Banks	15	1,891.31	5.06
Representative Offices	13	-	-
Total	32	2,928.87	8.68

Source: Central Bank of Myanmar

The State Banks serve the specialised needs of the economy as indicated by their names - Myanma Economic Bank, Myanma Foreign Trade Bank, Myanma Investment and Commercial Bank, and Myanma Agricultural Development Bank. They are complex financial institutions, which combine banking with directed lending and other quasi-fiscal operations and, in some cases, certain central banking and treasury operations.

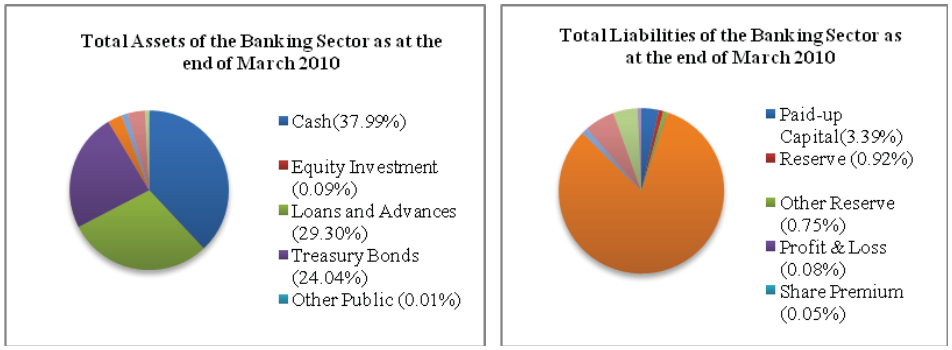
Compared to the size of Myanmar and its economy, the current formal financial sector in the economy is exceptionally small. Between 2008-2009 and 2009-2010, total assets of the banking system as a percentage of GDP fell from 9.2% to 8.7%. This is low for an economy that officially grew at a real rate of 11.9 %. In many other economies, the total assets of the banking system exceed GDP, and normally the growth of the banking sector exceeds the GDP growth.

In FY2009-2010, the total assets of the banking sector increased Kyat 3,851,174.76 million from Kyat 2,684,104.13 million in FY 2008-2009. In FY 2008-2009, the banks held most of their funds in liquid assets, followed closely

by loans and advances. Cash and bank balances due from banks, which increased by 29.42 % from Kyat 1,130,375.52 million in FY 2008-2009 to Kyat 1,462,929.23 million in FY 2009-2010.

On the other hand, loans and advances accounted for 29.30% of total assets in FY 2009-2010. At the same time, banks sourced 82.12% and 4.81% of their funds from deposits.

Figure 6: Aggregate Balance Sheet of Banking Sector

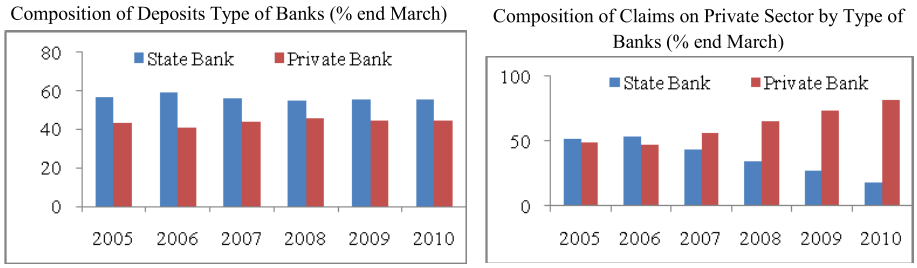


Source: Central Bank of Myanmar

The Central Bank of Myanmar, in ensuring stability and soundness of the banking system, is continuously strengthening the supervisory and regulatory controls during 2006-2007, 2007-2008 and 2008-2009. The present Central Bank rate has been 12% since April 2006.The Central Bank of Myanmar, on behalf of the government, has issued 3 year and 5 year Government Treasury Bonds since 1993 as indirect instruments of monetary control and also for the promotions of savings. Starting in 1992, private domestic banks were again allowed to operate

in Myanmar. After a period of strong economic growth, private banks dominated the banking sector before the 2003-2004 banking crisis.

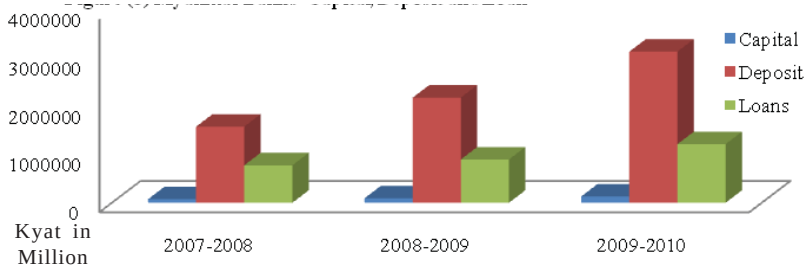
Figure 7: Composition by Type of Bank



Source: Central Bank of Myanmar

During 2007-2008, 2008-2009 and 2009-2010 the financial sector in Myanmar, particularly the banking sector, was relatively stable and charted good progress. Consequently, the amount of capital as well as deposits and loans have increased. The sum of paid-up capital of private banks increased 27.76 %, 30.86 % and 22.9 % respectively. The increase in paid-up capital is mainly due to increased contributions to capital by private banks. Deposits and loans and advances also rose. The steady growth of deposits and loans and advances indicate that the banking sector was developing stably.

Figure 8: Myanmar Banks' Capital, Deposit and Loan



Source: Central Bank of Myanmar

2.3 Foreign Banks' Involvement in Myanmar

A branch of the Presidency Bank of Bengal was established in Yangon in 1861 with the second branch opening in Mawlamyaing in 1865, and subsequently a third branch in Sittwe in 1866. These banks acted as exchange banks for export and import businesses. In 1921, the Imperial Bank of India was converted into the Central Bank of Burma, under the Imperial Bank of India Act 1920. In 1934, the government of India passed the Reserve Bank of India Act and created the Reserve Bank of India as the new central bank, placing its branch in Rangoon (Yangon) in 1935. Commercial banking, mainly conducted by some European and Indian banks prevailed during that time with banking business centered only in Yangon.

Before World War II, there were some trading of equity securities in Myanmar on the Yangon Stock Exchange. A limited number of British and European stocks were traded by seven European firms in the secondary market within an informal over-the counter framework. There were no Myanmar companies listed in that fledgling market. Eventually, the Yangon Stock Exchange failed to take off following the outbreak of World War II.

The Yangon branch of the Reserve Bank of India was closed on 31 March 1947. On 1 October 1947, the Union Bank of Burma Act was promulgated and the Union Bank of Burma was established as the Central Bank under this Act. It commenced operations on 3 February 1948, just after the achievement of Independence in January 1948.

After independence was secured, Myanmar pursued the course of a market economic system with government control over some key economic sectors such as railways, air transport, postal services, electricity supply, etc. Under this economic environment, the financial sector developed with the presence of a central bank, one state-owned commercial bank, one state-owned agricultural bank, one state-owned industrial bank, one state-owned insurance institution, some private domestic banks, branches of foreign banks and foreign insurance companies. By the end of 1962, there were ten private banks and thirteen foreign bank branches in the country.

In 1962, the Revolutionary Council Government assumed state power and it introduced changes in the political and economic systems, transforming the nation into a socialist country based on a centrally planned economic system.

Table 5
List of Private Banks and Foreign Banks as of end-December 1962

Sr No.	Name of Private Banks	Sr. No.	Name of Foreign Banks
1	Ava Bank Ltd.	1	Central Bank of India Ltd.
2	Union of Burma Co-operative Bank Ltd.	2	Chartered Bank Ltd.
3	Bank of Upper Burma Ltd.	3	Habib Bank (Overseas) Ltd.
4	Burmese National Bank Ltd.	4	Hongkong and Shanghai Banking Corp;
5	East Burma Bank Ltd.	5	India Overseas Bank Ltd.
6	Rangoon Bank Ltd.	6	Mercantile Bank Ltd.
7	Export Import bank Ltd.	7	National and Oran klay's Bank Ltd
8	Burmese Economic Bank Ltd	8	Netherlands Trading Society
9	Tavoy Bank Ltd	9	Overseas-Chinese Banking Corp;
10	Central Commercial Bank of Burma Ltd	10	Punjab National Bank Ltd
		11	United Commercial Bank Ltd
		12	Bank of China
		13	State Bank of India

In order to implement the centrally planned economic system, all private banks, including those owned by foreign nationals, were nationalised on 23 February 1963.

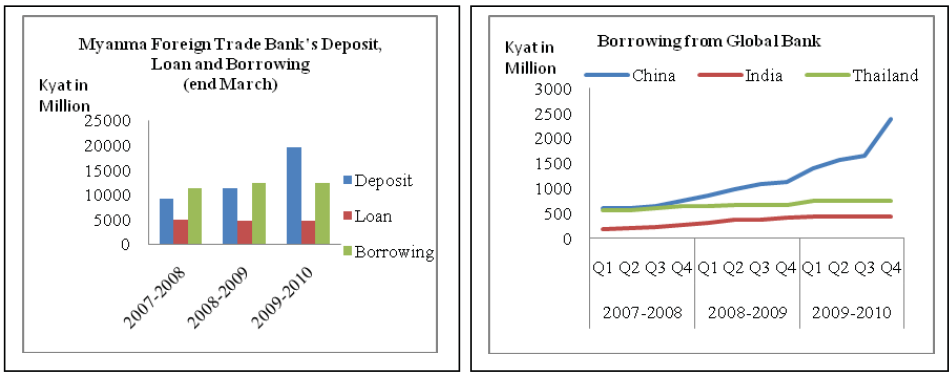
Foreign-owned institutions were by law not allowed to undertake banking operations in Myanmar. In addition, foreigners were not allowed to own shares in domestic banks. Accordingly, the only way for foreign banks to have a presence in the economy was to open a representative office for information and marketing purposes. In the early years of the reform era, a great many of these were establish. Since then, however, their numbers have dwindled considerably and no establishment of joint ventures has been permitted.

The Myanma Foreign Trade Bank specialises in conducting foreign exchange operations concerning external trade and non-trade Foreign Exchange operation. These include executing contracts relating to receipts and payments of foreign

exchange and ntaining clearing account under the bi-lateral counter trade agreement. Effective competition between state banks and private banks appears weak. The Myanma Foreign Trade Bank is not really a bank at all but rather a government agency in charge of distributing scarce foreign exchange funds allocated in the state budget to state-owned economic enterprises and other state institutions.

During 2007-2008, 2008-2009 and 2009-2010, the Myanma Foreign Trade Bank was developing stably. Consequently, the amount of deposits and loans as well as borrowings from global banks has increased. The total deposits, loans and borrowing has increased 42.58 %, 2.53 % and 0.15% in 2009-2010 respectively.

Figure 9: Myanma Foreign Trade Bank's Deposit, Loans and Borrowing



Source: Myanma Foreign Trade Bank

2.4 The Role of Representative Offices in Myanmar

The Central Bank of Myanmar Law and the Financial Institution of Myanmar Law (1990) permitted the opening of representative offices of foreign banks in Myanmar. The representative office serves as a trade and commerce liaison for local and foreign clients. Prior to the Asian financial crisis of 1997, there were 46 representative offices of both Asian and European banks in Myanmar. Some representative offices have closed to due to the restructuring of the parent companies in the aftermath of the Asian currency crisis. The majority of foreign bank representative offices have closed due to an insufficient number of banking operation licenses needed to conduct international business in Myanmar.

Only 13 representative offices of foreign banks currently remain. Due to Myanmar banking laws, citizens of Myanmar are prohibited from depositing money in foreign banks or acquiring loans from them. Representative offices of foreign banks operate in Myanmar to gather economic data on the economy's investment climate. Many of the representative offices are conducting financial research with just one liaison officer and a small number of local staff running the office. These offices are not allowed to conduct commercial banking business as yet. They often monitor Myanmar based projects for which their offshore parent banks have extended financing. Foreign banks will eventually be allowed to set up joint-venture banks with local partners.

2.5 Banking Crisis in Myanmar

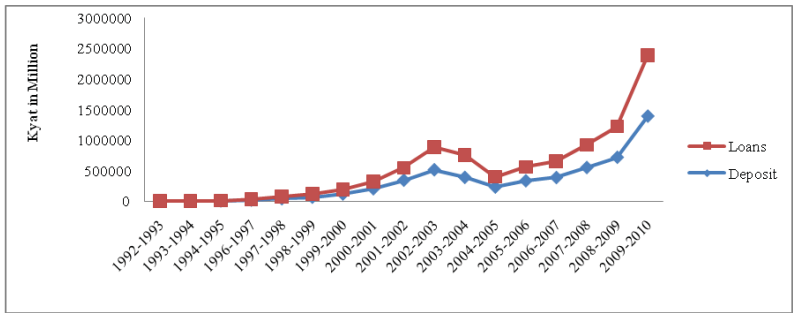
In spite of the success achieved by the private banks, a sudden shock brought about damages of enormous proportion to the banking industry in Myanmar in early 2003. The crisis started with the failure resulting from the illegal financial operations of general services enterprises. These firms, the so-called "A-Kyoe Saung" accepted deposits from the customers with the promise to pay high interest rates of 4% to 6% per month. As these enterprises are incorporated under the Companies Act and/ or Co-operative Law, they are not allowed to carry out financial activities such as receiving deposits and issuing bond-like instruments. The fact that these firms receive deposits and used them in high risk businesses such as speculation in gold or US dollar, real estate and so on runs completely counter to the provisions of the Central Bank of Myanmar Law and to Financial Institutions of Myanmar Law.

Until the end of January, 2003, the banking operations were functioning smoothly. The private banks took a larger share of the market, garnering 60% of the total deposits and total loans. They were sound in terms of capital adequacy, profitability, asset quality and NPL ratio. Unfortunately, some major private banks experienced sudden withdrawals of deposits starting from the 7 February 2003. This sparked the contagion effect of the failures of the private general services enterprises (outside the purview of the Central Bank supervision) which were offering attractive interest payments. As the boom in real estate business was coming to an end and asset prices were dropping sharply, one after another general services companies fell into difficulties in terms of making interest payment and principal investment money to household investors. With the collapse of these companies, the consequent panic spread and caused massive withdrawals from six major private banks, which inevitably faced a liquidity shortfall.

To closely oversee the speedy recovery of the banks, the Bank Supervision Committee was formed by the end of February 2003. Moreover, ten bank examination teams were formed to scrutinize banks' operations on daily basis. Special rescue loans were issued to the banks in crisis, taking adequate securities. Not only did the problem banks but also the other 14 banks have to furnish their daily financial positions. The Bank Supervision Committee took necessary actions to help the banks maintain normal operations and to prevent the occurrence of widespread banking crisis. The Central Bank intervened by imposing restrictions on withdrawals of deposits and by providing instructions to banks the recalling of loans. Credits by the private banks were strictly controlled and the loans made by the problem banks were collected before their due. The private banks had to raise their capital rovision. The Central Bank did not only continue its close monitoring of the private banks' debt portfolios but also in resolving the NPL issues among banks. The average NPL ratio of private banks declined to the lowest level of 2.09% as of end March 2003. Currently, the private banks are back to operating normally.

The private banks had been able to mobilise deposits and provde loans to private enterprises to a considerable extent- the total deposits of all private banks increased from Kyat 437 million in 1992-1993 to Kyat 514,958 million in 2001-2002 while loans and advances increased from Kyat 337.39 million in 1992-1993 to Kyat 373.30 million in 2002. Such a tremendous increase in deposits and loans can be construed as an impressive performance on part of the private banks in view of the negative interest rates, credit restrictions, and the lack of banking habit among the public. However, in 2003 both deposits and loans declined as a result of the liquidity crisis that occurred in early 2003. Consequently, both deposits and loans increased in the private banks as can be seen in the following.

Figure 10: Private Banks: Deposits and Loans



Source: Central Bank of Myanmar

As shown in the graph, both deposits and loans declined in the years 2002-2003 and 2003-2004 as a consequence of the liquidity crisis. The recovery began in 2004-2005, and about the end of 2006-2007, a full recovery both in terms of deposits and loans had been achieved. As the banks gradually regained the trust and confidence of the public, the regulatory authority relaxed the deposit-taking restriction to some extent. In June 2006, the private banks were allowed to accept deposits up to 10 times of their paid up capital.

The liquidity problems in banks began with the failure of the general services enterprises resulting from their illegal financial operations. The negative externalities of their collapse had spilled over to the banking sector. Modern commercial banking is fractional-reserve banking and is dependent upon public trust and confidence because a depositor of a commercial bank always has two worries, i.e., the solvency and liquidity of his bank. When depositors believe that the bank is no longer solvent and is unable to honour deposits, or liquid, there will be a bank run. Fundamentally commercial banking business is dependent on public trust and confidence. Given the nature of the banking business, not a single bank in the world can survive should its clients (the depositors) for some reasons or others withdraw all their bank deposits in a rush.

2.6 Impact of the Global Financial Crisis in Myanmar

The impact of the 1997 financial crisis and recent global financial crisis has not directly affected Myanmar's economy, because it is still not completely accessible to the global financial market. However, as Myanmar's main trading partners are its neighbouring economies such as China, India as well as ASEAN+3 countries, which were affected by global economic downturn. Myanmar was also influenced somewhat.

The domestic financial sector was not directly affected because the banking system in Myanmar has remained insulated from the region. Although the banking crisis of 2003 has receded, the financial sector including banking, insurance and non-banking financial institutions remains weak and is not supporting international trade and domestic investment activities adequately. There is a need for a comprehensive reform of the financial and banking system which would bring about effective financial intermediation; a prerequisite for economic growth.

There is no firm data on the number of Myanmar nationals working abroad and dependent on employment and income from international merchant shipping activities, but observations and newspaper reports indicate that a large number

of Myanmar nationals have returned home from Singapore, Malaysia, South Korea and middle-eastern countries. A growing number of Myanmar nationals who had previously held contractual employment with international merchant ships have been waiting their next assignments. Foreign exchange earnings through remittances had therefore declined.

The global recession could hit the fisheries sector to some degree as fish products are one of the economy's major exports. The industry was facing difficulties with payments from foreign buyers. As a result, most small exporters could no longer trade because of these delays in payment. There are many worries in the industry due to the financial crisis and every stakeholder is obviously concerned about overcoming possible difficulties. In the economy's ornamental fish production sector, exporters reportedly face a slowdown due to reductions in orders from buyers abroad.

According to figures from the Myanmar Department of Fisheries, fisheries exports amounted to US$310 million in 2008 (from the beginning of the fiscal year to mid-November), about US$17 million lower than the export earnings of the same period the previous year. Fisheries exports for financial year 2008-2009 reached only about 56 % of the target. By 2008-2009 ended 31 March, the economy had exported around 320,000 tons of fisheries products, worth about US$483 million against a target of US$850 million. The shortfall, according to officials, was attributed mainly to the after effects of cyclone Nargis and the global recession. Because of the credit crunch, foreign buyers could not borrow sufficient funds to pay the prices requested by exporters, while breeders could not sell their products at prices below their production costs.

The beans and pulses market lost an estimated US$200 million due to price fluctuations and market distortions during the period. However, international prices of beans and pulses have now recovered to a certain level after a sharp slump caused by market fluctuations and aggravated by the global financial crisis.

As regards remittances from Myanmar's expatriate workers, the impact of the global recession, coupled with the rise in value of the Myanmar Kyat, has been tremendous. Singapore is the most attractive ASEAN country for Myanmar overseas workers where many work as engineers, IT experts, accountants, nurses and factory workers. The employers are giving priority and preference for hiring their own citizens in lieu of Myanmar expatriate workers. In Malaysia, Myanmar workers are facing the same problems. Due to declines in exports in these economies, many factories have reduced foreign workers, seriously affecting

Myanmar workers. Consequently, remittances back in Myanmar have declined sharply.

In spite of the negative impact of the global recession on sectors as the fisheries, beans and pulses, construction, and foreign remittances, Myanmar's foreign investments rose sharply by 93.06% in 2008, reaching US$974.996 million compared with 2007, based on the latest figures released by the Central Statistical Organisation. The CSO attributed the sharp increase in foreign investments to the mining sector, which amounted to US$860.996 million. Of this, nearly US$856 million came from China while the remaining US$5 million came from Singapore.

Of the US$114 million of foreign investments in oil and gas, Russia injected US$94 million, while Vietnam invested US$20 million. By the end of 2008, there were 422 projects with committed foreign investments of US$15 billion. Of the 29 countries that have invested in Myanmar, Thailand topped the list with over US$7 billion, followed by Britain and Singapore with over US$1 billion each[2].

Regarding Myanmar foreign trade, the total overseas trade volume exceeded US$11 billion within the first 11 months of the fiscal year 2008-2009, including US$1.2 billion in border trade. Exports accounted for more than US$7 billion, while the remaining US$4.4 billion represented imports. Exports rose by 10.8% and imports rose by 31.2%, compared to previous year's figures.

Myanmar had a trade surplus of US$2.7 billion in the fiscal year 2008-2009. The exports of natural gas amounted to US$2.486 billion out of the total exports US$6.413 billion. Myanmar's principal exports are natural gas, agricultural produce, fisheries, and forest products. The economy imports mainly machinery and parts, crude oil, edible oil, cement and fertiliser. In view of the good performance in the trade and foreign investment sectors, it would seem that Myanmar is in a good position to weather the impact of the deepening global downturn.

As Myanmar's capital market is in a fledging stage, the impact of the global crisis on its financial sector had been minimal. Foreign banking operations in Myanmar are available only to the state-owned banks. The Central Bank regularly supervises the State-run and private banks in accordance with laws, rules and regulations. All the banks are in compliance with the guidelines and instructions

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2. Quote from the Union of Myanmar Federation of Chambers of Commerce and Industry.

issued by the Central Bank. In short, there is no risk of a liquidity crunch and Myanmar's banking system has remained stable.

3. Literature Review

Klingebiet (2003) stated said that from late 1970s up to 2003, there were 117 systemic crises and 51 cases of border line crisis (between systemic and non-systemic crisis). The international activities of commercial banks have expanded rapidly over the past few decades although banks in most economies still hold a small fraction of their portfolios in foreign claims. To understand the financial turmoil, it is necessary to begin by looking at macroeconomic developments in the region up to the middle of 1997. The sound macroeconomic fundamentals of ASEAN defied any suspicion of the dramatic collapse of exchange rates that began in July 1997. ASEAN has been one of the fastest-growing regions in the world. The GDP of ASEAN countries grew at an annual rate of 6.6% between the 1970s and 1995.This is a remarkable achievement since other developing economies grew by only about 3% during the same period.

The rapid economic expansion in the region has increased the demand for foreign borrowings. In an environment of stable exchange rates and high interest rates in ASEAN countries, foreign capital inflows have increased. Data from the Bank for International Settlements (BIS) show that by the end of June 1997, cross-border claims in all currencies and local claims in non-local currencies for eight ASEAN countries (excluding Singapore) reached a total of US$173 billion. It is interesting to note that about 60% of these claims were from the non-bank private sector.

The increase in the availability of capital enable the expansion of loans for private spending particularly in real estate and motor cars, creating a price bubble for these sectors. In addition, the Japanese economy recovered in early May 1997 and led to a sharp appreciation of the yen and a sudden rise in Japanese short-term interest rates. Investors started to withdraw their funds from Southeast Asian markets to take advantage of the higher interest rate in Japan.

The financial crisis has had a significant impact on ASEAN countries, the effects of which are likely to be felt beyond the immediate and medium terms. Chronologically, what started out as an exchange rate crisis became a banking and financial crisis. By late 1997, it had infected the real sectors due to rising interest rates, higher costs of imports, credit crunches in the banking sector, and the resultant bankruptcies of firms which had become insolvent.

The financial crisis has directly affected not only the four ASEAN member economies such as Thailand, Indonesia, Malaysia, and the Philippines but also other members of ASEAN as most of their foreign direct investments come from the founding member economies of ASEAN.

During the 1990s, international banks became increasingly active in derivative and capital markets (McGuire and Wooldridge 2005), McCauley et al (2002) and Doman ski etal (2003). Moreover, many banks invested in foreign subsidiaries and branches. In some economies, the passing of new investment laws contributed to the lifting of restrictions on foreign direct investments and to the rise in foreign banks activities. Prior the Asian crisis, emerging Asian economies encouraged FDI in manufacturing, with restricted FDI in the services sector.

In the last quarter of the 20th century, the wave of globalisation led to increased global interconnectedness - economically, politically, socially, culturally and ideologically. Consequently, in the so-called Globalization era, the demand for an economy's production is no longer confined to its own market. A country's knowledge frontier is no longer determined by geographical territories while a country's financial resources are no longer confined to what it can save itself (Stiglitz 2002). In retrospect, prior to the mid-1970s, the emerging market economies did not experience much cross-country financial flows. Financial globalization has inflated noticeably and capital from developed to the developing economies started flowing in the early 1980s.

There are a number of advantages that the world is enjoying today due to international financial flows. The first two main potential benefits are the more efficient allocation of capital across country borders, and improved risk sharing opportunities (Levchenko 2004). Foreign direct investments in the industrial sector have proved to be an adequate mechanism for supporting economic development. Foreign participation contributes to increased competition between financial service providers. This competition benefits the economy, by providing incentives for adopting improved corporate management standards, reducing overall intermediation costs, improving the quality of risk management and boosting advisory and other services offered to enterprise and household clients.

Foreign financial institutions also allow instant access to key competitive assets such as advanced financial management systems, marketing expertise in retail banking and presence in global markets (Muller 2000). The presence of foreign financial services competitors, coming from outside established local circles, can also assist the local supervisory authorities as they take steps to limit politically motivated and other connected lending, corruption and other illegal

financial activities. For many newly industrialised economies, economic success started when foreign direct investment was liberalised (Muller 2000).

However, there are several disadvantages as pointed out in some studies. The possibility that more efficient foreign financial institutions can crowd out local institutions is real. It has also been argued that foreign financial institutions do not have the same civic spirit or the sense of social responsibility as local institutions (Poret 2001). A number of very different observations such as by Baxter and Crucini (1995) and Acemoglu and Zilibotti (1997) show that economic volatility/instability/crises may increase due to financial integration.

Some studies have noted that developing economies would not be able to reap the full benefits of globalisation since their institutional structures not as well designed due to the inadequate sequencing of reform processes (Kim and Lau 1994). If the economic fundamentals are weak, an economy could be affected by the financial shocks from another country.

Overall, most studies show that foreign banks have a limited but positive impact on financial development. Foreign financial involvement has a variety of other effects on developing economies. Not least, for instance, is the role of capital flows in generating output growth and their ability to mobilise foreign savings for domestic investment as well as their role in technology transfer.

As Myanmar's capital market is in the inception stage, the impact of the global crisis on Myanmar's financial sector can be said to be minimal. Since foreign banking operations in Myanmar are only allowed to the state-owned banks and banks are compliant with rules and guidelines set by Central Bank of Myanmar, the confidence and stability of the banking system have not been affected the global financial crisis.

The layoff of foreign workers in some regional economies such as Singapore, Thailand, Malaysia, Korea and Japan has resulted in the decline of Myanmar nationals working abroad which in turn has affected remittances in the trade and services account. In this context, the Ministry of foreign Affairs, the Ministry of Labour and the Ministry of Agriculture and Irrigation are ready to extend assistance to workers coming home on account of losing their overseas jobs.

The impact of the global financial crisis has not directly affected Myanmar's economy. However as Myanmar's main trading partners are its neighbouring economies such as China, India as well as ASEAN+3 countries, it may face

the indirect adverse effects of the crisis through declines in trade, foreign investments and tourism. However, it is expected that the effects will not be as severe for Myanmar as other economies.

If and when the time comes for necessary actions, the Ministry of Finance and Revenue will take appropriate measures via monetary and fiscal policy instruments. Furthermore, Myanmar is collaborating and cooperating with Regional Organisations such as ASEAN and SEACEN as well as other regional economies to confront the challenges from the global financial crisis.

4. Research Methodology and Results

This study analyses the determinants of foreign banks claims by using the technique of TOBIT regression. Some determinants that researchers use to examine international and cross-border bank lending in developing economies are foreign bank lending, gross domestic output (GDP), deposit-to-loan ratio, inflation rate, deposit and lending rate, exchange rate and interest rate. The factors taken into consideration for this paper also include foreign country lender's factors, home country factors, impact of the Asian Currency Crisis and Global Financial Crisis and financial stability indicators.

This paper uses the above mentioned variables as explanatory variables in the econometric model. Annual data for the period 1999 to 2010 are used for the analysis. Output data (GDP) is collected from the Ministry of National Planning and Economic Development, Union of Myanmar. For this analysis, data on foreign banks claim is collated from the Myanma Foreign Trade Bank. The rest of the data used for explanatory variables are obtained from the China Statistics Bureau.

To avoid the use of non-stationery variables in the regression model, the test for stationarity of all variables were performed. According to Dickey and Fuller (1997) test, most of the random variables were varying and the sequence is non-stationary. Non-stationary variables lead to spurious results in the estimation of a model. The Augmented Dickey Fuller Unit Root Test was applied for all variables to find their order of stationary.

This study used an econometric model to examine the determinants of foreign claims in Myanmar and the identity equation is as follows:-

$$\log(\Delta Foreign\_Bank\_Claims)_{jt} = \beta_0 + \beta_1 Foreign\_Country\_Lender\_Factors_{jt} +$$

$$\beta_2 Home\_Country\_Factors_t +$$

$$\beta_3 Asian\_Crisis\_Dummy + \beta_4 \times GFC\_Dummy \times Exposure_t$$

Where:Log (ΔForeign_Bank_Claim)= the first difference of the logarithm of Foreign Claims by China.

Foreign Country _Lender_Factors= control variables that capture the macroeconomic conditions applied to China's GDP growth rates with one year lag.

Home_Country_Factors= control variables that capture the macroeconomic conditions applied real GDP growth rate with one year lag, exchange rate is not included as available exchange rate cannot reflect the real financial situation.

GFC_Dummy= is a dummy variable taking the value of one in 2007, 2008 and 2009.

Exposure= is the ratio of foreign claims on home country over the total claims extended by foreign country.

The Augmented-Dickey Fuller was conducted for all the variables to find their order of stationary. The hypothesis of ADF is whether variables used in model contains a unit root or otherwise. The results of ADF tests for all variables at 1st difference are shown below.

Augmented Dicker Fuller Test		
	First Difference	Second Difference
MYGDP	-3.516417	
CHGR		-3.688603
EXPO		-4.604195

Note: significant at the 1% confidence level.

After taking the difference variables and TOBIT was applied, the estimation was found to be as follows:

Dependent Variable: CLAIM
Method: ML - Censored Normal (TOBIT) (Quadratic hill climbing)
Date: 11/30/10 Time: 03:40
Sample (adjusted): 2001 2010
Included observations: 10 after adjustments
Left censoring (value) at zero
Convergence achieved after 7 iterations
Covariance matrix computed using second derivatives

	Coefficient	Std. Error	z-Statistic	Prob.
C	0.468828	0.103987	4.508533	0.0000
D(MYGDP,1)	-0.136599	0.047707	-2.863308	0.0042
D(CHGR,2)	0.034746	0.114701	0.302929	0.7619
D(EXPO,2)	-1.244978	0.415961	-2.993014	0.0028
GFC	-1.177741	3.404059	-0.345981	0.7294
GFCEXPO	2.438191	7.364680	0.331065	0.7406

Error Distribution

SCALE:C(7)	0.255607	0.060664	4.213500	0.0000

R-squared	0.567597	Mean dependent var	0.407000
Adjusted R-squared	-0.297209	S.D. dependent var	0.390813
S.E. of regression	0.445116	Akaike info criterion	1.582884
Sum squared resid	0.594386	Schwarz criterion	1.794694
Log likelihood	-0.914420	Hannan-Quinn criter.	1.350530
Avg. log likelihood	-0.091442		

Left censored obs	1	Right censored obs	0
Uncensored obs	9	Total obs	10

According to the estimation results, the coefficients of Myanmar GDP growth (MYGDP), Exposure (EXPO) and Global Financial Crisis (GFC) are negative for the period, while China GDP growth (CHGR) and Global Financial Crisis Exposure (GFCEXPO) are positive. The positive coefficient of China GDP growth and Global Financial Crisis Exposure show that foreign claims are stimulated by the level of activity in the banking sector. The sign of Myanmar GDP growth, Exposure and Global Financial Crisis are negative rather than positive. Myanmar GDP growth is statistically significant at 1% level while the coefficient is only a marginal 0.13. GFC Exposure is not significant while the explanatory power for Exposure and Global Financial Crisis is negative indicating a result of apparently less stable financing.

The negative coefficient of Myanmar GDP growth and Exposure, is statistically significant for the period considered. The increase in GDP and Exposure indicates an increase in the investment level. However, the negative coefficients for Global Financial Crisis did not prove statistically significant which indicates that this variable did not affect foreign claims significantly. For the full sample, coefficients of all variables except Myanmar GDP growth, Exposure and Global Financial Crisis are positive. Therefore, we can conclude that China GDP growth and Global Financial Crisis Exposure have positive impacts on foreign claims. Myanmar GDP growth, Exposure and Global Financial Crisis have negative impact on foreign claims.

According to the results obtained, it can be said that Global Financial Crisis would be sufficient to explain the positive impact on foreign claims in Myanmar. Availability of credit financing encourages investing in the Government Sector and it is also an important factor in foreign bank lending. However, according to the empirical finding, Global Financial Crisis is not statistically significant on foreign claims in the pre and GFC period in Myanmar.

After 1988, Myanmar allowed the private sector to participate in the economy. Private banks were given authorisation to operate domestic banking and allowed to open representative offices. The Myanmar Securities Exchange Center was also established. However, private banks were not authorized to transact foreign exchange business except for the State-owned banks. Furthermore, foreign banks have not yet been granted branch status. Foreign borrowings by the private sector are also not permitted. The private sector firms therefore face challenges for expansion due to a lack in accessibility to credit. Finally, in the absence of international assistance for more than two decades, Myanmar has relied on her own resources to implement infrastructure

development and reforms which have caused continued increases in government budget, inflation and low investor confidence.

5. Policy Implications

As measures to initiate market-oriented economic development, the Myanmar Government implemented banking and financial reforms in June 1990.This is a big step towards realising a market-oriented economy, albeit only up to a certain point. Numerous other reforms must be implemented in the future to enhance the institutional ability of the banking system as well as the capital market. The reform initiatives undertaken since 1992 in financial sector are an important element of market-oriented economic reforms. Private banks were given authorisation to operate domestic banking, foreign banks were allowed to open representative offices, and the Myanmar Securities Exchange Center was established. However, private banks have to be permitted to transact foreign exchange business. Only the Myanma Foreign Trade Bank and Myanma Investment and Commercial Bank are authorised to conduct foreign exchange business. Furthermore, foreign banks have not been granted branch status and the Myanmar Securities Exchange Center currently has only one listed company.

The financial conditions in Myanmar have certain characteristics. First, bank loans in general do not play a major role in the corporate finance of private manufacturing companies. The share of bank loans to total assets is only about 30%. Financial intermediation activities by the banking sector appear to be in a state of inertia. Second, there is a substantial demand for funds in the market. Particular companies actively utilise bank loans as means of investments, and funds borrowed from banks account for a fairly high share of total assets. Third, the relationship between accessibility of bank loans and the size of the firm is not linear. Medium-sized firms are more active in bank borrowings than large-sized firms, which use bank loans for their operations and investments.

The utilisation of bank loans as a source of funds for Myanmar manufacturing firms is extremely negligible and there is a great disparity in the usage of bank loans among the firms. The availability of bank loans is largely determined by informal and non-economic factors. In other words, the bank loan market exists in a scattered manner along with the corresponding “scattered” social capital. This condition can also be expressed as a market suffering from a broad range of credit rationing.

Observations on both the banking sector and corporate finance through this research indicate that the main cause of the inefficient market does not stem from a lack of demand for bank loans. Investment seems substantially active; firms raise funds by various means for their investments in equipment. The most important cause of the market inefficiency is the low capacity in financial intermediation, the reasons for which are very complicated. First, a negative real interest rate is the most basic factor. Second, various banking regulations, such as the "matching deposits", impede the operational efficiency of banks. Lastly, the incompleteness of the legal system is a serious obstacle to daily financial transactions.

Policy reforms for banking sector development should be the first priority for resolving the problems of corporate financing. The policy implications are as follow:-

(a) Stabilisation of the macroeconomy: a precondition for a healthy banking sector
Macroeconomic stability is a prerequisite for healthy financial intermediary activities for promoting deposits and investments by the private sector.

(b) Mobilisation of savings
Without mobilising savings in a big way, it is impossible to enhance the intermediary capacity of banks. To do so, financial restraints should be avoided. Positive real interest rates by restraining inflation is necessary and it is also crucial for controlling budgetary deficits.

(c) Deregulation of lending activities
The private banks have extremely restrictive lending policies. Loans are of a short term basis only and the lending amount is limited by the value of collaterals. Such conservative attitudes of lenders are a result of a rational response to given policy environments such the "matching deposits" regulation for private banks. Deregulation of lending practices in various dimensions should be carried out for bank loan market development.

(d) Enhancement of intermediary capacity of private banks
Several measures should be considered to enhance the financial intermediary capacity of private banks. First, private banks should be permitted by an independent Central Bank of Myanmar to grant long-term loans, deal in foreign exchange, and clear trade through L/C and extend trade finance to local firms. Second, financial infrastructure, such as computerisation and technical expertise of banking personnel, should be developed.

(e) Capital market development

Certain companies have a huge potential as catalysts for further economic development. There are also some that want to be public limited companies. Developing the capital market for Myanmar is an important task and the first step toward achieving this goal is to promulgate the Securities Law.

A sound banking system contributes to economic growth by the mobilisaion of financial resources and channeling them to investments and other business activities. In the absence of a developed capital and bond market in Myanmar, banks are mainly responsible for playing the role of financial intermediation, considered to be crucial for the economic development. In addition, the banks in Myanmar provide payment and transactions services, which increase the efficiency of economic activities. However, as banks operate on the basis of fractional reserve, mainly concerned with risk-taking on the asset side and maintaining the confidence of depositors on the liability side, they are subject to market failures. It is therefore important that the banking system should be well regulated. In Myanmar, there is a prudential framework and the supervision and monitoring policies are in line with international practices.

At present, foreign banks are not permitted to open branches or own shares in Myanmar. Their activities are limited to those of a representative office. However, there are plans to create special economic zones (SEZs) with the possibility of foreign banks being allowed to operate in such zones. Myanmar's financial sector remains sound with limited exposure to international markets. The authorities' vigilant financial sector supervision has supported confidence and domestic demand, while minimising risks. All major banks are adequately capitalised with good profit performance and manageable non-performing loans. Efforts are being made towards further banking and financial sector modernisation with the implementation of the Electronic Banking Network and Automated Clearing House system and further strengthening of the banking system. Developing the domestic banking system will help enhance financial intermediation to achieve growth objectives over the medium term. As the government has gradually phased out the administrative requirements to expand branch networks, 48 new branches of 8 private banks were opened countrywide during the period of March 2007 to March 2010. With the prospects of increased financial innovations and further change in industry structure, competition is envisaged.

Looking forward, the authorities are dedicated to liberalising the financial sector, such as provision and transfer of financial information, financial data processing and related software of other financial services and guarantee and

commitments, envisaged under the financial sector liberalisation in line with the ASEAN Economic Co-operation (AEC) Blueprint. The Myanmar Special Economic Zone Law which allows the establishment of financial services companies is being prepared and submission of the final draft to the Cabinet is underway.

Over the medium term, Myanmar will focus on growth and macroeconomic stability while maintaining fiscal prudence. The growth outlook is favourable in FY 2009-2010 in line with the Five Year Plan. This recovery would be supported in part by the recovery in the economies of neighbouring main trading partners as well as driven largely by improved economic activities via increases in production of mineral products and oil and gas. Furthermore, the authorities will offset the increases in civil servants' wages and salaries in December of 2009 by speeding up the pace of privatisation, such as auctioning government owned buildings, contributing to a better fiscal position. Although the economy has performed well, the authorities are cognisant of the challenges and risks going forward. The overvalued official exchange rate and the government budget deficit are concerns to the authorities. In addition, the indirect effects of the recent global financial crisis and some economic sanctions are also down side risks to FDI. In order to attract FDI and harness private sector investments to assist in the industrialisation process, plans are underway for the establishment of special industrial zone.

6. Conclusion

Alan Greenspan, who was at the helm of the US Federal Reserve for 18 years, was a fervent proponent of deregulation. However, on 23 October 2008, he told Washington lawmakers that he was wrong to trust the free market to regulate the financial system without stronger government oversight. Greenspan had faced mounting criticism during the year for having adamantly resisted efforts to rein in credit derivatives, an unchecked market, excesses of which partially led to the current financial crisis. He also admitted that he made a mistake in presuming that the self-interests of organisations especially banks and others, were such that they were best able to protect their own shareholders and their equity in the firms. He added that he was in "a state of shocked disbelief" about the breakdown in the ability of banks to regulate themselves.

In fact, deregulation started with the 1999 repeal of the Glass-Steagall Act, which allowed commercial banks to get into the investment banking business and thereby take on more risks. Indeed, it was a move in the wrong direction.

Politicians and government officials should have realised the dangers threatening the stability of the financial safety nets to supervise these institutions. They should have also devised proper procedures for oversight by regulatory authorities. In order to prevent future crisis, the measures concerning the reform of the financial markets should be undertaken within the framework of common principles adopted at the G 20 meetings.

Another serious consequence of the recession is that it could throw millions back into poverty. Already over 60 million people have become unemployed. In China alone, over 20 million people have lost their jobs. The national governments would have to give top priority in addressing the social problems and their attendant hardships brought about by the global financial crisis.

The IMF studies indicate that over 130 member countries have encountered varying degree of banking sector problems. Their experiences underscore the importance of a sound banking system for macroeconomic stability. It should be emphasised that a well-functioning banking system is essential for the effectiveness of macroeconomic policies, and problems that emerge in the financial sector, if left unchecked, could endanger the macroeconomic stability of a country. As far as Myanmar is concerned, one of long-term impact of the 2003 liquidity crisis is the loss of public trust and confidence in the banks. It would be difficult to regain such a confidence in a few years time, even under the most favourable circumstances. Another serious long-term impact of the crisis is the negative effect on the mobilisation of savings and investments which may eventually lead to macroeconomic problems such as declines in GDP growth, unemployment, and income inequality.

Foreign banking operations in Myanmar are allowed only to the State-owned banks while the Central Bank regularly supervises the State-run and private banks in accordance with stipulated laws, rules and regulations. All banks are in compliance with the guidelines and regulations issued by the Central Bank. Therefore, there are no risk of liquidity crunch and the banking system has remained stable in Myanmar. As Myanmar's capital market is in the inception stage, the impact of the global crisis on Myanmar's financial sector has been minimal. The regional economies such as Singapore, Thailand, Malaysia, Korea and Japan where a lot of Myanmar citizens work had laid off foreign workers resulting in the decline of Myanmar nationals working abroad. This has resulted in a tremendous decline in remittances back to Myanmar.

However, since Myanmar has yet to be fully integrated into the global economy, the impact of the crisis has not directly affected the economy. Myanmar

may face the indirect adverse effects of the crisis through declines in trade, foreign investments and tourism. However, it is expected that the effects will not be as bad as other economies.

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Chapter 7

WAS IT IS CREDIT SUPPLY? INTERNATIONAL CLAIMS AND CROSS-BORDER LENDING TO THE PHILIPPINES DURING THE FINANCIAL CRISIS

By
Veronica B. Bayangos [1]

1. Introduction

International banking activity expanded massively from the second half of the 1990s to the latter part of 2006 until the global financial crisis in 2007. The significant increase in international banking system was caused by the growing world trade, the increase of multinational firms, growth in financing of global payments imbalances and the integration of some transition economies into the global banking system. This expansion led to the consolidation of the international banking industry and consequently in the rise in cross-border mergers and acquisition over the past decade.

However, the global financial crisis that started in 2007 shook the foundation of international banking and finance. International financial markets were heavily affected while some international banks had to be rescued from bankruptcy. In turn, international claims and cross-border bank lending to emerging markets also dropped sharply, raising a serious policy question: did declines in international claims and cross-border bank lending in advanced economies transmit financial shocks to emerging markets? Or, did they simply reflect the lower need for financing?

Understanding the economic drivers of cross-border bank lending to emerging markets is key to critical thinking about financial vulnerabilities. However, one needs to consider a larger lending picture. There are other channels through

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which international banks provide loans to emerging market economies. The Committee on the Global Financial System (CGFS, 2009) documents the steady increase in local currency lending of subsidiaries and branches of international banks after the Asian financial crisis in 1997; as McCauley et. al. (2010) show, this local currency lending by international banks held up much better than international lending during the financial crisis in 2007.

The growing presence of international banks (and foreign-owned financial institutions) raises a number of important issues. The arguments for and against foreign bank entry and foreign banks' impact on the efficiency and stability of domestic banking systems continue to be a subject of debate. Factors that have stimulated international banking institutions to expand into overseas markets and those that have influenced host countries' decisions to accept foreign financial institutions are closely related to these arguments. But the precise role of foreign banks in the run up and during the global financial crisis in 2007 is yet to be fully ascertained.

This study examines the drivers of international claims and cross-border lending to the Philippines and the role of foreign banks during financial crises by modifying the Siregar and Choi (2008) gravity model from 1995 to 2009. This study finds that supply factors drive the decline in international claims to the Philippines in the run up to the global financial crisis. The demand for cross-border bank lending also drops, albeit marginal. These findings are consistent with the general understanding that the global financial crisis originated outside the emerging markets, including the Philippines. However, the results show that the presence of foreign banks in the Philippines has stabilised the surge of international claims but not cross-border lending. This observation suggests that the global financial crisis in 2007 has been a different one from the past financial crisis of the Philippines.

Throughout this paper, international banks refer to foreign banks (branches and subsidiaries) and offshore banks. The "cross-border bank flows" in this paper are sourced from the data set at the BIS international banking website, in particular, the external positions of BIS reporting banks vis-à-vis individual emerging market economies. About 80% of the external positions consist of standard cross-border loans from banks in source countries to banks and the non-bank sector in recipient countries. The remainder includes some other types of capital flows, such as holdings by banks from source countries of bonds, money market instruments and equities issued by banks and the non-bank sector in recipient countries.

The rest of the paper is organised as follows: The next Section examines the growing role of foreign banks in the Philippines. Section 3 describes the recent trends in international bank lending and cross-border lending to the Philippines. Section 4 looks closely at foreign bank operations before the details on the model, the methodology and main findings are discussed in Section 5. Section 6 concludes.

2. The Growing Role of Foreign Banks in the Philippines

Foreign banks' operations in emerging market banking system increased dramatically during the second half of the 1990s (Song 2004). The share of banking assets under foreign control increased from 25% in 1995 to 30% in 2000 in Eastern Europe. A similar development was also observed in Latin America, with almost 40% of total bank assets controlled by foreign banks in 2000, following a series of cross-border mergers and acquisitions. Although foreign banks have played a smaller role in Asia than in Eastern Europe or Latin America, foreign bank control in East Asian banking market increased from 5% in 1995 to 6% in 2000. In fact, Indonesia, South Korea, and Thailand have raised allowable foreign equity levels in local banks to 100%, while the Philippines have permitted 60% foreign ownership.[2]

The growing importance of foreign banks is oftentimes seen in the flow of foreign capital in emerging economies. Asian emerging market economies have been major beneficiaries of capital flows from the advanced economies especially starting in 2000. The literature suggests that the major factors that encouraged this flow of capital to emerging market economies are the sustained decline in interest rates in the industrial world and the depth of financial development in emerging markets (Reinhart 2005). However, the prolonged surge in capital flows to Asia has renewed concerns among policymakers on issues related to global liquidity, financial stability and capital reversals.

The liberalisation of foreign direct investment, along with financial and foreign exchange markets became major parts of the structural adjustment adopted in 1981. On 24 August 1992, the Central Bank of the Philippines issued Circular No. 1353 liberalising foreign exchange regulations throughout the country. Indeed the restructuring and liberalisation measures led to salient changes in the economy. For one, capital flows surged into the economy, which (as a proportion of GDP) more than doubled between 1994 and 2001 or an average of 3.5% from an average of only 1.4% between 1986 and 1993 (Table 1). The 1980s were

2. Hawkins and Mihaljek (2001), p. 24.

characterised by large borrowings from abroad by public enterprises. However, capital flows (composed of direct and portfolio investments) in the 1990s were primarily portfolio. Net portfolio investments showed particularly large increases in 1993 and 1994 before the capital account liberalisation and rose steeply in 1996. In general, the capital account was larger and more volatile in the 1990s than in the 1980s.

Table 1: Philippines: Major Trend of Selected Capital Flows, 1986-2010
(% Share of Nominal GDP)

Variables\Period	1986-1993	1994-2001	2002-2010
Exports of goods and services	20.71	37.14	42.00
OF remittances	3.02	7.34	10.10
Foreign direct investment	1.03	1.86	0.92
Portfolio investment	0.09	1.64	0.68
Total (w/ OF remittances)	**25.12**	**47.99**	**53.69**
Total (w/o OF remittances)	**22.10**	**40.65**	**43.60**

Source of basic data: BSP Selected Philippine Economic Indicators

The capital flows which were largely intermediated through foreign banks have caused credit extended to the private sector to jump significantly. In August 1996, year-on-year growth of credit extended by banks to the private sector reached more than 56%, the highest since the 1980s. A closer look at the nature of bank loans outstanding by economic activity reveals a notable year-on-year growth of 97.2% in end-December 1996 to financial institutions, real estate and business services sector. Meanwhile, a trend appreciation of the peso was noted particularly from 1991 to 1996. Banks start to depend on foreign market for liquidity support instead of the BSP. This is shown in the significant upsurge in monetary foreign liabilities starting 1995.

The Philippine foreign exchange regulatory regime is characterised by an open current account, few restrictions on capital inflows and some controls on capital outflows. The liberalisation measures introduced in the early 1990s were directed at enhancing the supply of foreign exchange by reducing transaction and financing costs, broadening financing options and promoting opportunities for portfolio diversification. However, there remained a few restrictions on capital inflows and some controls on capital outflows. Hence, the BSP adopted a comprehensive yet measured approach for the roadmap toward further liberalisation of foreign exchange transactions.

In 1994, Republic Act No. 7721, which called for the establishment of a maximum of ten new foreign banks, was passed. While not giving unrestricted branching privileges, the aforementioned law contained additional provisions in setting up branches by foreign banks. However, to prevent foreign bank domination of the local banking industry, the law required that domestic majority-owned Filipino banks should hold 70% of total resources of the entire banking system.

The response of the foreign banks to the new charter was quite positive. In 1995, a year after the passage of the legislation, ten foreign banks entered the Philippine banking industry. The most common form of entry in 1995 was establishing full branches. As of December 2009, a total of 22 foreign banks operate in the Philippines, ten of these foreign banks are branches of foreign banks with commercial bank functions.

On 22 February 2007, the Monetary Board (MB) approved the first phase of reforms to the foreign exchange regulatory framework to make the regulatory environment more responsive to the needs of an expanding, more dynamic economy that has become increasingly integrated with global markets. Improving macroeconomic fundamentals, as well as ongoing banking, capital market and institutional reforms, provided a favourable setting for the comprehensive review and gradual reform of the existing foreign exchange regulatory framework. The reforms, which became effective on 2 April 2007, involved changes in rules governing external current account and capital account transactions as well as prudential regulations. Since 2007, the monetary authorities have undertaken three more major phases of foreign exchange reforms. The reforms brought greater access to foreign exchange resources for trade, investment and other foreign transactions. The measures also facilitate the diversification of investment portfolios and help reduce the economy's vulnerability to shocks.

Indeed, the role of foreign banks in the economy's financial depth has been rising. Empirical studies focus on the role of foreign banks to banking development. However, formal studies on the specific roles of foreign banks in propagating financial shocks to the Philippines have been scant. This paper, therefore, brings a first formal study on a more detailed analysis of the role of foreign banks in the Philippines especially during the recent global financial crisis.

Catorelli and Gambera (2001) observe that the liberalisation of foreign bank entry in the Philippines provides a unique opportunity to undertake a comprehensive study of these issues due to four distinct advantages. First,

foreign bank entry is confined to a single year where a significant number of foreign banks were granted rights to establish operations. This allows us to better isolate the effects of foreign bank entry. Second, confounding effects such as restrictions on capital accounts are largely absent in the Philippines, as general economic liberalisation took place prior to the liberalisation of foreign bank entry. Third, the study of a single country allows a more direct test of the effect of foreign competition within a uniform environment. Finally, unlike many emerging economies, the Philippine authorities play only a minimal role in the ownership of banks.

Sicat (1984) traces the development of offshore banking units in the Philippines from the early 1970s to the early 1980s. Meanwhile, Manzano and Neri (2001) analyse the effectiveness of the liberalisation of the foreign bank entry in the Philippines by highlighting the role of macroeconomic policy stance on the degree of competition in the banking sector.

In a similar manner, Unite and Sullivan (2001) analyse the effect of foreign bank entry and ownership structure on the Philippine domestic banking market. They note that an increase in foreign presence is expected to result in a decline in interest rate spreads and in profits. Moreover, they also found out that an increase in foreign banks is expected to result to an increase in non-lending activities and a decline in operating expenses.

3. International Claims and Cross-Border Lending to the Philippines

The data series in this Section are taken from the BIS locational and consolidated banking statistics. The locational banking statistics comprises data on gross international financial claims and liabilities of banks resident in a given country, on banks and the non-bank sector in other countries (hence the term "cross-border").[3] In the consolidated banking statistics, creditor data are reported based on the nationality (that is, home country) rather than residence (that is, host country) basis.

The main purpose of using the two data sets is to provide information on the role of internationally-active banks in intermediating cross-border capital flows. The locational data are more relevant for economies receiving external loans, because the way they measure lending flows is consistent with the balance of

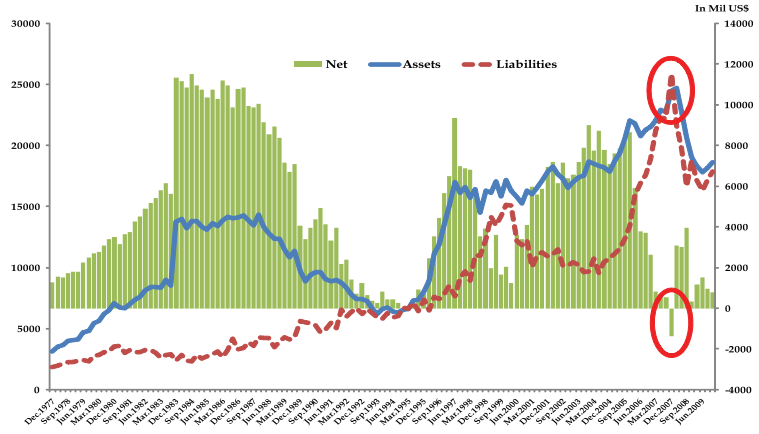
3. In its initial specification, monthly data on the BSP-registered portfolio investments and loans are considered. However, due to limited data series, this paper focuses on the BIS locational statistics for longer run and more detailed analysis.

payments statistics.[4] The consolidated data are more relevant for creditor countries, because they help assess the size of international banks' country and liquidity risk exposures.

The external positions of BIS reporting banks vis-à-vis the Philippines increased almost six times, while liabilities rose by almost nine times between end-December 1997 and end-December 2009 (Figure 1). Figure 1 also reflects the episodes of financial and currency crises in the Philippines, notably in 1997 and in 2008. The evolution of the nature of the Philippine external position also points to the rather divergent direction of the components of the Philippine external position. While assets and liabilities appear to be matched during the 1997 crisis, liabilities appear to have outpaced assets in 2008, leading to a net liability position in 2008.

Meanwhile, Figure 2 shows that cross-border financing rose significantly between 2005 and 2007, while external positions and cross-border loans outstanding at end-December 2008 were much higher than the end-December 1995 levels. A comparison of the two shows that cross-border loans represent about 70% of external positions of the BIS reporting banks vis-à-vis the Philippines.

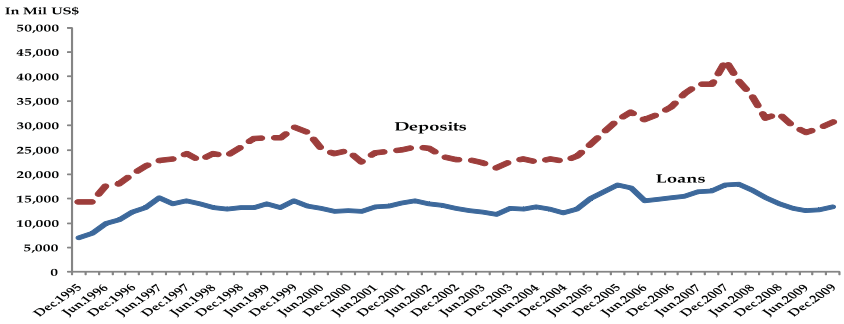
Figure 1: Philippines: Net External Position, 1977-2009



Source of basic data: BIS Locational Statistics, Table 7A

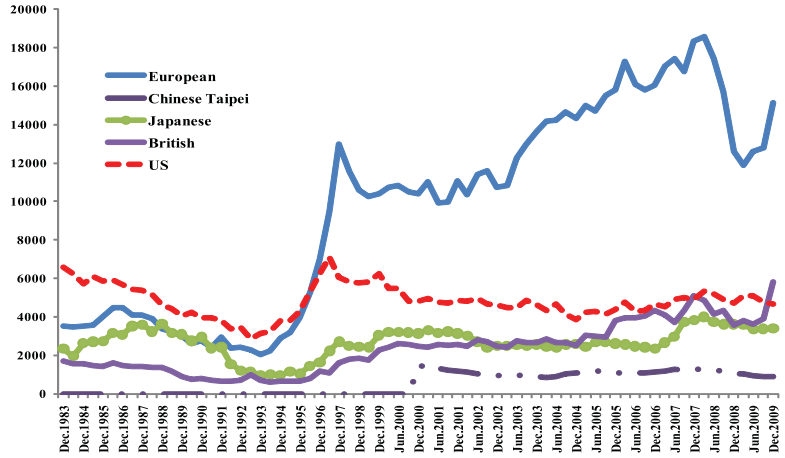
4. In particular, the "external loans" correspond to the "other investment" category of capital flows in the balance of payments. This allows for better matching of cross-border bank flows and various macroeconomic and financial system characteristics in emerging markets.

Figure 2: Philippines: Cross-Border Loans and Deposits, 1995-2009



Source of basic data: BIS Locational Statistics

Figure 3: Philippines: Cross-Border Loans and Deposits, By Nationality, 1995-2009



Source of basic data: BIS Locational Statistics

On a bilateral basis, European banks account for the bulk of outstanding stock of cross-border loans to the Philippines followed by the US and the Japanese banks (Figure 3). Based on BIS (2010) study, Japanese and, to a lesser extent, European (French and German) banks typically fund most of their activities from their home offices. By contrast, American, Canadian and Spanish banks obtain a substantial share of their funding outside their home countries.

Studies show that emerging markets in Asia, Latin America and Central and Eastern Europe (CEE) experienced quite different dynamics of capital flows over the past 16 years. During the 1990s there are two distinct crisis episodes: the Mexican crisis of 1994–95, and the Asian and Russian crises of 1997–99. The Mexican crisis was short-lived and affected only Latin America and partly CEE, which was at the time also going through the early phase of deep financial sector reforms.

The effects of the Asian and Russian financial crises on cross-border bank flows are much bigger and lasted longer. Thailand, Indonesia, Korea, Malaysia and the Philippines were hit the hardest and experienced strong and long-lasting reductions in cross-border bank flows between the third quarter of 1997 to the fourth quarter of 1999. Latin America was strongly affected by contagion from the Russian domestic debt default. Surprisingly, the CEE was less affected, despite the proximity with the Russian market.

The early part of 2000 coincides with a period of muted inflows to the Philippines as well as in other regions, interrupted by occasional sharp reductions of inflows. The inflows began to pick up strongly in the Philippines in 2003. Financial liberalisation, sophisticated new financial products, and the search for yield in an environment of low global interest rates have led internationally-active banks to expand their operations to emerging markets, including the Philippines (Mihaljek, 2008).

It can be recalled that cross-border lending to the Philippines peaked in absolute amount between mid-2005 and mid-2007. During the third quarter of 2008, disruptions in international credit markets led to a full-scale global financial crisis. Major international banks started to reduce their financing of banks and non-bank sector transactions in emerging markets. The largest reduction in financing took place in the fourth quarter of 2008 to the first quarter of 2009, with emerging Asia followed by Latin America and the CEE. However, the impact of the global financial turmoil was relatively limited in the case of the Philippines. The impact was felt through the asset markets, financial sector and the real sector. Like many other emerging markets, growth of the Philippine economy slowed down in 2008.

Data show that real GDP growth rate in 2008 fell to 3.8%, compared to 7.1% in 2007. However, like many other emerging markets, the slowdown was not primarily a result of the global financial crisis. Rather, the deceleration in Philippine economic growth was largely brought about by a surge in inflation

triggered by the sharp rise in food and fuel prices and to a lesser extent the US recession.

The financial turmoil that emerged in the aftermath of the Lehman Brothers debacle magnified tensions in the global interbank and credit markets. As a result there was a virtual freeze in liquidity in US and European financial markets which stopped and, in many cases, reversed capital flows to emerging and developing economies. In large part, the latter reflected sales of debt and equity securities by non-residents, selective withdrawals of bank deposits held with domestic banks and a decline in inflows of foreign direct investment (World Bank, 2008).

The immediate impact of the liquidity squeeze in international capital markets was a rise in the price of risk—as measured by bond spreads—a sharp drop in equity prices, and exchange rate volatility. Data revealed that the foreign currency government bond spread for the Philippines jumped from 155 basis points in June 2007 to 549 basis points in November 2008. Meanwhile, the main index of the Philippine stock market fell by 24% between July 2008 and January 2009.[5] The Philippine stock market is actually one of the least affected by the global financial crisis in the Asia-Pacific region.

The exchange rate also exhibited volatility with the peso depreciating by 16.6% between 1 March 2008 and 30 November 2008 after appreciating by 39% against the US dollar between 20 September 2005 and 29 February 2008. Between July 2008 and January 2009, the peso depreciated by only 3%. Similar to stock prices the peso is one of the currencies least affected by the crisis.

Meanwhile, portfolio flows have shown to have a negligible impact on the stock market and investment (Yap 2008). It can be recalled that stock market and exchange rate volatility do affect macroeconomic stability and this has implications for private investment. Data revealed that investment in durable equipment contracted by 18.5% in the first quarter of 2009 and a further 18.9% in the second quarter.[6]

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5. Yap (2008) argued that this is the relevant period for monitoring the immediate impact of the financial crisis.

6. In terms of trade, prices of traded commodities are mostly set in the global market. Exchange rate movements, therefore, affect profitability of exporters rather than demand for their products. Profitability of exporters, however, has an impact on their investment and employment decisions. Exchange rate movements affect the propensity to import, the degree of protection of import-substituting industries, and the peso value of remittances from abroad.

The Philippine financial sector has largely weathered the crisis. Crucial prudential indicators show the relative health of the banking systems in terms of capital adequacy, profitability, and liquidity cushions. The non-performing loans were fairly stable in 2008 and early 2009. A similar pattern can be observed with the capital-to-asset ratios. Meanwhile, the loans to deposit ratio has also been steady, reflecting the absence of any sharp market reaction to the crisis.

In 2008, most banks continued to report reasonable rates of return on assets and equity, and did not experience increases in impaired assets. This performance reflects the insignificant exposure of Philippine banks to the toxic structured mortgage products that were extensively sold globally. Given largely domestically-focused business and relatively strong economic activities in 2007, profitability of Philippine banks has generally remained high in 2008.

From a high of 51% growth in December 1996, outstanding credits to the private sector contracted by 1.2% in December 1999 and by 0.3% in December 2005, before it crept up to 16.8% in December 2008. As of December 2009, private sector credit growth was halved to 8.1% as the impact of the global financial turmoil took a toll on bank lending. In terms of its relative share to nominal GDP, lending by Philippine banks soared from 21.4% in 1991 to a high of 76.0% in 1997 before dropping to 66.7% in 1998 when the economy reeled from the effects of the Asian financial crisis. Since then, the ratio of net domestic credit to GDP has tracked a downward trend before it recovered to 31% in 2009.

Meanwhile, growth of bank credit to the private sector has continued despite the relatively stricter bank lending standards in 2009**.** Based on the Senior Bank Loan Officers' Survey conducted by the BSP in 2009, lending standards among banks, in general, had indeed tightened. In particular, the majority of respondents indicated moderately tighter lending standards in 2009 in terms of collateralisation requirements and credit screening. Respondents also cited the uncertainty in the economic outlook as the main reason for their cautious lending stance. Meanwhile, the latest Senior Bank Loan Officers' Survey indicated a decline in the banks' lending standards for the first quarter of 2010, with the decline more pronounced for loans extended to large middle market enterprises (Bayangos 2010b).

The Philippine financial sector remains vulnerable to further shocks that emanate from global financial centers. However, there has been no meltdown similar to the events of the currency crisis in 1997. The resilience stems from more prudent policies and a more conservative approach by the banking system. It would be difficult to establish which factor has been more important.

Nevertheless, policies implemented after the 1997 crisis did play a role in limiting the impact of the global financial turmoil in 2008.

4. A Closer Look at Foreign Banks in the Philippines

The Philippines has a comprehensive banking system encompassing various types of banks, from large universal banks to rural banks and even non-banks. At present, there are seventeen universal banks, 23 commercial banks, 84 thrift banks, 711 rural banks, 44 credit unions and twelve non-banks with quasi-banking functions, all licensed with the BSP. Under Republic Act No. 8791, also known as the General Banking Act of 2000, they share roughly the same powers.

Table 2: Philippines: Number of Foreign Banks, By Type, 1999-2009

Industry	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Commercial banks											
Non-expanded FX Branches	12	11	11	11	11	11	11	11	11	11	10
Subsidiaries of FX Banks	5	5	5	5	5	4	4	3	3	3	3
Universal banks (Expanded branches)	2	2	3	3	3	3	3	3	3	3	4
Offshore Banking Units	14	13	11	11	10	9	9	7	7	6	5
TOTAL	33	31	30	30	29	27	27	24	24	23	22

Source of basic data: BSP, SRSO.

The number of foreign banks with commercial and universal bank functions, as well as offshore banking units, dropped from 33 in 1999 to 22 in 2009 (Table 2). While branches of universal foreign banks rose during the period, branches and subsidiaries of foreign banks with commercial bank functions declined from 1999 to 2009. The biggest decline was noted in the number of OBUs.

4.1 Branches and Subsidiaries of Foreign Banks [7]

Total resources of foreign branches and subsidiaries rose by 37.2% to reach ₱631.4 billion as of end-December 2009 from ₱460.0 billion posted in end-December 2000. Loans and investments as well as interbank transactions drove the expansion in total assets during the period. Meanwhile, foreign branches and subsidiaries' active participation in interbank transactions suggest that they are major players in the system's open market operations.

7. Figures in this section are in peso since branches and subsidiaries of foreign banks have commercial and universal bank functions.

Following the global financial turmoil, total resources of these branches and subsidiaries slightly declined by about 4.2% to ₱609.9 billion in end-December 2008 from the end-December 2007 level of ₱636.6 billion. This was largely a result of the slowdown in investment activities particularly on financial assets other than loans due to bearish securities market. In turn, the share of foreign banks in the total assets of the Philippine banking system as of end-December 2008 slipped to 11.5% from 13.2% in 2007. Their consolidated share remained well below the 30% ceiling set under Section 3 of R.A.No.7721.[8]

Total assets of foreign branches and subsidiaries are mainly backed up by deposit liabilities and are principally channeled to loans. Loans-to-deposits ratio rose from 12.5% in December 2000 to 46.3% in December 2006 to 96.6% in December 2009. On the other hand, cash and due from banks-to-deposits ratio slid slightly to 30.4% in December 2009 from 32.7% in December 2000 as foreign banks opted to lend more rather than place their funds in cash. By industry sub-groups, existing branches of foreign banks continue to hold the largest share of the industry's total resources at 56.1% in 2008 (down from 62.9% in 2007). In particular, new branches and subsidiaries held the remaining 28.9% in 2008 (up from 24.5%) and 15.0% (up from 12.6%), respectively.

Foreign banks in the Philippines remained resilient amid the hostile financial and economic environment here and abroad. The losses stemming from the international financial crisis have so far been limited. Both foreign banks' profitability and financial strength were still sound. At the same time, loan and asset quality remained manageable while liquidity and solvency were adequately maintained.

In turn, foreign branches and subsidiaries posted positive earnings as net profit stood at ₱6.6 billion in 2008. Although lower by 40.3% from the ₱11.1 billion net profit in 2007, the net profit in 2008 was still higher than the profits earned in the years prior to 2005. Consequently, returns on foreign banks' assets/ shareholders were slightly lower with return on assets/return on equity ratios at 1.0 (from 1.7% in 2007) and 6.5% (from 11.9%), respectively.

The resilient macro economy supported bank lending growth and activity. Loans (exclusive of interbank lending) posted a double-digit growth of 20.2% to reach ₱305.2 billion in December 2008 from ₱253.9 billion in December 2007. Among the sectors, manufacturing cornered the largest share of the industry's

8. R.A. No. 7721 stipulates that at least 70% of the total assets of the Philippine banking system must remain with Filipino-owned domestic banks.

loan extension at 17.9% and it even picked up by 7.0% amidst a slowdown in the world economy and heightened competition from China.

The encouraging trend in lending was supported by low levels of non-performing loans/non-performing asset ratios at 2.5% and 1.7%, respectively. With BSP's implementation of Basel II last 1 July 2007, foreign banks' capital became more risk-sensitive in line with international standards and remained well above the minimum BSP regulatory requirement of 10% and the international benchmark of 8%.

4.2 Offshore Banks [9]

Offshore banks are branches, subsidiaries or affiliates of foreign banks authorised to conduct offshore banking business in any currency except the Philippine peso. They may make loans to or accept funds (with a minimum of US$50,000) from non-residents, other OBUs and foreign-currency deposit units authorised by a central bank to conduct such business. Offshore banks were established in the Philippines in 1976 through Presidential Decree No. 1034 (signed on 30 September 1976). The number of OBUs as of December 2010 consisted of five - two originating from Europe, two from the United States America and one from Asia.

Following the decline in the number of OBUs, total resources dropped by 48.1% to reach US$612.8 billion as of end-December 2009 from US$1.2 billion posted in end-December 2000. Factors that contributed to the decline in total resources of OBUs during the period mainly include due from other banks outside the Philippines, loans and as well as investments. Dragged down by the global financial crisis in 2007, total resources of OBUs shrank substantially in 2008. As of end-December 2008, total assets (net of due from head office/branches-abroad) of OBUs aggregated US$1.3 billion, representing a 65.2% (US$2.4 billion) decline from US$3.7 billion in 2007. The sharp decline in resources translated to steep losses for OBUs.

After six consecutive years of profitable operations since 2002, results of operations yielded a negative bottom line of US$2 million in 2008. This was a stark contrast to the US$11 million net profit reported in 2007. Operating income steeply fell by 70.0% to US$9 million from US$30 million in 2007 brought on

9. Figures in this section are in US dollars since OBUs in the Philippines transact in US dollars.

primarily by the 126.7% or US$19 million drop in non-interest income, coupled with a 13.3% or US$2 million decrease in net interest income.

Discount and interest from all sources, except on bonds and other instruments, fell sharply. Interest on bonds jumped by 117.1% (US$35 million) partially offsetting declines in income from trade and other bills (100.0%), deposits (73.7%) and loans and advances (39.9 %) for a net decline in interest income of 32.9%(US$94 million).

Meanwhile, substantial reduction of borrowings accordingly slashed interest paid/payable by 33.9% (US$92 million), softening the decline in net interest income. The US$19 million drop in non-interest income from loss incurred in the disposal and marking-to-market of investments, however, led to negative bottom line despite an ample reduction in operating expenses of 33.3% (US$6 million).

Cross-border lending of OBUs when taken as share of nominal GDP has been relatively weak. From 2.3% in March 2002, cross-border lending relative to GDP rose to 3.2% in March 2006 to a high of 6.5% in September 2007, before dropping to 1.2% in December 2008 due to the effects of global financial turmoil (Figure 4). Since then, the ratio of cross-border lending to GDP has tracked a downward trend to 0.4% in December 2009.

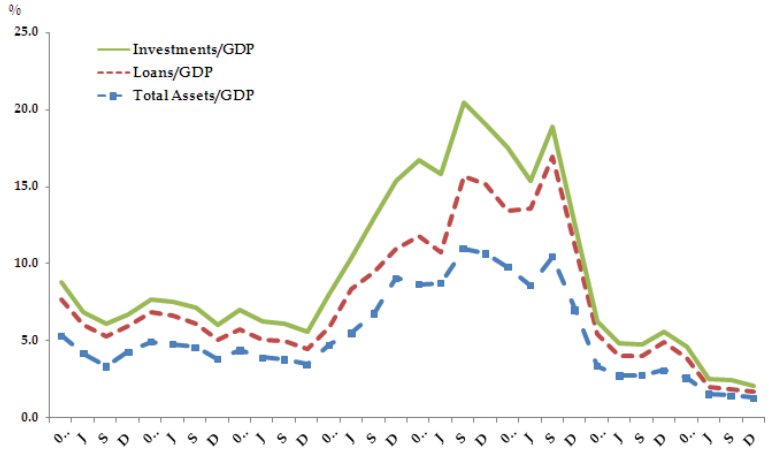
A closer look at Figure 4 shows that the share of loans to nominal GDP rose significantly between 2005 and 2007, averaging at 3.5% during the period from an average of 1.6% between 2002 and 2004. Meanwhile, the volatility of loans to GDP (as indicated by the coefficient of variation) has risen from an average of 0.25 during the period 2002 to 2004 to 0.44 in 2005 to 2007 and further up to 0.59 in 2008 to 2009.

In terms of growth, cross border lending of offshore banks based in the Philippines built up and was volatile in the run up to the crisis in 2007. In particular, year-on-year growth of cross border lending surged significantly in 2005. From 0.4% in November 2004, growth of cross-border lending rose significantly to 181.4% in June 2006 to 287.0% in July 2007.

However, cross border lending of offshore banks in the Philippines dropped sharply in 2008 to the last quarter of 2009. Cross-border lending has been sluggish starting 2008. In particular, cross-border lending of offshore banks contracted sharply by 33.5% in March 2008, by 61.2% in May 2009 and by 76.1% in December 2009.

Meanwhile, offshore banks' investments in bonds and other securities track closely the trend of cross-border lending. Investments in bonds and other securities fell to just US$188 million in December 2009, from US$1.4bn in 2006. In terms of growth, investments in bonds and other securities rose significantly and were volatile in the run up to the crisis in 2007. In particular, year-on-year growth of investments surged significantly in 2005 to 2007. From 20.9% in 2002-2004, average growth of investments increased significantly to 93.8% from 2005 to 2007 but declined by 44.2% in 2008 to 2009.

Figure 4: Total Assets, Loans and Investments of Offshore Banks (% Share to Nominal GDP) March 2002-December 2009 (Quarterly)



Source of basic data: Department of Economic Statistics

Borrowings and placements from other banks abroad are the principal source of funds for OBUs, constituting 43.5% of their liabilities. Deposits of non-residents other than banks were less than 1% of total liabilities in 2007 as OBUs have limited authority to accept deposits. In fact, deposit-to-loan ratio has averaged 8.0% from 2002 to 2009.

4.3 Insights

The observations so far imply that changes in international claims and cross-border lending may entail significant changes in real output and inflation. To get

a first insight into the relationships between claims and cross-border lending and selected monetary, financial and real sector indicators, Granger causality tests at 5% and 10% levels of significance are used.

Using a lag of two quarters, results of the Granger causality tests from the first quarter of 1995 to the fourth quarter of 2009 showed that international claims and cross-border lending are part of a set of economic interactions. In particular, there is a bi-directional causality between international claims and cross-border lending and changes in these indicators cause real GDP growth. Based on Im, Pesaran and Shin W-statistic unit root test, international claims and cross-border lending are stable in their first log difference.[10]

At 10% level of significance, the (Granger) causation appears to run from international claims *(DLOG(CLAIMS)* and cross-border lending *(DLOG(BORDER)* to foreign banks total assets scaled to nominal GDP *(FB)* via the trade openness, measured as the sum of exports and imports of goods and services scaled to nominal GDP *(TRADE),* to the volatility of the S&P 500 financial index *(SPCV)* to risk adjusted interest rate differential (*RISKADJ)* and to the size of stock market capitalization as share of nominal GDP (*MCAP).*

5. Methodology and Results

5.1 The Model

This study modifies the gravity model for trade in assets of Siregar and Choy (2010) by building a single-equation regression framework for the Philippines. Siregar and Choy (2010) observed that major uses of gravity models are simple in structure and in principle as well as consistent with a wide range of theoretical approaches. In addition, the framework allows for global supply factors (or the "push" factors) and country-specific demand factors (or the "pull" factors) driving trade in assets such as international claims and cross-border lending. The modified gravity model takes the form in equation 1 as,

$$ln(A_t^l) = \alpha - \beta ln(trade_t) - \rho_t ln\Sigma(originatingcountry''push''factors) + \ell_t ln\Sigma(hostcountry''pull''factors) + \kappa_t\Sigma(countrydummies) + \kappa_t\Sigma(countrydummies * exposure) + \varepsilon_t, \quad (1)$$

10. The null hypothesis is that the unit root test assumes individual unit root process.

where, A^f refers to foreign assets, *trade* refers to the distribution of trade, the *originating country factors* include volatility in the stock market or bond market transactions, *host country factors* include GDP growth, interest rate differential, size of stock market capitalisation, *country dummies* such as the Asian currency and financial crisis in 1997-1998 and the global financial crisis in 2008-2009, an interaction term between dummies of past crises and exposure of foreign banks in host country, and an error term ε.

The modified gravity model of Siregar and Choy (2010) is applied to Philippine data to study the following questions:

(1) Do "push" or "pull" factors or a combination of both drive the international claims and cross-border lending to the Philippines?
(2) Is there any evidence to suggest that foreign banks contributed to the spread of financial crises in the Philippines?
(3) Has the story of recent global financial crisis been a different one than the past crises in the Philippines?

The Philippine dataset covers quarterly data between the first quarter of 1995 and the fourth quarter of 2009. Gross international claims and cross-border loans are used as dependent variables. The BIS data sets have the advantage of measuring international and cross-border lending data that are consistent with the principles underlying national accounts and balance of payment statistics.

5.2 The Variables

International claims. *CLAIMS*. Refer to gross international financial claims of banks in a given country on banks and the non-bank sector in the Philippines. International claims to the Philippines are taken from the BIS (Table 6A) in million US dollars.

Cross-border lending. S***BORDER***. This refers to the lending by global banks from their headquarters to a firm abroad. This is contrasted to a local lending where local banks use a local network of branches and subsidiaries. Data on cross-border lending are taken from the BIS (Table 7A) in million US dollars.

Volatility of the S&P 500 financial index.[11] ***SPCV***. This analysis uses the volatility (indicated by the coefficient of variation) of the S&P 500 financial index as the global supply factor. [12] The S&P financial index is an index of 500 stocks that are chosen on the basis of market size, liquidity, and industry grouping, among other factors. The S&P 500 Index is designed to act as a barometer for the overall U.S. stock market; it reflects the risk-return characteristics of the large-cap universe. The S&P 500 is a market value weighted index: Each stock's weight in the index is proportionate to its market value. Close price adjusted for dividends and splits.

Volatility of the S&P 500 financial index tends to be high in periods of stress, which is in turn is negatively related to credit supply. Higher volatility also implies that it is more difficult for banks to raise additional capital, which also limits credit supply. A further advantage is that volatility is computed from stock prices, which are based on large trading volumes and have a long track record. This indicates that the results are robust to alternative measures of supply, as discussed in the section on robustness below.

Real GDP growth. ***RGDP.*** The most important demand factor in the analysis is real GDP. This follows straightforwardly from the standard credit equation: higher levels of output require more credit, including more international claims and cross-border lending. Data are taken from the BSP Selected Philippine Economic Indicators in percent.[13]

Total assets of foreign banks as share of nominal GDP. ***FB.*** [14] Total assets of foreign banks in the Philippines refer to the sum of all assets, adjusted to net off the accounts "Due from Head Office/Branches/Agencies" and "Due to Head Office/Branches/Agencies" of foreign bank branches. Foreign banks are classified into commercial and expanded foreign banks and offshore banking units. Commercial foreign banks, the biggest group of foreign banks, are further classified into non-expanded foreign commercial banks and subsidiaries of foreign

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11. The Dow Jones Industrial Average (DJIA) was at one time the most renowned index for U.S. stocks, but because the DJIA contains only 30 companies, most people agree that the S&P 500 is a better proxy for the U.S. stock market.

12. The coefficient of variation is computed as standard deviation divided by the mean.

13. This variable was converted into US dollars. In the empirical estimation, the result was identical.

14. The earliest quarterly data is 1999. For the period 1995 to 1998, the quarterly levels are assumed to grow based on the annual growth.

commercial banks. Total assets of foreign banks (converted into million pesos) are computed as share of nominal gross domestic product (in million pesos). [15] Total assets of foreign banks and nominal gross domestic product are taken from the BSP-OSPD and BSP Selected Philippine Economic Indicators.

Total trade (exports and imports of goods and services) as share of nominal GDP. *TRADE*. This ratio indicates trade openness of the Philippines. Total exports and imports of goods and services are taken from the Quarterly National Income Accounts in million pesos. The sum of exports and imports of goods and services are computed as share of nominal gross domestic product.

Asian financial crisis dummy. ***ASIANDUMMY.*** A dummy variable is included to account for the effects of the Asian currency and financial crisis in 1997 to 1998. Hence, 1 is denoted for the quarters starting from third quarter 1997 to the fourth quarter of 1998 while 0 for non-crisis quarters.

Global financial crisis dummy. *GFCDUMMY.* A dummy variable is included to account for the effects of the global financial crisis 2008 to 2009. Hence, 1 is denoted for the quarters starting from second quarter 2008 to the fourth quarter of 2009 while 0 for ordinary quarters.

Risk adjusted interest rate differential. *RISKADJ.* This is computed as the difference between the BSP overnight RRP rate and the Federal Funds Rate and the risk premium, or the difference between the Philippine 10-year Treasury note and the US 10-year Treasury note. This indicates home country factor that could explain the supply of international claims to the Philippines. The interest rates are taken from the BSP-Department of Economic Statistics.

Stock market capitalization as share of nominal GDP. ***MCAP.*** The stock market capitalisation is taken from the World Federation of Exchanges. The stock market capitalisation is computed as share of nominal gross domestic product. The market capitalisation of a stock exchange is the total number of issued shares of domestic companies, including their several classes, multiplied by their respective prices at a given time. This indicator reflects the comprehensive value of the market at that time. It includes the shares of domestic companies, shares of foreign companies which are exclusively listed on an exchange, i.e. the foreign company is not quoted on any other exchange, common and preferred shares of domestic companies and shares without voting rights.

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15. This variable was converted into US dollars. In the empirical estimation, the result was identical.

Meanwhile, this indicator excludes collective investment funds, rights and warrants, convertible instruments, options and futures as well as foreign listed shares other than exclusively listed ones, companies whose only business goal is to hold shares of other listed companies and companies admitted to trading (companies admitted to trading are companies whose shares are traded at the exchange but not listed at the exchange).

In its empirical specification, Equation 1 above is represented as follows:

$$\Delta \ln CLAIMS_t = \alpha - \beta \ln r_t + \rho \ln \pi_t + \gamma(Asiandummy * FB) + \vartheta(GFCdummy_t * FB_t) + \\ + \phi(Asiandummy * trade_t) + \eta(GFCdummy_t * trade_t) + \varepsilon. \quad (2)$$

$$\Delta \ln SBORDER_t = \alpha - \beta \ln r_t + \rho \ln \pi_t + \gamma(Asiandummy * FB) + \vartheta(GFCdummy_t * FB_t) + \\ + \phi(Asiandummy * trade_t) + \eta(GFCdummy_t * trade_t) + \varepsilon. \quad (3)$$

5.3 The Estimation Method

This study follows the method used by Wooldridge (2001). Wooldridge (2001) argued that a comprehensive study that analyses the factors that drive foreign bank presence can utilise generalised method of moments (GMM) or fixed-effects model (including panel data). In particular, Wooldridge (2001) noted that GMM procedure may be more efficient than fixed-effect models especially when addressing heteroscedasticity and serial correlation.

To determine the role of foreign banks in propagating crisis, interactive terms are identified in equations 2 and 3. The role of foreign banks depends on the sign and significance of γ and ϑ in equations 2 and 3. The idea is, assuming all factors remain constant, if higher exposure is translated to a more stable financing, we expect γ and ϑ to be positive and significant. In addition, β determines the extent of supply factor while ρ denotes the extent of demand factor in driving international claims (equation 2) and cross-border lending (equation 3). It should also be noted that the role of *trade* in propagating the financial crisis is also specified in both equations.

5.4 The Empirical Results

5.4.1 Diagnostics

Unit root and co-integration group tests are conducted to the variables included in the single-equation framework. Results show that all the series in levels (ratios) and first differences are stationary at the 5% and 10% levels of significance. The results further suggest that the variables under investigation are integrated of order one, I(1). In terms of the number of co-integrated relationship(s), the results show that at most 1 co-integrated relationship at 5% level of significance exists (Technical Appendix).

The choice of instruments for the GMM equations are assumed to be all the channels through which international claims and cross-border lending may affect foreign bank exposure to the Philippines and the lagged dependent and independent variables in the equations.

Each of the combination of variables is assessed for basic and higher-order diagnostic tests. The signs and magnitudes of individual coefficients in each equation, such as *t* statistics, the adjusted R^2, Durbin Watson and *F* statistics are all examined. All calculated *F* values are higher than the critical values, at the 5% to 10% levels of significance, thereby indicating a significant degree of reliability of coefficients of determination. Results of higher order test statistics of residuals are similarly examined. Results of the Jarque-Bera test show that all of the series are normally distributed. With a lag order of up two and at a 5% to 10% level of significance, Breusch-Godfrey results show that not all equations exhibit serial correlation. J-test is also checked for the estimated equation using GMM at 5% to 10% level of significance. Results show that the equations are valid.

5.4.2 Robustness Checks

The model is robust to other supply and demand specifications. In the empirical estimation, the volatility of the S&P 500 financial index is replaced with S&P index and the implied volatility of a broader stock index such as the Dow Jones Industrial Average. Results of the robustness check imply better fit when the volatility of the S&P index is used.

The model is also robust to other demand specifications. The need to finance current account deficits could create additional demand for cross-border lending.

Similarly, large interest rate differentials might induce foreign currency borrowing – perhaps through cross-border lending. Though coefficients for current account deficits and interest rate differentials are statistically significant and have the right sign, they are not sufficient enough in explaining cross-border lending.

5.4.3 The Empirical Results

The regression results in Tables 4 and 5 indicate the following results:

(1) The positive and significant constant term in Tables 4 and 5 signifies that both international claims and cross-border had indeed risen from the first quarter of 1995 to the fourth quarter of 2009.

(2) Results in Tables 3 and 4 also imply that changes in the volatility of the S&P 500 financial index and real GDP growth contributed to movements of international claims and cross-border lending to the Philippines from the first quarter of 1995 to the fourth quarter of 2009. In addition, other demand factors such the risk adjusted interest rate differential and stock market capitalisation affect changes in these indicators, albeit indirectly. The relevance of risk adjusted interest rate differential in this equation connotes that changes in monetary policy is significant in driving claims and cross-border lending to the Philippines. The results signify that a combination of "push" and "pull" factors affects changes in international claims and cross-border lending.

Table 3

Dependent Variable: DLOG(CLAIMS)
Method: Generalized Method of Moments
Date: 11/08/10 Time: 22:33
Sample (adjusted): 1995Q3 2009Q4
Included observations: 58 after adjustments
Kernel: Bartlett, Bandwidth: Fixed (3), No prewhitening
Simultaneous weighting matrix & coefficient iteration
Convergence achieved after: 121 weight matrices, 122 total coef iterations
Instrument list: MCAP RISKADJ SPCV RGDP(-2) (ASIANDUMMY*FB) (GFCDUMMY*FB) (ASIANDUMMY*TRADE) (GFCDUMMY*TRADE)
Lagged dependent variable & regressors added to instrument list

	Coefficient	Std. Error	t-Statistic	Prob.
C	0.059192	0.017527	3.377209	0.0015
SPCV	-0.329585	0.099711	-3.305397	0.0018
RGDP(-2)	0.021435	0.001693	3.847536	0.0040
ASIANDUMMY*FB	0.006109	0.003719	2.642729	0.0811
GFCDUMMY*FB	0.067628	0.005146	13.14285	0.0000
ASIANDUMMY*TRADE	-0.001601	0.000498	-3.215923	0.0023
GFCDUMMY*TRADE	-0.009193	0.000630	-14.60424	0.0000
DLOG(CLAIMS(-1))	-0.552957	0.070514	-7.841771	0.0000
AR(1)	0.649412	0.059188	10.97198	0.0000
AR(2)	-0.000161	0.076554	-0.002106	0.9983

R-squared	0.379138	Mean dependent var	0.016077
Adjusted R-squared	0.262726	S.D. dependent var	0.063025
S.E. of regression	0.054116	Sum squared resid	0.140571
Durbin-Watson stat	2.026530	J-statistic	0.012495

Inverted AR Roots	.65	.00

Table 4

Dependent Variable: SBORDER
Method: Generalized Method of Moments
Date: 11/10/10 Time: 22:33
Sample (adjusted): 1996Q3 2009Q4
Included observations: 54 after adjustments
Kernel: Bartlett, Bandwidth: Fixed (3), Prewhitening
Simultaneous weighting matrix & coefficient iteration
Convergence achieved after: 298 weight matrices, 299 total coef iterations
Instrument list: SPCV RGDP(-2) (ASIANDUMMY*FB) (GFCDUMMY*FB) (ASIANDUMMY*TRADE) (GFCDUMMY*TRADE) SBORDER(-1)
Lagged dependent variable & regressors added to instrument list

	Coefficient	Std. Error	t-Statistic	Prob.
C	16.63866	3.742505	4.445862	0.0001
SPCV	-40.58540	10.95100	-3.706092	0.0006
RGDP(-2)	0.379920	0.177567	2.138880	0.0379
ASIANDUMMY*FB	1.911647	0.269040	7.105450	0.0000
GFCDUMMY*FB	-1.264099	1.107504	-2.145600	0.0259
ASIANDUMMY*TRADE	-0.235148	0.034537	-6.808595	0.0000
GFCDUMMY*TRADE	0.043934	0.107627	0.408210	0.6851
SBORDER(-1)	0.816308	0.051443	15.86828	0.0000
AR(2)	-0.005291	0.076014	-0.069609	0.9448
AR(1)	-0.283082	0.082228	-3.442657	0.0013

R-squared	0.820464	Mean dependent var	57.95181
Adjusted R-squared	0.783741	S.D. dependent var	14.18691
S.E. of regression	6.597431	Sum squared resid	1915.148
Durbin-Watson stat	1.988800	J-statistic	0.012350

Inverted AR Roots	-.02	-.26

However, when the two factors are compared, it appears that the impact of supply is stronger. The coefficients of *SPCV* and *RGDP* in Tables 3 and 4 are divided with the standard deviation of 2.0. From Table 5, it appears that the *SPCV* or the supply factor is bigger than the demand factor, *RGDP*.

Table 5

Variables	Coefficient	Std. Error	t-Statistic	Prob.	Coefficient /Standard Deviation of 2.0
International claims					
SPCV	-0.330	0.100	-3.305	0.002	-0.165
RGDP(-2)	0.021	0.002	3.848	0.004	0.011
Cross-border lending					
SPCV	-40.585	10.951	-3.706	0.001	-20.293
RGDP(-2)	0.038	0.178	2.814	0.038	0.019

(3) Results in Tables 3 and 4 show that, indeed, the role of foreign banks to the run up of financial crises has been a stabilising one. The interaction terms for international claims have been positive and economically significant at 5% level of confidence. This means that higher exposure of the Philippines to international claims has been translated into a more stable financing. This finding underscores the benefits of having foreign banks in the Philippines.

Although it has a stabilising role during the Asian financial and currency crises in 1997 to 1998, cross-border lending did not possess a stabilising role during the global financial crisis. While the coefficient is significant the sign of the coefficient is negative. This implies that cross-border lending has been significantly volatile, possibly putting stress on the balance of payments. This finding warrants a more detailed investigation.

Meanwhile, trade openness did not do much in stabilising the financial crisis. This indicates that trade has been equally volatile.

(4) The results also show that the story of the global financial crisis has been a different one than the past crises in the Philippines.

The non-stabilising role of cross-border lending may connote that the story of the recent global financial crisis has been a different one from the past crises in the Philippines. Cohen and Remolona (2008) emphasised that certain elements are new to the episode of financial turmoil in 2007-2008, while many elements have remained the same. The new elements include structured credit, the broader use of the originate-to-distribute business model, and new arrangements in the repurchase markets that allow the use of almost any financial asset as collateral.

These are fundamentally good innovations but their reckless use has helped to underpin the crisis. The elements that have remained the same are those processes that underpin the basic procyclicality in the system, that is, the tendency for a build-up of risk-taking and leverage to occur in benign economic environments and the abrupt withdrawal from risk and an unwinding of leverage that typically happens once the environment turns bad.

However, the developments during the global financial crisis suggest that the new elements may not be that massive in the case of the Philippines to lead to a financial crisis. It may also be recalled that the BSP adopted inflation targeting as a comprehensive framework of monetary policy after the Asian financial crisis. In its short-term response to the dramatic loss of liquidity towards the run up of the global financial turmoil, the BSP had to trade the importance of ensuring the continued availability of market liquidity as a public good against the moral hazard that any market intervention is likely to induce. Over all, the BSP has acted to broaden the scope of its liquidity operations.

The strength of the Philippines is that it went into the global financial crisis with healthy corporate and financial sector balance sheets. As we noted, financial institutions have strong capital cushions and no external exposure. Debt-equity ratios in the corporate sector have fallen. That does not mean that the financial crisis did not affect the Philippines. There were sharp outflows of portfolio investment funds in the second and third quarter 2008 when global investors sold out to transfer liquidity back home.

Foreign bank loans were repaid in the third and fourth quarter 2008 and foreign trade credit fell sharply in the fourth quarter of 2008 and first quarter of 2009. Foreign banks needed funds to restore their own balance sheets and withdrew these funds from emerging markets including the Philippines. This is a further illustration that the Philippines remain vulnerable to the volatilities of global financial markets. However, the financial impact was limited as the Philippines had ample international reserves to cope with the withdrawals. Actually, the current account remained in surplus as a result of the surge of remittances beginning 2006 and this kept adding to the reserves.

Moreover, local financial institutions were rather liquid and could easily replace external credit but the crisis increased their risk awareness and may have induced credit rationing: outstanding loans of commercial banks have stagnated since end-2008 and started to increase only modestly in 2010. Of course, it is difficult to assess whether the stagnation in loans and the decline

in foreign loans and trade credit are due to reluctance of banks to give loans or to a fall in the demand for loans as the economy is declining.

6. Conclusion: Policy Implications

The global financial crisis that started in 2007 posed relevant questions for policymakers. This study aims to answer three such questions: (1) Do "push" or "pull" factors or a combination of both factors drive the international claims and cross-border lending to the Philippines?; (2) Is there any evidence to suggest that foreign banks contributed to the spread of financial crises in the Philippines?; and (3) Has the story of recent global financial crisis been a different one than the past crises in the Philippines?

The study finds that supply factors mainly drove international claims and cross-border bank lending during the global financial crisis. In other words, the stress experienced by major, internationally- active banks has reduced the supply of international claims and cross-border lending to the Philippines. This finding is consistent with the general understanding that the global financial crisis originated outside the emerging markets, including the Philippines. However, the results show that foreign banks in the Philippines managed to stabilise the surge of international claims but not cross-border lending especially during the global financial crisis in 2007. This finding indicates that the global financial crisis in 2007 has been a different one from the past financial crises in the Philippines.

These findings imply a trade-off for economic policy. On the one hand, cross border lending seems to be a two-way prong for contagion. Crises can be transmitted from advanced economies to emerging markets, not just the other way around. In addition, cross-border lending can transmit advanced country credit booms. Policymakers might want to reduce the resulting vulnerabilities. On the other hand, cross-border lending is typically a channel for efficient international capital allocation. Philippine financial markets may continue to benefit from this access to international lending and financing.

The findings of this study bring us to a broader issue on the importance of prudential regulation. It can be recalled that cross-border lending in the BIS banking statistics measures foreign bank lending relevant for balance of payment financing. This is a fundamental variable for emerging markets, which have experienced balance of payment crises in the past decades. The increased presence of foreign banks in the domestic banking system necessitates the development of effective cross-border prudential supervision. Although the key

objective of the supervisors of internationally-active banks has been to ensure that no transactions of these banks escapes effective supervision and that coordinated immediate action can be undertaken when necessary, a closer cooperation between home-and host-country authorities with vigilant sharing of information became far more important (Mathieson and Roldos 2001).[16]

Meanwhile, the role of foreign banks as a stabilising factor through international claims during the past two crises has been an important finding. The Asian currency crisis brought a collapse of confidence and an increased awareness of risk which translated into declining levels of investment and leverage. Regulations for financial institutions and corporate governance were tightened. Macroeconomic policy was re-calibrated with a shift to inflation targeting and a renewed emphasis on cautious fiscal and monetary policies. The crisis resulted in a significant opening to foreign investment and foreign trade.

These changes defined how the Philippines responded to the global financial crisis. Some elements certainly help the Philippines in coping with the crisis but other elements are perceived to have increased the challenges. It has been observed that the Asian crisis invited more caution leading to de-leveraging of financial corporations (including banks) and greater accumulation of international reserves.[17] However, the Asian crisis also resulted in increased reliance on exports as a major source of foreign exchange inflows, thereby opening the economy to volatilities in global trade. [18]

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16. One of the most glaring was the failure of Bank of Credit and Commerce International (BCCI) in 1991. In recent years, Song (2004) noted that the development of foreign banks in Argentina also could raise many supervisory issues deserving interesting discussions.

17. Based on the BSP Flow of Funds Reports, loans of financial corporations (including banks) contracted during the period 2000 to 2009, except in 2001, 2002 and 2003. This may suggest that following the Asian financial crisis, financial corporations have, in general, settled portions of their outstanding loans to lower their rate of leverage. Meanwhile, reserve accumulation as seen in the % share of gross international reserves to nominal GDP has risen from 2.1% in 1990 to 17.4% in 1999 and further to 24.1% in 2009.

18. For the Philippines, exports of goods and services as % share of nominal GDP has increased from an average of 20.7% between 1986 and 1993 to an average of 37.1% between 1994 and 2001 and further to an average of 42.0% between 2002 and 2010. However, the average share of 42% from 2002 to 2010 for the Philippines was relatively lower compared with other Asian economies like Thailand and Malaysia at 71.0% and 108.6%, respectively. This may indicate that Thailand and Malaysia are more vulnerable to uncertainties in global trade than the Philippines.

During the past few years, the debate on the policy implications of the rapid surges of capital flows to emerging markets has intensified. For its part, the Philippine authorities continue to have a wide range of options to cope with capital flows, especially when the flows are partly driven by reduced outward capital flows. These options can be grouped into macroeconomic and prudential policies, administrative capital controls (i.e. restrictions of capital transactions through quantitative limits or outright prohibitions) and market-based capital controls (i.e. unremunerated reserve requirements and taxes on capital inflows).

A challenging point is that capital flows are probably attracted to emerging markets especially to East Asia not by apparent yield differentials or changes per se, but because of the real growth prospects behind the yields. It is the soundness of the macro environment implied by the potential for domestic savings to be put to work at home that is encouraging international investors.

In the light of previous shocks—the Asian financial crisis and the sudden reversal of capital flows during the global financial crisis —it is no surprise that Philippine authorities and other monetary authorities are emphasising that they are watching movements of capital flows and their effects on asset prices very closely. But policy makers do more than just watch. They can and do act. With the balance of cross-border flows in savings having shifted such that they are putting upward pressure on currencies and asset prices across some Asian economies, authorities are presented with a number of issues. Moreover, the tools available to authorities are actually quite broad, and while each has a cost, there is no question that inward capital flows can be managed.

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Group unit root test: Summary
Series: DLOG(CLAIMS), TRADE, RGDP, FB, DLOG(BORDER), SPCV
Date: 11/22/10 Time: 18:57
Sample: 1995Q1 2009Q4
Exogenous variables: Individual effects
Automatic selection of maximum lags
Automatic selection of lags based on SIC: 0 to 4
Newey-West bandwidth selection using Bartlett kernel

Method	Statistic	Prob.**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t*	-2.36098	0.0091	6	350
Null: Unit root (assumes individual unit root process)				
Im, Pesaran and Shin W-stat	-4.15247	0.0000	6	350
ADF - Fisher Chi-square	42.9133	0.0000	6	350
PP - Fisher Chi-square	69.7185	0.0000	6	354

** Probabilities for Fisher tests are computed using an asymptotic Chi -square distribution. All other tests assume asymptotic normality.

Pairwise Granger Causality Tests
Date: 11/23/10 Time: 00:43
Sample: 1995Q1 2009Q4
Lags: 2, 60 Observations

Null Hypothesis:	F-Statistic	Prob.
DLOG(CLAIMS) does not Granger Cause TRADE	3.78041	0.0290
DLOG(CLAIMS) does not Granger Cause RGDP	2.91277	0.0129
DLOG(CLAIMS) does not Granger Cause FB	7.35025	0.0015
DLOG(BORDER) does not Granger Cause DLOG(CLAIMS)	3.96503	0.0388
DLOG(CLAIMS) does not Granger Cause DLOG(BORDER)	3.01446	0.0144
MCAP does not Granger Cause DLOG(CLAIMS)	2.61658	0.0821
TRADE does not Granger Cause FB	11.0640	0.0001
DLOG(BORDER) does not Granger Cause RGDP	3.40644	0.0412
DLOG(BORDER) does not Granger Cause FB	2.65057	0.0807
DLOG(BORDER) does not Granger Cause SPCV	2.58009	0.0860
SPCV does not Granger Cause RISKADJ	3.26236	0.0458
MCAP does not Granger Cause RISKADJ	3.38375	0.0411

Date: 11/23/10 Time: 00:19
Sample (adjusted): 1997Q2 2009Q4
Included observations: 51 after adjustments
Trend assumption: Linear deterministic trend (restricted)
Series: DLOG(CLAIMS) TRADE RGDP FB DLOG(BORDER) SPCV
Lags interval (in first differences): 1 to 4
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.766088	192.2789	117.7082	0.0000
At most 1 *	0.686121	118.1857	88.80380	0.0001
At most 2	0.399841	59.08949	63.87610	0.1184
At most 3	0.298116	33.05088	42.91525	0.3339
At most 4	0.189022	14.99753	25.87211	0.5748
At most 5	0.081079	4.312288	12.51798	0.6966

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.766088	74.09325	44.49720	0.0000
At most 1 *	0.686121	59.09620	38.33101	0.0001
At most 2	0.399841	26.03860	32.11832	0.2301
At most 3	0.298116	18.05336	25.82321	0.3731
At most 4	0.189022	10.68524	19.38704	0.5460
At most 5	0.081079	4.312288	12.51798	0.6966

Max-eigenvalue test indicates 2 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Chapter 8

INTERNATIONAL AND CROSS BORDER BANK LENDING IMPLICATION IN SEACEN: SRI LANKA

By
M.R.M. Abeyratne[1]

1. Introduction

1.1 General Motivation

Sri Lanka increased its dependence on borrowings from foreign banks following the opening of the economy in 1977 when companies coming under the purview of the Board of Investment in Sri Lanka (BOI) and which were exempted from the exchange control regulations, borrowed from foreign banks for their business activities. Foreign banks credits to Sri Lanka markets have expanded significantly in recent years. Outstanding foreign claims of reporting banks on Sri Lanka trebled after mid-1999, reaching $3.8 billion by first quarter of 2010. However, the global financial crisis may have caused banks to reconsider their exposures in Sri Lanka.

Foreign Direct Investment (FDI) inflows to Sri Lanka have recorded a considerable increase during the period 1998-2009. The annual FDI inflows to Sri Lanka increased from Rs 1 billion in 1995 to Rs 69 billion in 2009. However, FDI flows to Sri Lanka fell to Rs 69 billion (US$ 601 mn) in 2009 in comparison to Rs 101 billion (US$ 889 mn) in 2008. This was mainly due to the contraction in liquidity in the global credit markets and banking systems owing to the global financial crisis which originated from the subprime mortgage crisis in the United States. (Figure 1).

Foreign loan inflows to the private sector increased to Rs 44.8 billion in 2009 against Rs 9.7 billion in 1998. In 2009, foreign loans inflows to the private sector registered a significant growth of Rs 16 billion compared to previous year. This was mainly due to the increase in foreign borrowings by the BOI companies as well as other private companies. Foreign loan inflows to private

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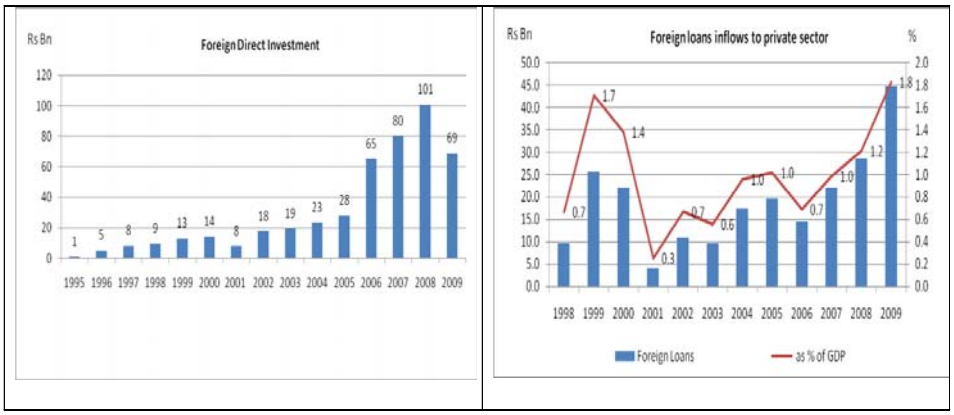
sector as a percentage of Gross Domestic Product (GDP) also increased from 0.7% in 1998 to 1.8% in 2009 (Figure 1).

Figure 1
Foreign Direct Investments and Foreign Loans Flows to Private Sector



Source: Central Bank of Sri Lanka

1.2 Banking Sector

After obtaining a licence from Central Bank of Sri Lanka, a company incorporated in Sri Lanka can carry out business as a commercial bank or specialised bank. A foreign bank also requires a licence from the Central Bank to engage in banking business. Licensed specialised banks are financial institutions which have obtained a licence from the Central Bank to conduct specialised banking business under the Banking Act and these banks are different from commercial banks in that they are not authorised to accept demand deposits from the public. These banks are also not permitted to deal in foreign currency transactions. However, with the prior approval of the Central Bank of Sri Lanka, they can engage in restricted foreign exchange transactions. At present, there are 22 commercial banks and 9 specialised banks operating with 1924 branches and 3,941 other banking outlets in the economy. Out of the 22 commercial banks, 11 are branches of foreign banks.

There are no restrictions with regard to the share ownerships in companies engaged in banking business by non residents including companies incorporated outside Sri Lanka under the current exchange control regulations. However, in terms of the regulations under the Banking Act, acquisition of shares exceeding 10% of the share capital of the company by non residents or residents requires

the prior approval of the Monetary Board of the Central Bank of Sri Lanka. At present, there is no licensed bank which is fully owned by non residents or a subsidiary of a company incorporated overseas.

With shifting of the Sri Lankan economy from a closed to an open, market-friendly one in 1977, all licensed commercial banks are permitted to carry out off-shore banking business with effect from 1979. Accordingly, all commercial banks operate two units, i.e., Domestic Banking units (DBU) and Off-shore Banking Units (OBU).

1.2.1 Off-shore Banking in Sri Lanka

Origins of offshore banking business in Sri Lanka coincided with the establishments of an open economy in the post 1977 period. In 1979, the Central Bank of Sri Lanka issued a scheme for the establishment of Foreign currency Banking Units (FCBU) in commercial banks. Accordingly, the commercial banks that were in operation were entitled to establish FCBUs subject to the conditions set out by the Central Bank. In accordance with the FCBU schemes, the FUBUs are allowed to accept demand deposits, time and call deposits from any non-resident in foreign currency designated by the Central Bank; borrow any designated foreign currency from any non-resident in any amount; grant any loans and advances to any non-resident in any designated foreign currency in any amount; engage in any transaction in any designated foreign currency with any other FCBUs and engage in any other transactions approved by the Central Bank. With the Banking Act coming into effect in 1988, the FCBU scheme was also expressed legislated in the Banking Act. Further, the legislative provisions transformed the existing FCBU scheme with slight modifications and renamed FCBUs as Offshore Banking Units (OBU). At present, OBUs are also allowed to engage in banking business with companies established in Sri Lanka with the approval of the Board of Investment of Sri Lanka and any other resident approved by the Central Bank.

1.2.2 Borrowings from Abroad

DBUs of licensed commercial banks are permitted to borrow upto 15% of their capital funds from lending institutions in terms of the current policy. Borrowings from abroad in excess of the limit by commercial banks could be made only with the prior approval of the Central Bank of Sri Lanka. Interests rates, repayment period, purpose and banks' financial status are some of the factors taken into consideration when approval is granted for commercial banks' borrowings from abroad. The licensed specialised banks can borrow from abroad

only with the prior approval of the Central Bank. At present, OBUs of licensed commercial banks are allowed to borrow from non-residents without any restrictions or limitations and prior approval of the Central Bank.

Companies incorporated in Sri Lanka which are subject to the Exchange Control regulations and residents of Sri Lanka require the prior approval of the Central Bank for foreign borrowings under the current exchange control regulations.

1.2.3 Lending to non Residents

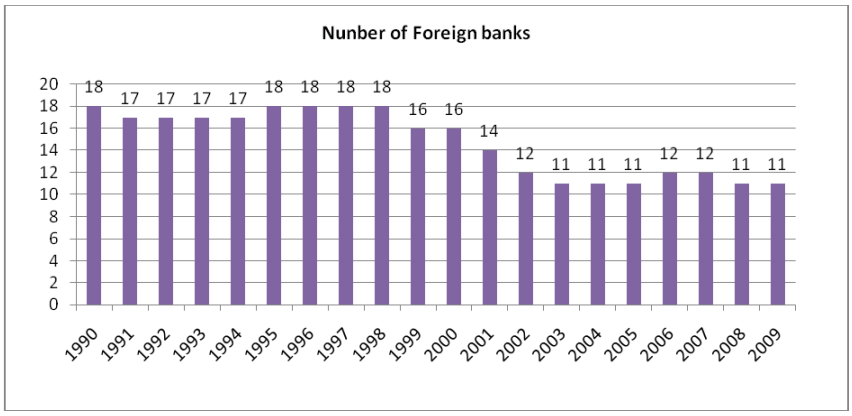
DBUs of licensed commercial banks and licensed specialised banks are not allowed to lend to non-residents including companies incorporated outside Sri Lanka at present due to the capital account control. However, OBUs of licensed commercial banks are allowed to lend to non-residents without any restrictions in the provisions of the Banking Act and the Banking (Offshore Banking Scheme) Order of 2000 issued by the Central Bank.

The rest of the Paper is organised as follows. Section 2 discusses the evolution of foreign banks, composition and growth in assets, deposits, lending and foreign borrowings of domestic banks and foreign banks and domestic and foreign banks' assets, deposits, lending and borrowing as percentages of Gross Domestic Products. Section 3 delves into the literature review with regard to international and cross border lending while Section 4 focuses on the research methodology and results of the impact of the global financial crisis on the cross border lending to Sri Lanka. Policy implications are discussed in Section 5 and Section 6 concludes.

2. Analysis of Foreign Banks' Involvement Pre and During the Global Financial Crisis in the Economy

At the end of August 2010, 11 foreign banks have established branches in Sri Lanka including 5 branches of Indian banks. In 1990, there were 18 foreign banks in the economy. However, the presence of foreign banks has declined due to acquisition of their business by local banks and merger of some foreign banks. At present, the 11 foreign banks provide various banking services to their customers through 46 branch network. (Figure 2).

Figure 2
Branches of Foreign Banks

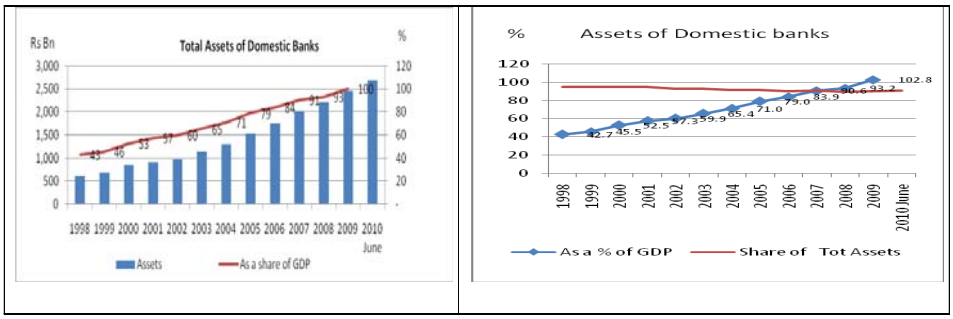


2.1 Assets of Domestic and Foreign Banks

2.1.1 Domestic Banks

Total assets of the DBUs of domestic commercail banks and specialised banks rose to Rs 2,451 billion at the end of 2009 from Rs 617 million in 1998. Domestic banks' assets as a percentage of Gross Domestic Product (GDP) which stood at 43% in 1998 increased to 100% in 2009 as a result of the opening of more domestic banks and enhancement of business operations of the domestic banks through new branches. The growth in assets of domestic banks was 11.1% in 2009 compared to a negative growth of 0.1% in foreign banks' assets. The assets of foreign banks and domestic banks grew at a slower pace in 2009 compared with the growth rates recorded in the previous years, reflecting the lower demand for credits. (Figure 3).

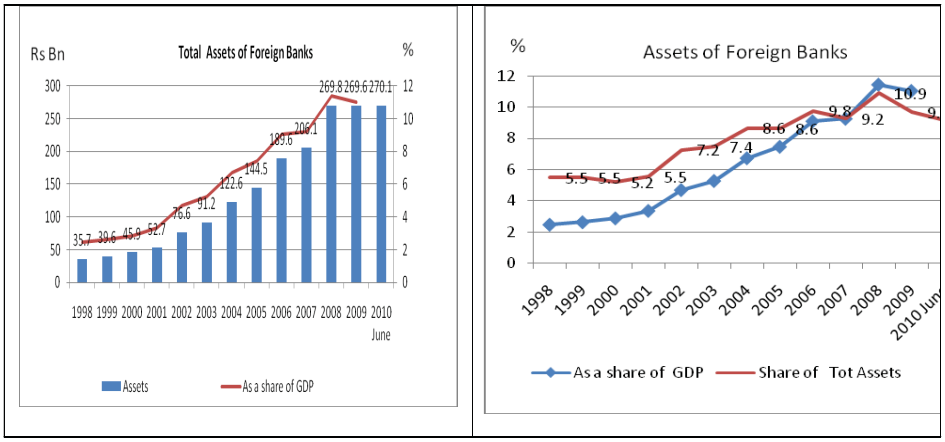
Figure 3
Assets of Domestic Banks



2.1.2 Foreign Banks

Total assets of branches of foreign banks which stood at Rs 36 billion by end December 1998, accounting for 10.5% of total assets of the entire banking sector, increased to Rs 270 billion in 2009, representing 14.5% of the total assets of the banking sector. However, the share of foreign banks' assets as a percentage of total bank assets declined marginally by about 2% in 2009 in comparison to 2008 mainly due to the decline in loans and advances extended by foreign banks. (Figure 4)

Figure 4
Assets of Foreign Banks



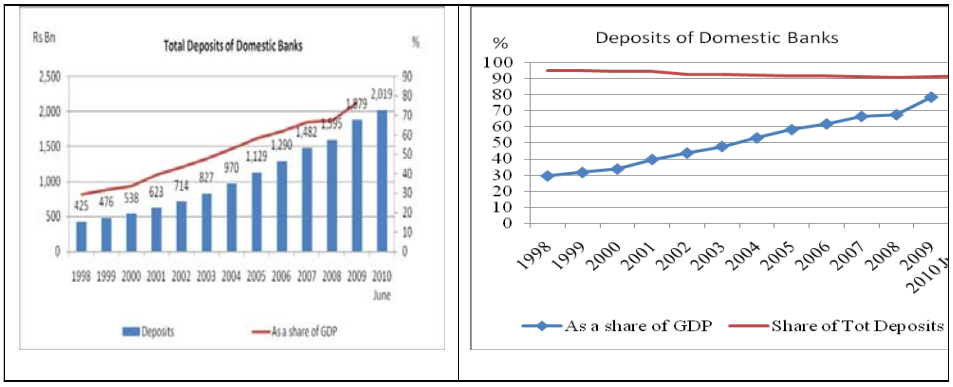
Assets of foreign banks' as a percentage of GDP which stood at about 2% in 1998 increased to around 11% by 2009. Limiting the banking activities to major cities and limited branch expansions of these foreign banks were the major reasons for the slow growth in assets of foreign banks compared with domestic banks.

2.2 Deposits of Domestic and Foreign Banks and their Market Share

2.2.1 Domestic Banks

Deposits mobilised by domestic commercial and specilised banks increased from Rs. 425 billion in 1998 to Rs 2,019 billion in 2009 while domestic banks' deposits as a percentage of GDP have registered a steady growth over the years reaching a level of 76% by end 2009. As there were no banks failures in the economy, domestic banks were able to increase their deposit base even during the global financial crisis period (Figure 5).

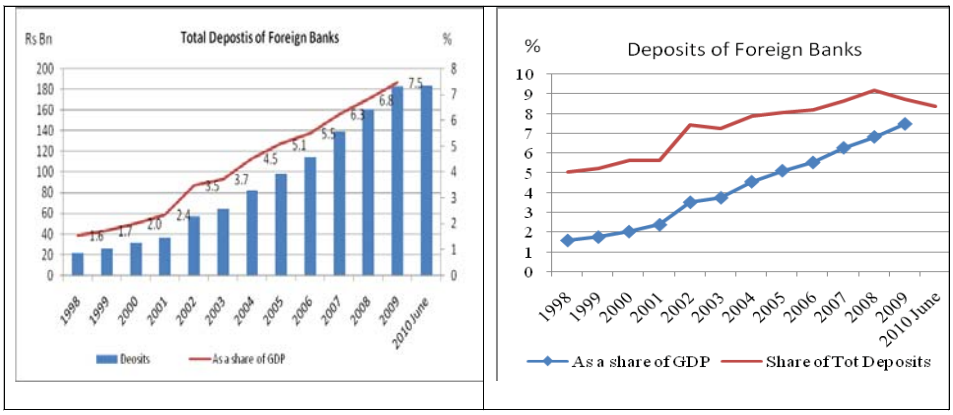
Figure 5
Deposits of Domestic Banks



2.2.2 Foreign Banks

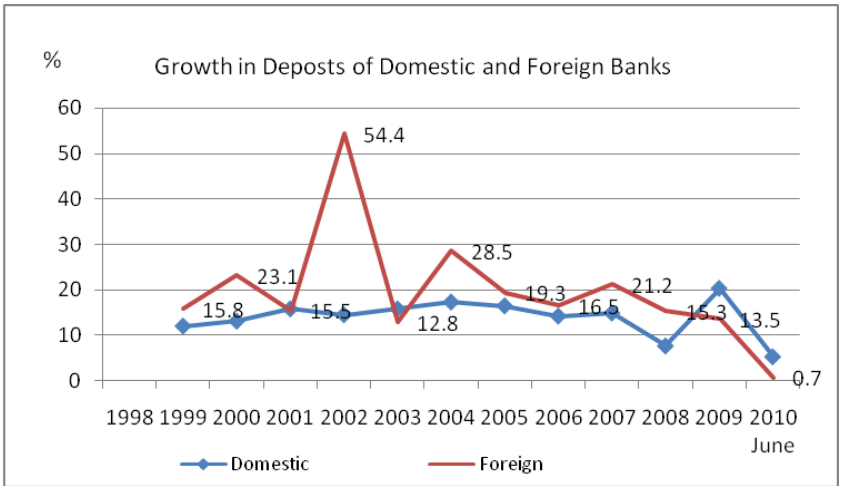
Total deposits of foreign banks which stood at Rs 23 billion in 1998 increased to Rs 183 billion in 2009 despite the failure of some foreign banks in developed countries. However, foreign banks' deposits increased maginally to Rs 184 billion by end June 2010. Foreign banks' deposits as a percentage of GDP increased from 1.6% in 1998 to 7.5% in 2009. (Figure 6).

Figure 6
Deposits of Foreign banks



The growth in deposits of domestic banks was 15.3% in 2009 while foreign banks' deposits recorded a slower growth of around 1%. However, deposits of foreign banks' increased marginally in the first half of 2010 compared to growth of domestic banks. (Figure 7).

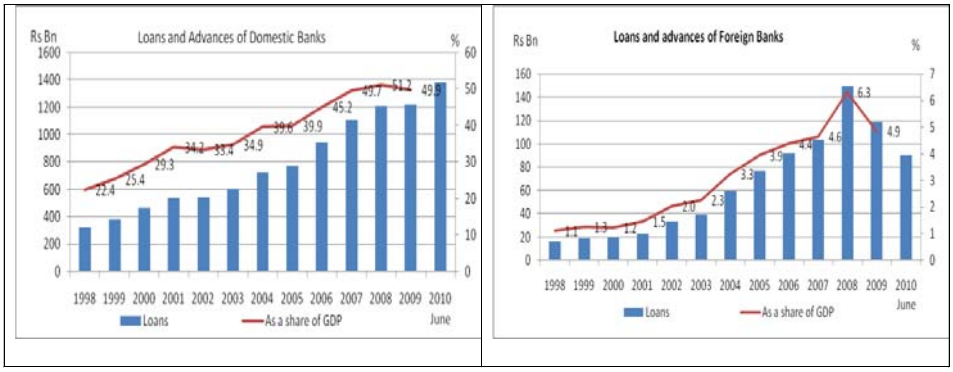
Figure 7
Growth in Deposits of Domestic and Foreign Banks



2.3 Loans and Advances of Domestic Banks and Foreign Banks.

Loans extended by domestic banks recorded a significant increase over the years and domestic banks' loans and advances as a percentage of GDP increased to 51% by end 2008. However, this ratio declined to 50% by end 2009. Loans and advances of domestic banks decelerated owing to lower demand for credit and the cautious approach of banks to expand lending due to rising non-performing loans. (Figure 8).

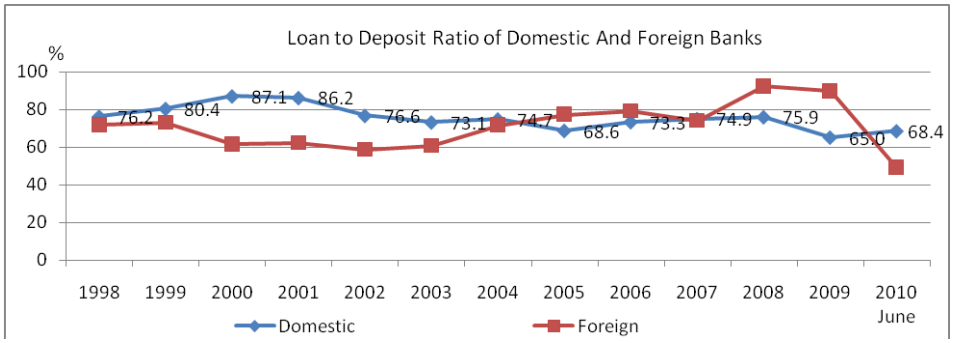
Figure 8
Loans and Advances of Foreign and Domestic Banks



Though foreign banks' loans and advances increased over the years, loans and advances extended by foreign banks decelerated by 18% from Rs 149 billon in 2008 to Rs.119 billion in 2009 and Rs 90 billion by end June 2010. A positive rebound in loans extended by foreign banks was not witnessed in 2010 despite the gradual recovery of the Sri Lankan economy from the adverse impacts of the global financial turmoil.

The loan to deposit ratio of domestic banks has been in the range of 65%-86% over the years. However, this ratio declined to a level of 65% in 2009 as there was a sharp drop in lending of domestic banks. The loan to deposit ratio of foreign banks was above 70% for the period 1998-2009 as foreign banks borrowed funds from abroad for lending purposes. However, this ratio declined to 49% by end June 2010 as a result of a sharp decline in lending of foreign banks during the year (Figure 9).

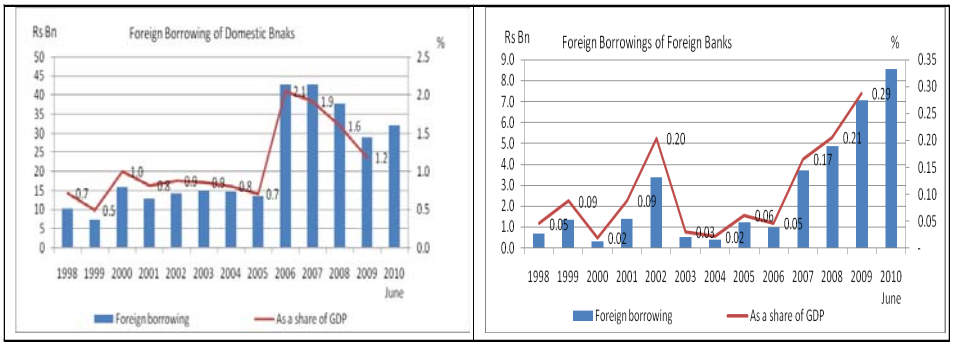
Figure 9
Loan to Deposit Ratio of Domestic and Foreign Banks



2.4 Foreign Borrowings

Domestic and foreign Banks are permitted to borrow up to 15% of their capital funds from lending institutions abroad including OBUs of all commercial banks. Foreign borrowings in excess of this limit require prior approval of the Central Bank. Foreign borrowings of domestic banks were in the range of Rs 10-15 billion during the period 1998-2005. Foreign borrowings of domestic banks in 2006 and 2007 were at Rs 43 billion. However, foreign borrowings of these banks declined significantly to Rs 29 billon in 2009 due to the global financial turmoil and lower demand for credits by the customers in the domestic market. Foreign borrowings as a percentage of GDP rose from 0.7% in 1998 to 2.1% in 2006 but declined to 1.2% by 2009 (Figure 10).

Figure 10
Foreign Borrowings of Domestic and Foreign Banks



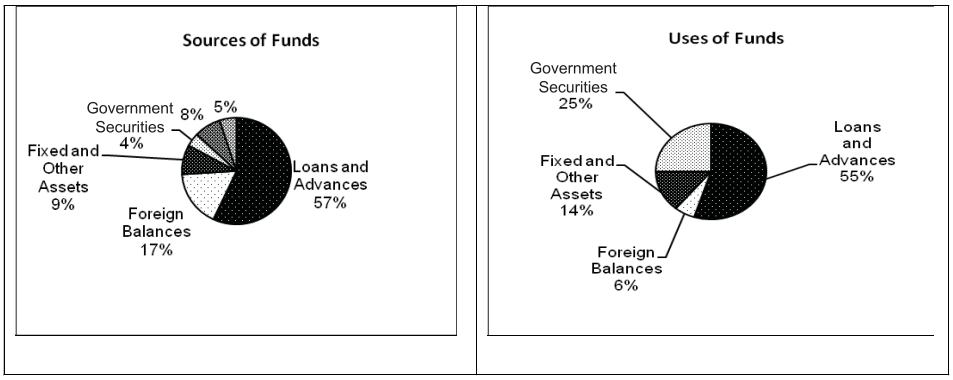
Foreign borrowings of foreign banks increased from Rs 700 million in 1998 to Rs 8.5 billion by 2009. An increase in foreign borrowings by foreign banks was witnessed during the period 2006-2009 despite the global financial crisis. This was mainly attributed to foreign borrowings by a few foreign banks for lending to the Government and to corporate customers in the private sector. The foreign borrowings of foreign banks as a percentage of GDP increased from 0.05% in 1998 to 0.29% in 2009.(Figure 10).

2.5 Sources and Uses of Funds of Commercial Banks

Deposits are the major funding source of the commercial banks operating in Sri Lanka at present and they account for more than 70% (Rupee deposits (57%) and foreign currency deposits (17%) of the total funds. Capital and reserves account for only about 8% of total funds.

The main uses of funds are loans and advances, accounting for about (55%) of total funds, followed by Government securities (25%). (Figure 11).

Figure 11
Sources and Uses of Funds of Commercial Banks (as at end 2009)



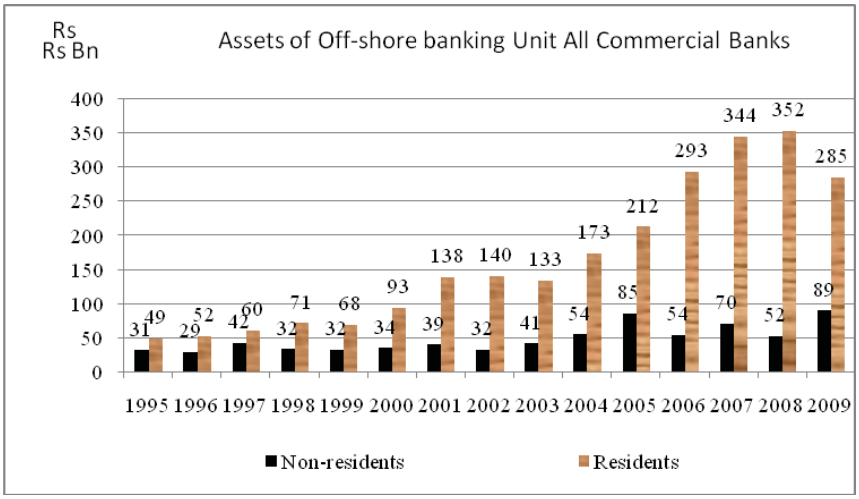
2.6 Off-Shore Banking Unit of Licensed commercial Banks

With the opening of the Sri Lankan economy in 1977, licensed commercial banks were permitted to operate OBUs to facilitate foreign investors in Sri Lanka under the BOI Law. OBUs can engage in off-shore banking transactions with non-residents and permitted residents including the BOI companies which are exempted from exchange control regulations.

2.6.1 Assets of OBUs

Assets pertinent to nonresidents' customers, which include lending and investments, increased from Rs 31 billion in 1995 to Rs 89 billion in 2009. Although there was a significant decrease of Rs 18 billion in nonresidents customers' assets in 2008 compared to the previous year, a noteworthy improvement of Rs 37 billion was witnessed in 2009. Assets relating to residents also rose from Rs 49 billion in 1995 to Rs 285 billion in 2009. However, assets of the resident category declined sharply by Rs 67 billion in 2009 mainly due to significant drop in lending to resident customers. (Figure 12).

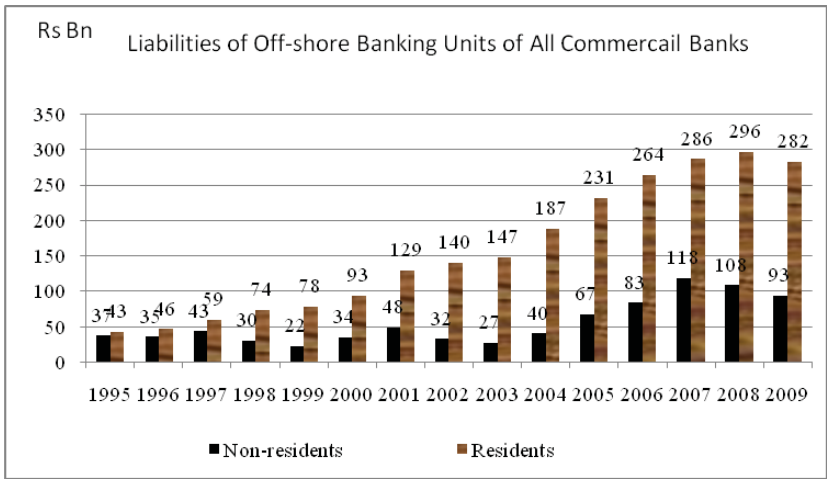
Figure 12
Assets of Off-shore Banking Units of Commercial Banks



2.6.2 Liabilities of OBUs

Liabilities applicable to resident and non-resident customers which include deposits and foreign borrowings increased to Rs 282 billion and 93 billion in 2009 respectively from Rs. 37 billion and Rs. 43 billion in 1995 respectively. However, liabilities of resident and nonresident customers decelerated in 2009 marginally due to curtailment in foreign borrowing by OBUs. (Figure 13).

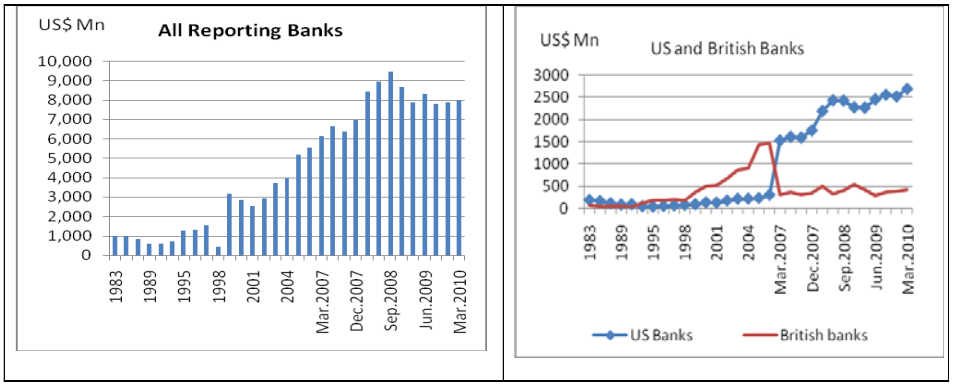
Figure 13
Liabilities of Off-shore Banking Units of All Commercial Banks



2.7 Consolidated Foreign Claims

As per the data series on consolidated foreign claims of reporting banks taken from the BIS statistics, foreign claims of all reporting banks on Sri Lanka have recorded growth over the period 1983 to 2008. However, foreign claims dropped to US$ 8,664 million by December 2008 and to US$ 7,856 by March 2009 from a level of US$ 9,439 recorded in September 2008 (Figure 14). There was a sharp increase in US Banks' foreign claims on Sri Lanka after 2005 but lendings of US banks to Sri Lanka dropped sharply after the collapse of Lehman Brothers in November 2008. Smilarly, foreign claims of UK banks have also declined during the last quarter of 2008 and first quarter of 2009. (Figure 14).

Figure 14
Foreign Claims on Sri Lanka



Source: Bank For International Settlements

3. Literature Review

Foreign bank participation through cross-border lending activity or direct entry into the local market has several benefits to countries in terms of enhanced efficiency, liquidity provision, risk sharing and growth opportunities. Foreign banks are also more resilient and well prepared to handle shocks originating in the respective countries. However, the transmission of shocks from source countries to other countries has raised concerns about the mechanisms for such transmissions and the appropriate policy responses.

Garcia – Herrero and Martinez Peria (2007) found that lending through a local network of branches and subsidiaries is much more stable than cross-border foreign bank lendings. Maria Soledad Martinez Peria, Andrew Powell, and Ivanna Vladkova –Hollar (2005) found that while foreign banks respond to host countries, they do not appear to pull out faster in times of crisis or during other periods of economic downturn. Furthermore, higher foreign bank exposure appears to be a stabilising force as they found that foreign banks' responsiveness to host conditions becomes less procyclical as exposure increases.

Reza Y. Siregar and Keen Meng Choy (2010) found that political instability and weaknesses in legal judicial and bureaucratic systems help explain the continued stagnation in lending after the financial crisis.

4. Research Methodology and Empirical Results

The global financial crisis which erupted in mid 2007, became more apparent during 2007 and 2008 and has resulted in contracted liquidity in the global credit markets and banking systems. Foreign bank participation through cross-border lending activity or via opening branches or subsidiaries have been recognized as producing significant benefits to the local economy by way of enhanced efficiency, liquidity provision and risk sharing. However, at the same time, the international and foreign banks may transmit shocks to other economies. In order to find out whether foreign banks transmitted shocks from their home countries to Sri Lanka during the recent global financial crisis, we will examine the link between foreign banks' international lending to Sri Lanka. Therefore, this Section presents the determinants of foreign bank lending by using an empirical strategy - a standard econometric test which is a modification of Martinez-Peria et al (2005).

4.1 Model - A Modification of Martinez-Peria et al. (2005)

We modified the model used by Martinez-Peria et al. (2005) to test the changes in foreign bank claims on Sri Lanka to analyse the relationship between foreign banks claims and economic factors of host countries and home countries. The modified model comprises the following variables.

$$\log(\Delta Foreign\_Bank\_Claims)_{jt} = \alpha_0 + \alpha_1 Foreign\_Country\_Lender\_Factors_{jt} + \alpha_2 SriLanka\_Factors_t + \alpha_3 GFC\_Dummy + \alpha_4 \times GFC\_Dummy \times Exposure_t$$

In the above modified model of Martinez-Peria et al (2005), j = 1 to 4 refers to the 4 host countries of the Netherlands, Japan, United Kingdom and the United States as foreign banks involved in international and cross –border lendings to the Sri Lankan economy in the past and t = 1 to 41 refers to the time period considered for this study.

The above model disregards the dummy for the Asian financial crisis due to non-availability of time series data on foreign banks claims. Therefore our data set runs from the period 2000 Q1 to 2010 Q1, consisting of 41 quarterly observations.

The data set comprise the following variables:

(1) $\log(\Delta Foreign\_Bank\_Claims)_{jt}$ is the first difference of the logarithm of Foreign Claims by foreign country/bank (j) in Sri Lanka;

(2) *Country_Origin_Lender_Factors* are control variables that mainly capture the macroeconomic conditions in the country of the foreign bank(j), e.g., real GDP growth and real interest rate;
(3) *SriLanka_Factors* are control variables that capture the macroeconomic conditions in Sri Lanka such as real GDP growth, real interest rate, and percentage change in the exchange rate of Sri Lanka Rupees against the US dollar.
(4) *GFC_Dummy* is a dummy variable that takes the value of one in 2007, 2008 and 2009;
(5) *Exposure* is the ratio of foreign country/bank(j) claims on Sri Lanka over the total claims extended by foreign country/bank(j).

In the regression equation, the impact of the global financial crisis on foreign banks lending is based on the sign and significance of the α_4 coefficients. Indeed, controlling for other factors, if higher exposure is translated into more stable financing, we expect this interaction term between the GFC dummy and exposure to be positive and significant.

4.2 Foreign Country Factors

Regarding the foreign country factors, we would like to verify α_1 according to the impact of real GDP growth and real interest rate of the Netherlands, Japan, United Kingdom and the United States on the changes of their respective claims on Sri Lanka.

Foreign country economic conditions could have a positive or a negative impact on foreign bank lending to the host country (Martinez-Peria et al, 2005), because adverse economic conditions and a lack of profit opportunities in the foreign country could encourage international and foreign banks to extend credit abroad, while a recession in the home country could lead to a deterioration in the capital of foreign banks and overall reduction in claims held at home and abroad.

Moreover, low real interest rates in lender countries tend to signal periods of excess liquidity, and this might increase banks' willingness to extend riskier, higher interest rate claims to host countries. Therefore, it is expected that home real interest rate have a negative impact on the change in claims to host country.

4.3 Sri Lanka Factors

Regarding α_2 thecoefficient, in addition to the real GDP growth and real interest rates, we also take the percentage change in currency exchange rate as the third independent variable.

We assume lower real interest rate in host country will stimulate economic recovery and trigger the increase for foreign bank lending. Accordingly, we expect the host's real interest rate would have a negative impact on the change in claims to the host country.

For the percentage change in Sri Lanka Rupees exchange rate against US dollar, the appreciation of Sri Lanka Rupees would lead to more foreign claims. Therefore, we expect the change of exchange rate to have positive impact on the change in claims to host country. Table 1 provides the description and sources of each variable.

Table 1
Data Definition and Sources of Model

Variables	Explanations	Sources
Dependent variable		
Log(Δ Foreign_ Bank_Claims)	1. Foreign Bank Claims are referred to foreign claims of Bank of International Settlement. 2. The first difference of logarithm of Foreign Bank Claims by foreign country/bank(j) in your country.	
1DLOG(FBC) SL_JP	The first difference of logarithm of Japan foreign claims on Sri Lanka.	Bank of International Settlements
2.DLOG(FBC) _SL_NL	The first difference of logarithm of Netherlands foreign claims on Sri Lanka	Bank of International Settlements
3DLOG(FBC) SL_UK	The first difference of logarithm of UK foreign claims on Sri Lanka	Bank of International Settlements
4DLOG(FBC) _SL_US	The first difference of logarithm of US foreign claims on Sri Lanka	Bank of International Settlements
Independent variable		
Foreign country factors –		
1. GDPR_JP	The real GDP growth for Japan.	International Financial Statistics, IMF
2. RINT_JP	1. RINT_JP presents lending rate minus CPI inflation for Japan.	International Financial Statistics, IMF
1. GDPR_NL	The real GDP growth for Netherlands	International Financial Statistics, IMF
2. RINT_NL	2. RINT_NL presents lending rate minus CPI inflation for Netherland.	International Financial Statistics, IMF

1. GDPR_UK	The real GDP growth for United Kingdom.	International Financial Statistics, IMF
2. RINT_UK	1. RINT_UK presents lending rate minus CPI inflation for United Kingdom.	International Financial Statistics, IMF
1. GDPR_US	The real GDP growth for United States.	International Financial Statistics, IMF
2. RINT_US	2. REALRATE_US presents lending rate minus CPI inflation for United States.	International Financial Statistics, IMF
Sri Lanka_factors -		
1. GDPR_SL	The real GDP growth for Sri Lanka	Central Bank of Sri Lanka
2. RINT_SL	*1.* RINT_SL presents lending rate minus CPI inflation for Sri Lanka	Central Bank of Sri Lanka
3. ERATE_SL	The first difference of logarithm in exchange rate of Sri Lanka Rupees against US Dollar.	Central Bank of Sri Lanka
GFC_Dummy	A dummy variable taking the value of one in 2007, 2008 and 2009.	
DGFC_EXPOSURE	The ratio of foreign country/bank(j) claims on Sri Lanka over the total claims extended by foreign country/bank(j).	
1. DGFC_EXPOSURE_ SL JP	1. EXPOSURE_SL_JP is the ratio of Japan foreign claims on Sri Lanka over the total claims extended by Japan banks.	Bank of International Settlements
2. DGFC_EXPOSURE_ SL_NL	2 EXPOSURE_SL_NL is the ratio of Netherlands foreign claims on Sri Lanka over the total claims extended by Netherlands banks.	
3 DGFC_ EXPOSURE_SL _UK	1 EXPOSURE_SL_UK is the ratio of United Kingdom foreign claims on Sri Lanka over the total claims extended by UK banks.	Bank of International Settlements
4 DGFC_EXPOSURE_ SL_US	1 EXPOSURE_SL_US is the ratio of United States foreign claims on Sri Lanka over the total claims extended by US banks.	Bank of International Settlements

4.4 Empirical Results

The results of the model for lagged one period (1 quarter), lagged 2 period (two quarters) and lagged four period (four quarters) are presented in Table 2, 3 and 4 respectively. The results signify that both push and pull factors affect changes in foreign banks claims on Sri Lanka.

For lagged one period, out of the push factors, the GDP growth rates of Japan, Netherlands, United Kingdom and the United States are positive and significant at 1% level of significance. This indicates that foreign countries' economic growths result in an increase in foreign bank lending to Sri Lanka. According to the results, foreign countries' interest rates do not have any positive or negative impact on foreign bank lending to Sri Lanka. For lagged one period, out of the pull factors, real interest rates of Sri Lanka is positive and signifacant at a level of 10% while exchange rates of Sri Lanka is positive anf significant at a level of 5%. Meanwhile, Sri Lanka's GDP growth rates are not significant. The results show that foreign bank lendings are highly correlated with real interest rates and exchange rates of Sri Lanka.

Table 2
Dependent Variable: DLOG(FBC)
(Method: Panel Least Squares; Sample (adjusted): 2000Q2 2010Q1
Periods included: 40; Cross-sections included: 4
Total panel (balanced) observations: 160)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.886883	0.390624	-2.270424	0.0246
FRGDPR	0.014090	0.040108	0.351310	0.7259
FRGDPR(-1)	0.110070	0.040290	2.731970	0.0071
FRINT	-0.015062	0.039693	-0.379465	0.7049
FRINT(-1)	0.040345	0.041470	0.972866	0.3322
SLRGDPG	-0.025555	0.019967	-1.279848	0.2026
SLRGDPG(-1)	0.009959	0.017853	0.557838	0.5778
SLRINT	0.017753	0.009753	1.820193	0.0708
SLRINT(-1)	-0.010125	0.008904	-1.137120	0.2573
SLERATE	-0.025471	0.014964	-1.702132	0.0908
SLERATE(-1)	0.034277	0.014455	2.371316	0.0190
DGFC	-0.026636	0.094660	-0.281384	0.7788
DGFC_EXPOSURE	0.544473	2.092552	0.260196	0.7951

R-squared	0.128366	Mean dependent var	0.009649
Adjusted R-squared	0.057212	S.D. dependent var	0.320210
S.E. of regression	0.310915	Akaike info criterion	0.579164
Sum squared resid	14.21021	Schwarz criterion	0.829022
Log likelihood	-33.33312	Hannan-Quinn criter.	0.680623
F-statistic	1.804064	Durbin-Watson stat	2.525748
Prob(F-statistic)	0.052325		

For a lag of two periods, only foreign countries' GDP growth rates and exchange rates of Sri Lanka have a positive impact on the foreign bank lending to Sri Lanka. This reveals that foreign banks are highly concerned with the movements in the Sri Lankan exchange rate when extending loans to Sri Lanka. We can see similar results for the four period lags as well in that the exchange rate is one of the main factors that foreign banks consider in their foreign lending.

Table 3
Dependent Variable: DLOG(FBC)
(Method: Panel Least Squares; Sample (adjusted): 2000Q3 2010Q1
Periods included: 39; Cross-sections included: 4
Total panel (balanced) observations: 156)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.519247	0.469333	-1.106351	0.2705
FRGDPR	0.012205	0.042014	0.290502	0.7719
FRGDPR(-1)	0.112862	0.042134	2.678625	0.0083
FRGDPR(-2)	-0.080441	0.042543	-1.890804	0.0607
FRINT	-0.017964	0.042610	-0.421597	0.6740
FRINT(-1)	0.043558	0.064626	0.674010	0.5014
FRINT(-2)	-1.04E-05	0.043670	-0.000238	0.9998
SLRGDPG	-0.015799	0.026339	-0.599854	0.5496
SLRGDPG(-1)	0.021725	0.034453	0.630571	0.5294
SLRGDPG(-2)	-0.008148	0.021131	-0.385610	0.7004
SLRINT	0.013353	0.011002	1.213719	0.2269
SLRINT(-1)	-0.015263	0.014268	-1.069710	0.2866
SLRINT(-2)	0.004408	0.010237	0.430577	0.6674
SLERATE	-0.025071	0.015784	-1.588342	0.1145
SLERATE(-1)	0.046562	0.021911	2.125030	0.0354
SLERATE(-2)	-0.016772	0.015576	-1.076757	0.2835
DGFC	-0.016737	0.100221	-0.167006	0.8676
DGFC_EXPOSURE	0.377088	2.126718	0.177310	0.8595

R-squared	0.154115	Mean dependent var	0.015153
Adjusted R-squared	0.049912	S.D. dependent var	0.321545
S.E. of regression	0.313417	Akaike info criterion	0.625606
Sum squared resid	13.55581	Schwarz criterion	0.977512
Log likelihood	-30.79724	Hannan-Quinn criter.	0.768535
F-statistic	1.478990	Durbin-Watson stat	2.495149
Prob(F-statistic)	0.110959		

The coefficents of DGFC (Dummy) is not positive and significant. Similarly, DGFC_ EXPOSURE is also not significant. Therefore, this shows that the global financial crisis did not have any impact on foreign bank claims and cross-border lending to Sri Lanka. As per BIS data, foreign claims of reporting banks of Japan, Netherlands, United Kingdom and United States on Sri Lanka is less than 1% of the total exposure of these banks over the years.

Table 4
Dependent Variable: DLOG(FBC)
(Method: Panel Least Squares; Sample (adjusted): 2001Q1 2010Q1
Periods included: 37; Cross-sections included: 4
Total panel (balanced) observations: 148)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.434810	0.809833	0.536913	0.5923
FRGDPR	0.004898	0.044626	0.109749	0.9128
FRGDPR(-1)	0.088613	0.046023	1.925409	0.0565
FRGDPR(-2)	-0.039536	0.043651	-0.905727	0.3669
FRGDPR(-3)	-0.058717	0.046021	-1.275884	0.2045
FRGDPR(-4)	-0.013936	0.051500	-0.270609	0.7872
FRINT	-0.051220	0.045493	-1.125891	0.2625
FRINT(-1)	0.088720	0.067485	1.314666	0.1911
FRINT(-2)	-0.015954	0.069716	-0.228836	0.8194
FRINT(-3)	0.019226	0.072358	0.265705	0.7909
FRINT(-4)	-0.018059	0.051159	-0.352986	0.7247
SLRGDPG	0.004986	0.035088	0.142105	0.8872
SLRGDPG(-1)	-0.004166	0.045398	-0.091769	0.9270
SLRGDPG(-2)	-0.042298	0.042428	-0.996929	0.3208
SLRGDPG(-3)	0.056612	0.038411	1.473833	0.1431
SLRGDPG(-4)	-0.015838	0.024792	-0.638841	0.5241
SLRINT	0.000408	0.014180	0.028743	0.9771
SLRINT(-1)	-0.018632	0.015773	-1.181295	0.2398
SLRINT(-2)	0.013754	0.016476	0.834798	0.4055
SLRINT(-3)	0.009115	0.017304	0.526785	0.5993
SLRINT(-4)	-0.018819	0.014674	-1.282417	0.2022
SLERATE	-0.025766	0.019501	-1.321244	0.1889
SLERATE(-1)	0.047756	0.025246	1.891658	0.0609
SLERATE(-2)	-0.027248	0.024378	-1.117726	0.2659
SLERATE(-3)	-0.034998	0.026539	-1.318753	0.1898
SLERATE(-4)	0.036522	0.020446	1.786274	0.0766
DGFC	0.013829	0.115358	0.119881	0.9048
DGFC_EXPOSURE	0.109735	2.120844	0.051741	0.9588

R-squared	0.221029	Mean dependent var	0.020544
Adjusted R-squared	0.045761	S.D. dependent var	0.308700
S.E. of regression	0.301555	Akaike info criterion	0.608926
Sum squared resid	10.91222	Schwarz criterion	1.175966
Log likelihood	-17.06054	Hannan-Quinn criter.	0.839313
F-statistic	1.261090	Durbin-Watson stat	2.557210
Prob(F-statistic)	0.197928		

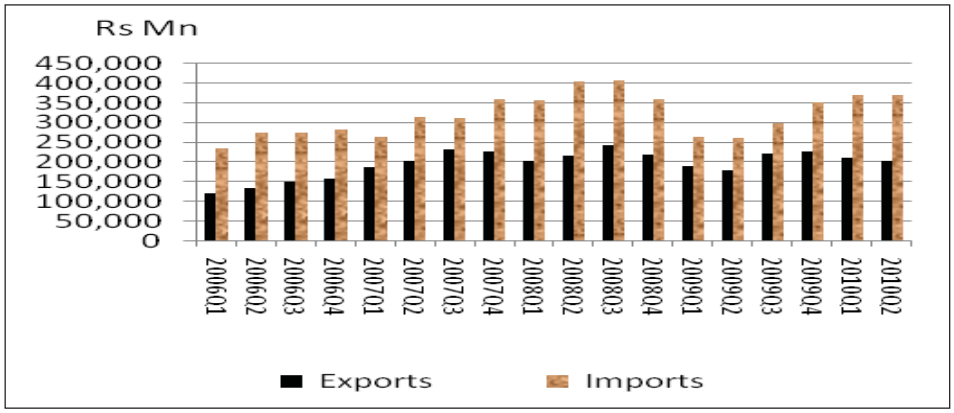
4.5 The Impact of the Global Economic Crisis on the Sri Lankan Economy

The impact of the global economic crisis on the Sri Lankan economy was visible from late 2008 with a gradual decline in exports from Sri Lanka to developed countries. Sri Lanka did experience a foreign exchange crisis at this time due to various factors such as the favourable prices for leading exports such as tea, rubber; increase in remittences; borrowings of US$ 500 million in September by the Government as well as the inflow of foreign funds to purchase Treasury Bonds and Bills. However, this situation changed when the crisis was aggravated by a number of US financial institutions going under; outflow of funds invested by foreigners in Treasury Bonds and Bills in late 2008 and compounded by the declining prices of tea and rubber from August 2008. Foreign reserves of Sri Lanka declined to US$ 1.7 billion by end 2008 owing to these developments. However, foreign exchange reserves improved due to the Sri Lanka's strategies namely, engagement in swap arrangement with other central banks, opening up the Treasury Bonds and Bills market to the Sri Lankan Diaspora and introducing bonus interest rate on Non Resident Foreign Currency Accounts and Resident Foreign Currency Accounts to attaract more non- rupee savings.

4.5.1 Exports and Imports

Like in most other countries, Sri Lanka's external trade was adversely affected by the global economic downturn. Export earnings and expenditure on imports started to decline from the last quarter of 2008 and in line with the global trends, export earnings declined by 12.% to Rs 813,911 million (US$ 7,085 million) in 2009 compared to that of 2008**.** All major sectors reflected declines in growth while the largest contribution to the decline in overall exports was from the industrial sector (83.1%) followed by the agricultural sector (16.0%). (Figure 15)

Figure 15
Exports and Imports

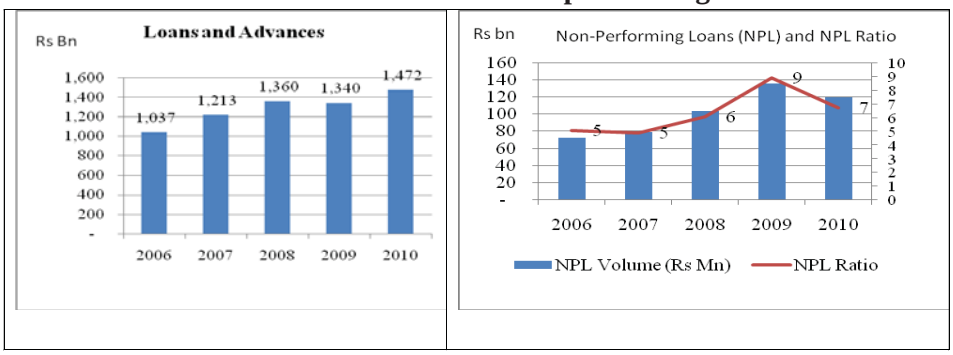


Expenditure on imports in 2009 amounted to US$ 10,207 million, reflecting a sharp decline of 27.6% from that of the previous year, due to reductions in both volumes and prices. All major categories of imports i.e., consumer, intermediate and investment goods, declined. Sluggish growth in the major economies around the world led to lower international commodity prices, including oil prices, and the slowdown in the domestic economic activities resulted in a drastic drop in import volumes, leading to an overall decline in import expenditure.

4.5.2 Loans and Advances of Licensed banks

Loans and Advances declined in 2009 due to lower demand for credit and the cautious approach taken by banks to expand lending in view of rising non performing loans (Figure 16).

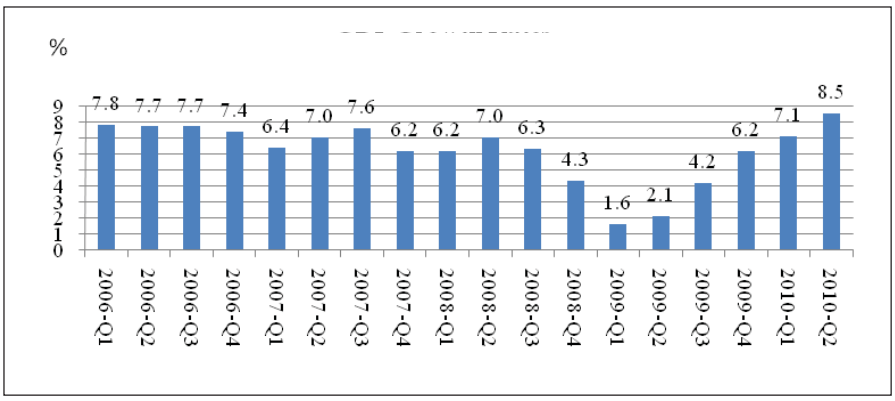
Figure 16
Loans and Advances and Non-performing Loans



4.5.3 GDP Growth

The Sri Lankan economy recorded an average growth rate of over 7% for the period 2006 Q1 – 2007 Q3. Quarterly GDP growth rares slowed down to a level of 6.2% in the last quarter of 2007 and 1st quarter of 2008. However, a GDP growth rate of 7% was recorded in the 2nd quarter of 2008. Starting from the 3rd quarter of 2008 nonetheless, the economic growth decelerated and the lowest quarterly GDP growth rate of 1.6% was recorded in the 1st quarter of 2009.This was mainly due to the spill-over effects of the global financial crisis. However, a notable growth of 6.2% was witnessed in the last quarter of 2009 as a result of the end of the prolonged conflict, recovery of the global economy and the policy measures taken by the Central Bank and the Government (Figure 17.)

Figure 17
GDP Growth Rates



5. Policy Implications

The Sri Lankan ecnomy is at present a relatively open one even though the capital account is not fully opened. With this level of openness, developments in international markets would have some adverse impact on the Sri Lankan economy. Therefore, policy makers in Sri Lanka have to be vigilant to minimise the impact of adverse international developments on the economy. Although Sri Lanka has encouraged direct investment in equity, a cautious approach has been adopted with respect to debt inflows. Foreign borrowings by residents other than BOI companies are subject to the prior permission of the Central Bank. Moreover, the Central Bank has imposed prudential limits on commercial banks' foreign borrowings. The above capital controls and prudential policies have attempted to prevent excessive recourse to foreign borrowings. Therefore, the policies have been able to mitigate the potential impact of the global financial turmoil on the domestic financial market.

6. Conclusion

During the period of the financial crisis, foreign claims of reporting banks in Japan, Netherlands, United Kingdom and United States on Sri Lanka dropped marginally (per BIS data). The share of foreign claims of reporting banks on Sri Lanka to total claims of those banks is less than 1%. The empirical study suggests that the economic growth of the home country and real interest rate and the exchange rate of the host country are the determinants of foreign bank lendings to Sri Lanka. However, the global financial crisis did not have a significant impact on the international and cross border lending to Sri Lanka mainly due to limitations and restrictions on foreign borrowings by companies, banks and residents in Sri Lanka. Sri Lanka has now relaxed exchange control regulations on certain capital transactions such as permitting foreign investors to make investments in corporate debentures issued by local companies, expediting approvals for private and public limited liability companies and sole proprietorships to borrow from foreign sources. With this capital account liberalisation, international and cross border lending would increase in the future. In order to minimise the transmission of shocks, policies and prudential regulations will have to be strengthened in the economy.

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Chapter 9

FOREIGN BANK CLAIMS ON CHINESE TAIPEI DURING THE RECENT GLOBAL FINANCIAL CRISIS

By
Huey-Ming Chen[1]
Chien-Yeh Yang

1. Introduction

1.1 Motivation

During the recent global financial turmoil that started in the summer of 2007 and deteriorated further in 2008, liquidity squeeze spilled over from the US to other advanced economies and then to emerging and developing economies, and economic growth halted and reversed in most economies. The bank credit in almost all economies dropped sharply, including cross-border bank lending, during the recent global financial crisis. The debate arose as to whether multinational banks acted as a stabilising force in local economies or contributed to the transmission of liquidity shocks and home conditions into affiliate markets.

Chinese Taipei's liquidity risk has been relatively low as its banking system has benefited from ample liquidity. However, the growth in loans extended by local banks in Chinese Taipei has slowed down since the second half of 2008 and turned negative in the period from March to November of 2009. Loans extended by foreign bank affiliates, in particular, declined significantly.

This research paper attempts to clarify the stabilising role of foreign banks during the recent global financial crisis, with a special focus on foreign bank claims on Chinese Taipei, which has two separate channels: direct cross-border claims, and local lending of affiliates. The foreign bank claims are generally

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1. Authors are Deputy Section Chief and Junior Specialist of the Department of Economic Research and Foreign Exchange Department of the Central Bank, Chinese Taipei respectively. This paper is part of the SEACEN research project. The authors would like to thank Deputy Director General Tina Chen, Assistant Director General Dr. Chien-nan Wang, and Assistant Director GeneralYuh-Shiow Cherng of the Department of Economic Research for their helpful discussions and comments. The views expressed in this paper are those of the authors and not necessarily those of Central Bank, Chinese Taipei or The SEACEN Centre.

affected by the pull and push factors. The pull factors include those associated with the domestic economy while the push factors are associated with the balance sheet of the bank and the economy of origin. Therefore, the paper would also investigate the factors affecting the change of foreign bank claims on Chinese Taipei, and factors having key influences on foreign bank affiliates' lending behaviour in Chinese Taipei.

This research paper uses two empirical models to examine the link between host and home factors and foreign bank lending, and attempts to raise policy implications of foreign bank claims for Chinese Taipei's banking system.

1.2 The Scope Covered in the Research Paper

The foreign bank claims in this paper refer to foreign banks' cross-border claims by their headquarters to a firm abroad, and local lending through a local network of branches and subsidiaries. The cross-border claims in this paper are sourced from the data sets in the consolidated banking statistics of the Bank for International Settlements (BIS). The lending of foreign bank affiliates in Chinese Taipei is based on the financial statistics of the Central Bank, Chinese Taipei.

Foreign bank affiliates in Chinese Taipei include local branches, subsidiaries and offshore banking units (OBUs) of foreign banks. Domestic banks discussed in this paper include their OBUs for comparison purpose.

According to the BIS consolidated banking statistics, cross-border claims cover reporting banks' on-balance sheet financial claims on Chinese Taipei vis-à-vis all sectors in all currencies. As for local lending by foreign bank affiliates in Chinese Taipei, it also covers all sectors in all currencies. Both are net of inter-office accounts.

In Section 2, we will first introduce the development of foreign bank affiliates in Chinese Taipei, and review their local lending and cross-border claims pre- and during the global financial crisis. Section 3 is a review of related literature with a particular focus on Chinese Taipei. In order to find out the link between pull or push factors and foreign bank claims, this paper will employ two empirical models. Section 4 will explain the research methodology and Section 5 presents the empirical results. Policy implications are elaborated in Section 6 and Section 7 concludes.

2. Analysis of Foreign Banks' Involvement Before and During the Global Financial Crisis

2.1 Foreign Bank Claims on Chinese Taipei

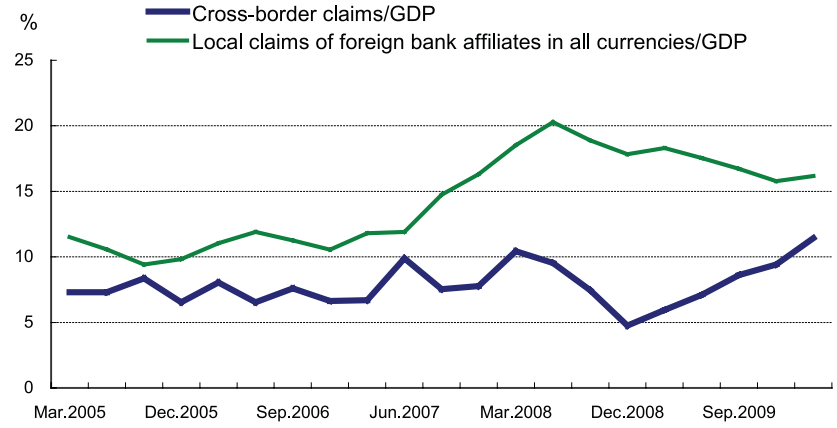
According to the BIS consolidated banking statistics, foreign banks' cross-border claims on Chinese Taipei as a share of annual Chinese Taipei GDP ranged from 6.5% to 10.4% before 2008 Q1. However, it decreased sharply to 4.8% at the end of 2008 Q4 amid the global financial crisis. Benefitting from the global economic stimulus packages, this increased gradually to 11.4% at the end of 2010 Q1.

On the other hand, local claims of foreign bank[2] affiliates on Chinese Taipei as a share of annual GDP increased from 10.6% at the end of 2006 to 16.3% at the end of 2007 due to Citibank and Standard Chartered Bank setting up subsidiaries with acquisition of domestic banks. During the period of global financial crisis, the ratio of foreign bank affiliates' local claims to annual GDP declined slowly from 20.3%, a record high at the end of 2008 Q2, to 15.8% at the end of 2009 Q3 (Chart 1).

In general, local claims by foreign bank affiliates are more than foreign banks' cross-border claims on Chinese Taipei. Compared to offshore foreign banks, foreign bank affiliates in Chinese Taipei play a more important role in financial intermediation and are more actively involved in Chinese Taipei's economic activities.

2. BIS reporting banks.

Chart 1. Ratios of Foreign Bank Claims on Chinese Taipei to GDP



Source: BIS Consolidated Statistics, Table 9C.

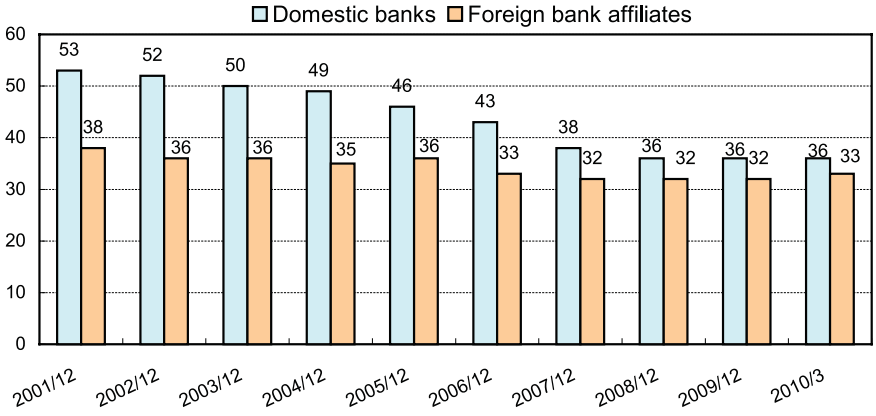
2.2 The Development of Foreign Bank Affiliates in Chinese Taipei

2.2.1 The Number and Total Assets

At the end of March 2010, there were 33 foreign bank affiliates in Chinese Taipei: 31 local branches and 2 subsidiaries, including 311 branch offices and offshore banking units (OBUs). Ten years ago, there were 38 foreign bank branches with 103 branch offices and OBUs in Chinese Taipei. Alhough the number of foreign bank affiliates was comparable to domestic banks, the number of local branch offices and OBUs of foreign banks were fewer than domestic banks (Chart 2).

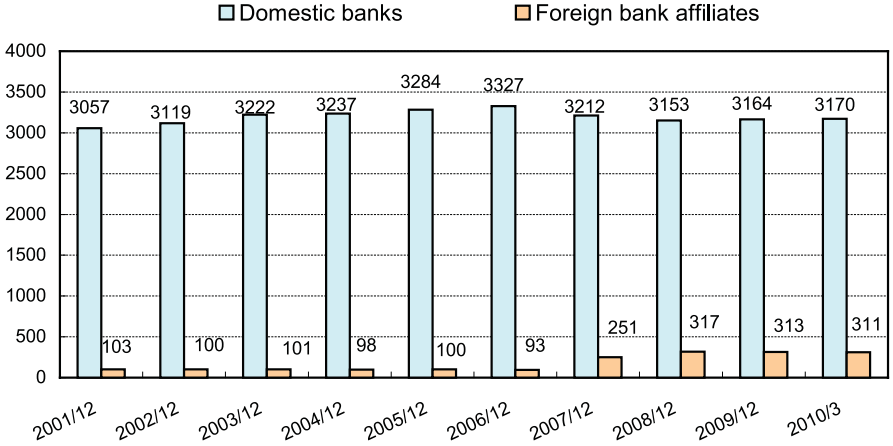
Chart 2

The Number of Banks in Chinese Taipei by Type of Ownership



Note: The figure represents the number of head offices of banks with branches in Taiwan.

The Number of Branch Offices of Banks in Chinese Taipei by Type of Ownership



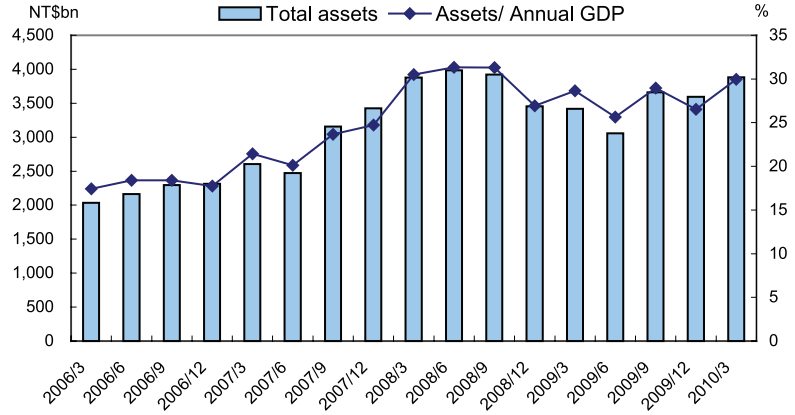
Note: The figure represents the number of branches and offshore banking units set up in Taiwan, excluding overseas subsidiaries.

Sources: 1. *Financial Statistics Monthly,* Central Bank, Chinese Taipei.

2. Department of Financial Inspection, Central Bank, Chinese Taipei.

The total assets of foreign bank affiliates amounted to NT$2,316 billion at the end of December 2006, accounting for 17.75% of GDP, but increased by 48% in 2007 because of Citibank and Standard Chartered Bank setting up their subsidiaries with acquisition of domestic banks. After a gradual reduction of claims caused by the global financial crisis from 2008 Q4 to 2009 Q2, total assets of foreign bank affiliates began to increase in the second half of 2009 and reached NT$3,881 billion at the end of March 2010, equivalent to 30% of GDP (Chart 3). The asset increase was mainly supported by a surge in securities investments due to the recovery of global financial markets.

Chart 3. Total Assets of Foreign Bank Affiliates



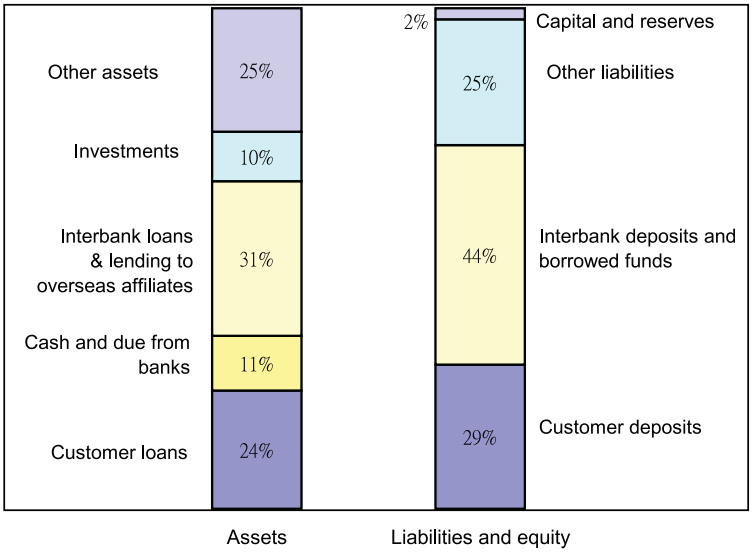
Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

The major business of foreign bank affiliates in Chinese Taipei is related to foreign exchange and financial derivatives. For traditional commercial bank operations, foreign bank affiliates accounted for only 3.0% of total deposits and 6.1% of total loans extended by Chinese Taipei's financial institutions in March 2010.

2.2.2 Sources and Uses of Funds

The funds of foreign bank affiliates raised from interbank deposits and borrowings accounted for 44% of total funds at the end of March 2010, while 29% of funds came from customer deposits. As for the uses of funds, interbank lending to overseas affiliates accounted for the biggest share at 31%, followed by customer loans at 24%, while 10% of funds were invested in domestic and foreign securities and 11% were in cash and due from banks (Chart 4).

Chart 4. Sources and Uses of Funds of Foreign Bank Affiliates in Chinese Taipei



Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

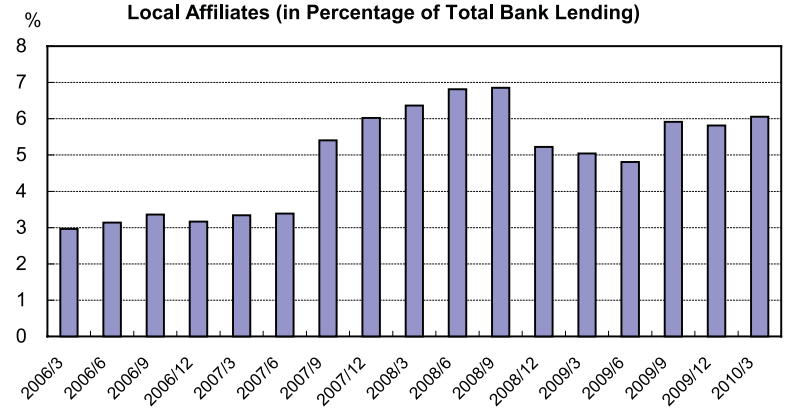
Note: End-March 2010 figures.

2.3 Loan Extension by Foreign Bank Affiliates in Chinese Taipei

2.3.1 Loan Market Share

Compared to domestic banks, the loan share of foreign bank affiliates has been quite low. The loans extended by foreign bank affiliates accounted for around 3.2% of total banking loans in Chinese Taipei before June 2007. After Citibank and Standard Chartered Bank merged with their respective choices of domestic banks in the second half of 2007, the loan share of foreign bank affiliates climbed to 6.85% in September 2008. However, this was still much lower than that for domestic banks. This share declined to around 5% between 2008 Q4 and 2009 Q2, mainly due to the effect of the global financial crisis. At the end of March 2010, the share rose to 6.1% (Chart 5).

Chart 5. Share of Foreign Bank Lending Extended Through Their Local Affiliates (in Percentage of Total Bank Lending)



Sources:1. *Financial Statistics Monthly*, Central Bank, Chinese Taipei.

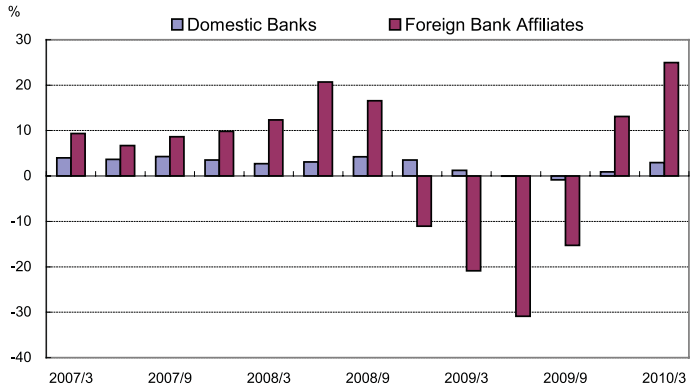
2. Department of Financial Inspection, Central Bank, Chinese Taipei.

Note: In the second half of 2007, Standard Chartered Bank (Taiwan) Ltd. and Citibank Taiwan Ltd. were set up after merging with domestic banks.

2.3.2 Loan Growth

Affected by shrinking financial transactions and economic activities amid the global financial crisis, growth of bank loans in Chinese Taipei slowed down in the second half of 2008 and turned negative in the first three quarters of 2009. The loans extended by foreign bank affiliates decreased greater than domestic banks. The annual growth rate of foreign bank affiliates' lending declined dramatically from 16.57% of September 2008 to -11.05% at the end of 2008, and dropped further to -30.88% in June 2009. In contrast, the annual growth rates of domestic banks' lending were -0.03% and -0.83% in Q2 and Q3 of 2009, respectively (Chart 6). However, the growth rate of foreign bank affiliates' lending rebounded to 13.11% by the end of 2009 and rose to 24.99% in March 2010, much higher than the 2.95% of domestic banks at the same time

Chart 6. Annual Growth Rates of Lending Extended by Banks in Chinese Taipei



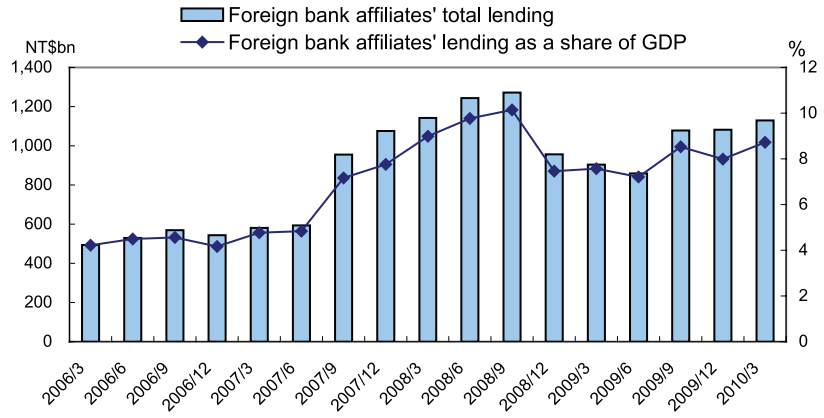
Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

Note: In the second half of 2007, Standard Chartered Bank (Taiwan) Ltd. and Citibank Taiwan Ltd. were set up after merging with domestic banks.

2.3.3 Comparison with Domestic Banks

Though the global financial crisis resulted in a minor credit crunch in Chinese Taipei, the total lending provided by domestic banks remained more stable than foreign bank affiliates. Foreign bank affiliates' lending decreased by NT$315.7 billion, or 24.8%, in 2008 Q4 (Chart 7), while domestic banks' lending increased in 2008 Q4 and decreased subsequently by a mere 1.95% in 2009 Q1 (Chart 8). On the other hand, the lending of foreign bank affiliates as a share of annual GDP decreased from 10.15% of Q3 to 7.46% of Q4 in 2008, and declined further to 7.20% in 2009 Q2 (Chart 7). However, the lending of domestic banks as a share of annual GDP rose from 135.42% of 2008 Q4 to 142.50% in Q1 and Q2 of 2009 (Chart 8). This means that domestic banks played a predominant role in extending credit during the period of Chinese Taipei's economic recession.

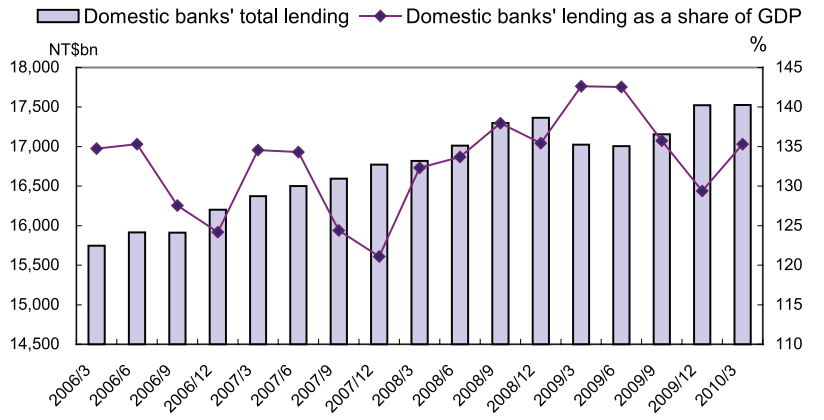
Chart 7. Total Lending of Foreign Bank Affiliates



Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

Note: In the second half of 2007, Standard Chartered Bank (Taiwan) Ltd. and Citibank Taiwan Ltd. were set up after merging with domestic banks.

Chart 8. Total Lending of Domestic Banks



Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

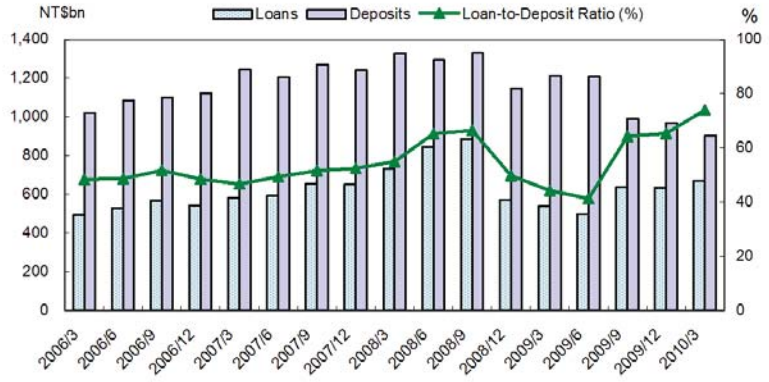
Note: 1. Domestic banks include local branches and offshore banking units in Chinese Taipei.

2. In the second half of 2007, Standard Chartered Bank (Taiwan) Ltd. and Citibank Taiwan Ltd. were set up after merging with domestic banks.

2.3.4 Loan-to-Deposit Ratio from 2008 Q4 to 2009 Q2

After Lehman Brothers filed for bankruptcy protection on 15 September 2008, the impact of the financial crisis enlarged. Chinese Taipei branches of foreign banks did not suffer as much losses from portfolio investments as their parent banks, but their operating revenues and deposits decreased significantly due to outflows of foreign capital. The deposits received by foreign bank affiliates decreased considerably as their clients moved their funds to domestic banks or abroad. The loan-to-deposit ratio of foreign bank affiliates, however, had declined to below 50% since 2008 Q4 and reached 41.33% in 2009 Q2. This indicated that the loans extended by foreign bank affiliates decreased even more dramatically in the period from 2008 Q4 to 2009 Q2. The deposits decreased continuously in the second half of 2009, and posted a -25.41% annual growth rate in March 2010. However, lending returned to positive growth in December 2009, with the growth rate climbing to 24.68% in March 2010. As a result, the loan-to-deposit ratio of foreign bank affiliates rose to 73.99% in March 2010 (Chart 9).

Chart 9. Loan-to-Deposit Ratio in Foreign Bank Affiliates



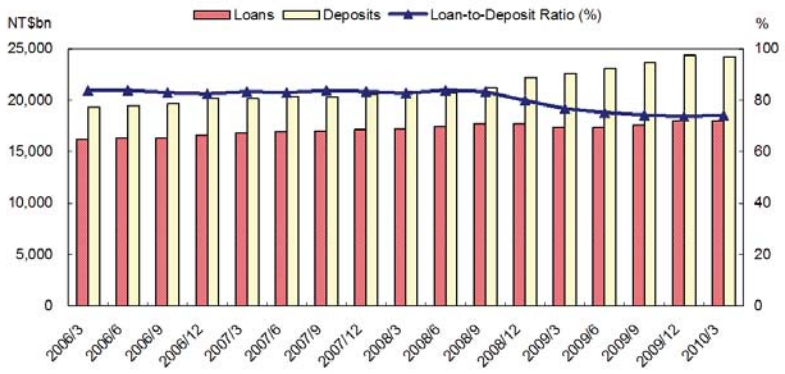
Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

Note: Foreign banks in Chinese Taipei include local branches, subsidiaries and offshore banking units.

The deposits in domestic banks had risen markedly since the second half of 2008 and grew by 7.79% and 9.61% year on year as of December of 2008 and 2009, respectively, owing to a large amount of overseas funds flowing back into bank deposits. In contrast, the annual growth rate of loans dropped from 3.85% of September 2008 to 1.25% of December 2009. As a result, the average

loan-to-deposit ratio of domestic banks decreased from 79.90% of 2008 Q4 to 73.81% at the end of 2009. As capital inflows slowed down in 2010 Q1, the deposit-to-loan ratio of domestic banks rose to 74.19% (Chart 10).

Chart 10. Loan-to-Deposit Ratio in Domestic Banks



Source: Department of Financial Inspection, Central Bank, Chinese Taipei.

Note: Banks in Chinese Taipei include local branches, subsidiaries and offshore banking units.

In summary, domestic banks played a predominant role in Chinese Taipei's bank lending. Although the market share of foreign banks' local lending in Chinese Taipei had been less than 7%, foreign bank claims on Chinese Taipei have significant influence on the economy, accounting for 22.5% of GDP in average between 2005 Q1 and 2010 Q1.

In order to understand the influence of global foreign banks on Chinese Taipei during the recent financial crisis, the implications of related variables, such as push and pull factors should be analysed empirically.

3. Literature Review

3.1 Arguments about Foreign Banks' Role for Credit in Host Economies

Multinational banks played a significant role in the transmission of the 2007-2009 crisis to emerging market economies. The relationship between liquidity shocks on banking systems of major developed economies and those of emerging markets has been examined by economists. The more common observation is that global banks enhance the international transmission of shocks through their activities, contributing to a more integrated global business cycle (Goldberg, 2009). However, there is an ongoing debate as to whether global banks in domestic economies acted as stabilising forces.

De Haas and Lelyveld (2009) provided evidence for the hypothesis that multinational banks actively manage the credit growth of their subsidiaries due to the existence of internal capital markets, stating that foreign bank subsidiaries do not need to rein in their supply of credit during a financial crisis as domestic banks would need to do. More specifically, they found that, in line with substitution effects, subsidiaries expand their lending faster if economic growth in their home economy decreases.

The view that globalised banking was a stabilising force may seem odd during the 2007-2009 global financial crisis. Cetorelli and Goldberg (2008) measured capital flows into emerging market regions and found they exhibited dramatic declines during the recent crisis. During the same period, there was a decline in internal lending from parent and other overseas affiliates to the foreign bank affiliates in emerging markets. Both types of contractions were associated with reduced lending within emerging markets. Therefore, Cetorelli and Goldberg (2009) examined the liquidity shocks which isolated credit supply from demand across Europe, Asia, and Latin America, and indicated that credit supply in emerging markets was affected through contraction in direct, cross-border lending by foreign banks, in local lending by foreign banks' affiliates in emerging markets, as well as in credit supply by domestic banks, as a result of the funding shock to their balance sheets induced by the decline of interbank or cross-border lending.

3.2 Literature in Chinese Taipei

The research papers in Chinese Taipei for bank credit in the recent global financial crisis are more concerned about the implications of structured financial products, the impacts of the financial crisis on the real economy and banking system, and relevant central banking policy responses. However, a few papers discuss the role of foreign bank affiliates during the recent financial crisis in Chinese Taipei.

Chang, Shen and Chang (2010) utilised the matching methods[3] developed by Rubin (1973) and Rosenbaum and Rubin (198301985a,b), based on bank equity data and financial performance of six Asian emerging economies (including Chinese Taipei, China, Korea, Malaysia, Singapore and Thailand) from 2007 to 2008, to analyse the performances of foreign banks and domestic banks. The

3. This paper used the matching method to establish the sample of domestic banks. Using a matched sample to reduce selection bias, the characteristics of domestic banks were found to be similar to foreign banks.

empirical results in the paper show that the performances of most foreign banks were worse than those of domestic banks in the stated Asian economies. When shocks originate from home economies or regions of foreign banks, these foreign banks will become the shock transmission channel to host economies.

Chen, Wang, Lu and Tsai (2010) summarised the conditions of loans extended by the four[4] types of banks in Chinese Taipei during the period of January 2008 to August 2009, in which the development of credit extension by Chinese Taipei branches of foreign banks was comprehensively reviewed. During the period of global financial crisis, the lending behaviour of Chinese Taipei branches of foreign banks was mainly affected by the risk concerns resulting from the economic recession, other than their own financial conditions. In view of the financial conditions, Chinese Taipei branches of foreign banks did not suffer much from portfolio investment losses as did their parent banks in 2008. However, their operating revenues and deposits decreased significantly due to the outflow of foreign capital. Their attitudes for extending credit turned to be more conservative and the loans extended by local branches of foreign banks continued decreasing from September 2008 to July 2009, mainly due to the higher credit risks of enterprises. Their consumer loans declined slower than loans to enterprises because Chinese Taipei's real estate market recovered from 2009 Q2.

The impacts of the global financial crisis on the Chinese Taipei economy, and the related policy responses could be important factors for the lending of foreign banks in Chinese Taipei during the crisis, as summarised in Box1 and Box 2.

4. Including (1) public-owned domestic banks, (2) large private domestic banks, (3) local branches of foreign banks and (4) small private domestic banks.

Box 1. The Effect of the Global Financial Crisis on the Chinese Taipei Economy

In the second half of 2008, worsening international financial conditions and a declining world economy severely affected Chinese Taipei's export momentum and the production of its manufacturing sector. Domestic enterprises responded with large-scale layoffs or requiring employees to take unpaid leave. As a result, the domestic unemployment rate increased dramatically, which in turn had a negative impact on private consumption. Private investments also shrank rapidly against the backdrop of a precipitous drop in corporate profitability and the uncertain economic outlook (Financial Stability Report May 2009, CBC). Chinese Taipei's economic growth registered -0.80% in 2008Q3, and further deteriorated to -9.06% in 2009Q1, causing the annual economic growth to decline markedly to 0.73% in 2008 from the previous year's 5.98%, and continued to drop to -1.91% in 2009. Demand for funds remained soft and banks' loans and investments growth declined in the first half of 2009, but trended upwards in the fourth quarter of the year (Annual Report 2009, CBC). Credit risk for corporate loans decreased slightly while credit risk concentration was still high. Liquidity risk of domestic banks remained low as the banking system benefited from ample liquidity (Financial Stability Report 2010, CBC).Affected by the slump in the global stock markets and the economic downturn in Chinese Taipei, together with a massive sell-off by foreign investors, the Chinese Taipei Stock Exchange Weighted Index (TAIEX) dropped from a high of 9,295 in mid-May to 4,090 in late November 2008. Trading value and turnover ratio decreased dramatically in the second half of 2008. However, the TAIEX index stopped falling in early 2009 and gradually climbed to 8,100 in January 2010. The main reasons behind this rebound were the net buying of foreign investors, inflows of residents' portfolio investments from abroad and the emerging effects of a warming cross-Strait relationship (Financial Stability Report May 2009, CBC).

Box 2. Chinese Taipei's Policy Measures to Cope with the Global Financial Crisis

The financial and monetary policies responses for the financial crisis would affect the attitude of banks' credit. In order to alleviate the impacts of the financial crisis, Chinese Taipei's government launched the Economic Stimulus Package in September 2008 and implemented a succession of monetary policies, financial stability measures and fiscal policies to increase domestic demand, stabilise the financial system and maintain the momentum of economic growth (Financial Stability Report May 2009, CBC). To increase domestic demand and provide sufficient injection of liquidity into the market, the CBC adopted an easy monetary stance. The CBC lowered the discount rate by 2.375 percentage points in seven cuts from September 2008 to March 2009 to help reduce individual and corporate funding costs, encourage private consumption and investment, and stimulate domestic economic growth. With a view to increase the momentum of bank lending, the CBC also lowered the required reserve ratios and expanded the scope of Repo facility operations to provide financial institutions with sufficient liquidity. As for stabilising financial markets, improving market confidence, as well as assisting individual and corporate funding, the government also implemented a number of measures to stabilise the financial system, such as adopting an interim blanket deposit guarantee[5]. This measure effectively stabilised the market and restored the confidence of depositors. Another important policy to assist corporations to weather the economic downturn and to tackle their business difficulties was coordinating corporate financing support (Financial Stability Report May 2009, CBC). The government organised a Special Task Force on Facilitating Enterprises to Obtain Operational Funds to help small and medium enterprises (SMEs) and large corporations to get financing support. The Bankers Association of the ROC released two self-disciplined mechanisms allowing corporations that faced financial difficulties, to still operate normally and pay loan interest as scheduled by extending loans by six months. Moreover, the government provided sufficient funds for loans to large corporations under the Directions for the Provision of Special Loans and Credit Guarantees to Non-SMEs, and introduced several measures to assist individuals to acquire loans from banks and to reduce their interest burdens.

5. The government announced that it would guarantee all deposits in insured financial institutions by their full amount until the end of 2010. Additional deposits to be guaranteed included foreign currency-denominated deposits, inter-bank deposits and lending, and financial bonds issued before or on 23 June 2005.

4. Research Methodology

As the trend towards greater international financial integration persists, banks' lending behaviour has become increasing responsive to external economic factors or their internal financial conditions. In order to verify whether foreign banks, during the recent global crisis, transmitted shocks from their home economies (where banks' headquarters are located) to Chinese Taipei, we will examine the linkage of foreign banks' cross-border lending in Chinese Taipei and their exposures in the recent financial crisis in view of factors existing in the economies.

Furthermore, we would examine whether the internal capital market or funding conditions of multinational banks performed supportive functions in extending credit, and whether the change of the loan-to-deposit ratio of foreign bank affiliates reflected individual financial characteristics during the recent crisis.

In this regard, this section presents the determinants of foreign bank lending via two panel data empirical strategies - first being the pooled panel data treatment, which is a modification of Martinez-Peria et al. (2005), to analyse macroeconomic data, and second, pooled panel treatment similar to Navaretti et al. (2010) to analyse microeconomic data.

4.1 Model I: Using Aggregated Panel Data

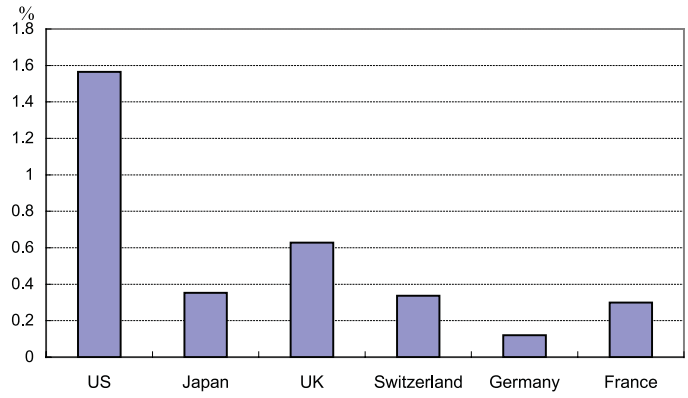
Martinez-Peria et al. (2005) estimated a reduced-form model that used comprehensive data for foreign bank claims on the private sector in Latin America for the period 1985-2000 to study how foreign bank claims are affected by both push and pull factors, taking into consideration the role of exposure to host economies and the potential influence of movements in foreign claims on other economies. According to the empirical model of Martinez-Peria et al. (2005), the paper modified the interaction term "Host Factor × Exposure" as "GFC_Dummy × Exposure". We tried to use the modified model to examine the relationship between the changes in foreign bank claims on Chinese Taipei and the exposure of foreign bank claims on Chinese Taipei during the global financial crisis. At the same time, we also looked at the impact of economic factors of home economies and Chinese Taipei on the changes in foreign bank claims on Chinese Taipei.

4.1.1 The Model Specification and Data

We modified the model of Martinez-Peria et al. (2005) to set up the following regression equation by taking into account the recent global financial crisis, where j = 1 to 4 identifying Japan, United States, United Kingdom and Switzerland. These four are the main creditor economies for Chinese Taipei, where their foreign bank claims on Chinese Taipei over their own total foreign claims are also greater than those on other economies. Chart 11 shows the exposure of foreign claims on Chinese Taipei over total foreign claims. t = 1 to 42, refers to the time period considered.

$$D(LOG(Claims))_{j,t} = \alpha_0 + \sum_j \alpha_1 Push\_Factor_{j,t} \times Dummy\_Economy_j + \alpha_2 Pull\_Factors_t + \alpha_3 GFC\_Dummy_t + \alpha_4 GFC\_Dummy_t \times Exposure_{j,t} + \varepsilon_{j,t} \quad (1)$$

Chart 11. Exposure of Foreign Claims on Chinese Taipei over Total Foreign Claims
Average of 2000 Q1~2010 Q2



Source: BIS Consolidated Statistics, Table 9B.

Because of the time series limitation of foreign claims data provided by the BIS on its website, the individual economy data sets run from 2000 Q1 to 2010 Q2, consisting of 42 quarterly observations. In all, the panel data sets which include the above-mentioned four economies, come up to a total of 168 for Model I.

The data set contains the following variables:

(1) $D(LOG(Claims))_{j,t}$: the first difference of the logarithm of foreign claims by foreign bank (j) in Chinese Taipei basing on time *t* compared to time *t-4*.
(2) $Push\_Factor_{j,t}$: control variables that mainly capture macroeconomic conditions in the economy of the foreign bank (j), e.g., real GDP growth and real interest rate;
(3) $Dummy\_Economy_j$: a dummy variable that takes the value of one if foreign claims come from economy(*j*) where j=1 to 4 identifying Japan (*JAPAN*), United States (*US*), United Kingdom (*UK*), and Switzerland (*SWISS*), respectively;
(3) $Pull\_Factors_t$: control variables that capture macroeconomic conditions in Chinese Taipei such as real GDP growth and real interest rate;
(4) GFC_Dummy_t: a dummy variable that takes the value of one in 2007, 2008 and 2009;
(5) $Exposure_{j,t}$: the ratio of foreign economy/ bank(*j*) claims on Chinese Taipei over the total claims extended by foreign economy/ bank(*j*).
(6) $\varepsilon_{j,t}$: error term.

In the regression equation, the test of the effect of the global financial crisis is based on the sign and significance of the α_4 coefficient. Indeed, controlling for other factors, if higher exposure is translated into more stable financing, we expect this interaction term between the GFC dummy and exposure to be positive and significant. It means that the economy which has more claims on Chinese Taipei relative to its total claims tend to withdraw less from Chinese Taipei than from other economies.

4.1.2 Push Factors

Regarding push factors, we would like to analyse α_2 to gauge the impact of real GDP growth and real interest rate of home economies on the changes of their respective claims on Chinese Taipei.

Home economy economic conditions could have a positive or a negative impact on foreign bank lending on the host economy (Martinez-Peria et al., 2005). Adverse economic conditions and a lack of profit opportunities in the home economy could encourage multinational banks to extend credit abroad and a recession in the home economy could lead to a deterioration in the capital of foreign banks and overall retrenchment in claims held at home and abroad.

Consequently, we remain agnostic concerning the impact of real GDP growth for the home economy on the change in claims on a host economy.

Moreover, lowering real interest rates in home economies tend to signal periods of easy financial conditions. This might increase banks' willingness to extend riskier but higher interest rate loans to host economies. Therefore, we expect home real interest rate to have a negative impact on the change in claims on a host economy.

4.1.3 Pull Factors

With respect to the α_2 coefficient, we mainly considered real GDP growth and real interest rates in Chinese Taipei as independent variables.

We assume that the movement of real interest rate in host economy will affect capital flow, i.e., an increase in real interest rate in the host economy will attract more capital inflows and increase foreign bank claims, while a decrease in real interest rate in the host economy will give rise to a decrease in foreign bank claims. Consequently, we expect that real interest rate of Chinese Taipei would have a positive impact on the change in foreign banks claim on Chinese Taipei.

For the relationship between real GDP growth in the host economy and the change of foreign bank claims, foreign banks will respond to real GDP growth in the host economy and increase or decrease claims over the cycle. Therefore, we expect real GDP growth of Chinese Taipei to have a positive impact on the change of foreign bank claims.

Table 1 provides the definition and sources of each variable.

Table 1. Definition and Sources of the Model I Variables

Variables	Descriptions	Sources
D(LOG(Claims))	1. D(LOG(Claims)) means $LOG(Claims)_t - LOG(Claims)_{t-4}$. 2. Claims are referred to foreign claims on Chinese Taipei for individual economy, including Japan, the United States, the United Kingdom, and Switzerland. 3. *D(LOG(Claims(-1)))* represents the first order of *D(LOG(Claims))* autocorrelation.	Bank for International Settlements
Push Factors		
D(LOG(GDP))	1. D(LOG(GDP)) means $LOG(GPD)_t - LOG(GDP)_{t-4}$. 2. LOG(GDP) represents logarithm of GDP. 3. GDP is the real GDP denominated in US dollar and based on 2005 figures.	International Financial Statistics, IMF
DREALRATE	1. DREALRATE means $REALRATE_t - REALRATE_{t-1}$. 2. REALRATE represents real interest rate of home economy, which is lending rate minus CPI inflation.	International Financial Statistics, IMF
Dummy_Economy	1. Dummy variable takes the value of one if foreign claims come from economy(*j*) where j=1 to 4 identifying Japan (*JAPAN*), the United States (*US*), the United Kingdom (*UK*), and Switzerland (*SWISS*), respectively.	
Pull Factors		
D(LOG(GDP_TW))	1. D(LOG(GDP_TW)) means $LOG(GDP\_TW)_t - LOG(GDP\_TW)_{t-4}$. 2. GDP_TW is real GDP denominated in US dollar and based on 2005 for Chinese Taipei.	Directorate-General of Budget, Accounting and Statistics, Executive Yuan, Chinese Taipei
DREALRATE_TW	1. *DREALRATE_TW* means $REALRATE\_TW_t - REALRATE\_TW_{t-1}$ for Chinese Taipei. 2. REALRATE_TW represents real interest rate of Chinese Taipei, which is lending rate minus CPI inflation.	IFS, Central Bank, Chinese Taipei
GFC_Dummy	Dummy variable taking the value of one in 2007, 2008 and 2009	
D(EXPOSURE)	1. *D(EXPOSURE)* is the first difference of *EXPOSURE*. 2. *EXPOSURE* is the ratio of home economy's foreign claims on Chinese Taipei over the total claims extended by their banks.	Bank for International Settlements

4.2 Model II: Using Micro-panel Data

4.2.1 The Model Specification and Data

Navaretti et al. (2010) used a panel model to verify if the bank specific ratio of loans to deposits has changed significantly during the crisis, and in particular if these changes have been different for foreign affiliates operating in different areas. Our research modified the model specification of that used in Navaretti et al. (2010) by adding more bank specific characteristics as variables, such as return on equity (ROE), growth of bank assets, ratio of interbank borrowings to total assets, and ratio of equity to assets, to examine

the impacts of bank specific characteristics on the bank specific ratio of loans to deposits around the time of the global financial crisis. This model

$$\left(\frac{CLENDING}{CDEPOSITS}\right)_{i,j,t} = \beta_0 + \sum \beta_k \, DUMMY\_CRISIS x DUMMY\_ECONOMY_{i,j,t} + \sum \beta_l \, DUMMY\_ECONOMY_{i,j,t} + \sum \beta_m \, BANK\_Specific\_Char_{i,j,t-1} + \varepsilon_{i,j,t} \quad (2)$$

Basically, Model II uses dummies to capture systemic differences among panel observations results in what is known as a fixed-effects model, a way of dealing with pooled data. In the fixed effect method the constant is treated as economy-specific. This means that the model allows for different constants for each economy. Since Model II uses panel data, data set runs from 2000 Q1 to 2010 Q2, including 1,148 quarterly observations comprising 35 foreign bank affiliates in Chinese Taipei.

The data set contains the following variables:

(1) $\left(\frac{CLENDING}{CDEPOSITS}\right)_{i,j,t}$: the ratio of customer loans and deposits of foreign affiliate *i* of economy *j* in Chinese Taipei at time *t*;
(2) *DUMMY_CRISIS* : a dummy variable taking the value of one in 2007, 2008 and 2009;
(3) $DUMMY\_ECONOMY_{i,j,t}$: a dummy variable that take the value of one if bank *i* of economy *j* in Chinese Taipei at time *t* is a foreign bank subsidiary / branch of a holding company located in the foreign economy; where *j*=1 to 6 identifies the United States, the United Kingdom, Switzerland, Japan, Hong Kong and France.
(4) $BANK\_Specific\_Char_{i,j,t-1}$: characteristics of bank *i* of economy *j* in Chinese Taipei, such as growth of bank assets, ROE, etc., at time *t-1*.
(5) $\varepsilon_{i,j,t}$: error term.

In the panel regression equation, the test of the effect of the global financial crisis on the internal capital market of foreign banks is based on the sign and significance of each of the β_k coefficients. A positive and significant value would imply that foreign banks with access to the internal capital market reduced their loan-to-deposit ratio less than the control group of banks, and therefore had a stabilizing effect on the shock caused by the global financial crisis. Obviously, a negative coefficient implies the opposite.

4.2.2 Variables for Bank Specific Characteristics

In reference to factors of bank specific characteristics related to credit extension, first, we consider the measure of profitability, such as the ratio of return on equity (*ROE*). When β_m shows positive and significant, it may imply that banks with more profit would extend more credit. On the other hand, when β_m shows negative and significant, it means that unprofitable banks would take more credit risks to get more profits. Therefore, this variable is indeterminate.

Secondly, we include a measure of liquidity from the interbank capital market (the share of interbank borrowings over total assets, *INTERBANK_ASSETS*), because access to the interbank capital market provides the complementary source of capital for customer loans.

Thirdly, we also consider solvency (total equity to total assets, *EQUITY_ASSET*) as a measure of the bank's risk aversion. A bank with a high level of capital could be relatively risk-aversive and may extend credit more conservatively during the financial crisis. Moreover, bank subsidiaries with low capitalization may be especially prone to moral hazard and rapidly expand (risky) lending (see Black and Strahan, 2002). The effect implied a negative relationship between bank capital and loan growth. On the contrary, high capital ratios could simply represent that liabilities constraints are less serious, so that banks have ample room to expand their lending. Therefore, the sign of these variables is thus indeterminate as well.

Finally, we would also like to examine the implication of bank's assets growth (*DLOG(ASSET)*) for loans. We expect that bank's assets growth would stimulate lending or its assets decline would incur bank's conservative behavior of lending, thereby having a positive impact on bank lending.

Table 2 provides the definition and sources of each variable.

Table 2. Definition and Sources of Model II Variables

Variables	Descriptions	Sources
$LOG(CLENDING\_CDEPOSITS)_{i,j,t}$	The logarithm of customer loans over customer deposits of bank (*i*) in Chinese Taipei coming from economy (j) at time *t*.	Department of Financial Inspection, Central Bank, Chinese Taipei
DUMMY_CRISIS	A dummy variable taking the value of one in 2007, 2008 and 2009.	
$DUMMY\_ECONOMY_{i,j,t}$	Dummy variables that take the value of one if bank (*i*) in Chinese Taipei at time *t* is a foreign bank subsidiary / branch of a holding company located in the foreign economy (*j*) in parentheses. These foreign economies include United States (US), United Kingdom (UK), Switzerland (SWISS), Japan (JAP), Hong Kong (HK), and France (FRA).	
BANK_Specific_Char		
ROE(-1)	Ratio of Return on Equity at time *t-1*.	Department of Financial Inspection, Central Bank, Chinese Taipei
DLOG(ASSETS(-1))	1. DLOG(ASSETS(-1)) means $LOG(ASSETS(-1))_t - LOG(ASSETS(-1))_{t-1}$. 2. LOG(ASSETS(-1)) is the logarithm of individual bank assets at times *t-1*.	Department of Financial Inspection, Central Bank, Chinese Taipei
LOG(INTERBANK_ASSETS)	1. LOG(INTERBANK_ASSETS) is the logarithm of the ratio of interbank borrowings over total assets. 2. It is a measure of interbank liquidity, meaning that easier access to the interbank capital market provides the complementary source of capital for customer loans.	Department of Financial Inspection, Central Bank, Chinese Taipei
LOG(EQUITY_ASSETS(-1))	1. LOG(EQUITY_ASSETS(-1)) is the logarithm of bank (*i*) equity to total assets at time *t-1*. 2. It measures bank's risk aversion and the capital constraints of the bank.	Department of Financial Inspection, Central Bank, Chinese Taipei

5. Empirical Results

5.1 Model I

5.1.1 Panel Unit Root Test

When we use pooled panel estimation method, we have to make sure that all the variables in Model I are stationary by panel unit root test. Basically, we employ Levin-Lin-Chu Test (LLC test) for the panel unit root test. Table 3 shows the results of the panel unit root test, using data from 2000 Q1 to 2010

Q2. All the variables in Model I are I(1) level stationary. Consequently, we took the first difference for these I(1) variables in the empirical panel estimation.

Table 3. Panel Unit Root Test Result of Model I

Variables	Levin-Lin-Chu Test (LLC test)	
	Level	First difference
LOG(Claims)	0.65	**-13.79** ***
LOG(GDP_TW)	1.06	**-2.93** ***
REALRATE_TW	-0.04	**-9.34** ***
LOG(GDP)	-0.19	**-1.44** *
REALRATE	-0.06	**-2.54** ***
EXPOSURE	1.04	**-12.23** ***

Note 1. There is only an exogenous regressor (i.e. constant term) in LLC test equation.
2. Automatic selection of lag length is based on SIC for LLC test.
3. *,**, and *** indicate the 10%, 5%, and 1% level of statistical significance.

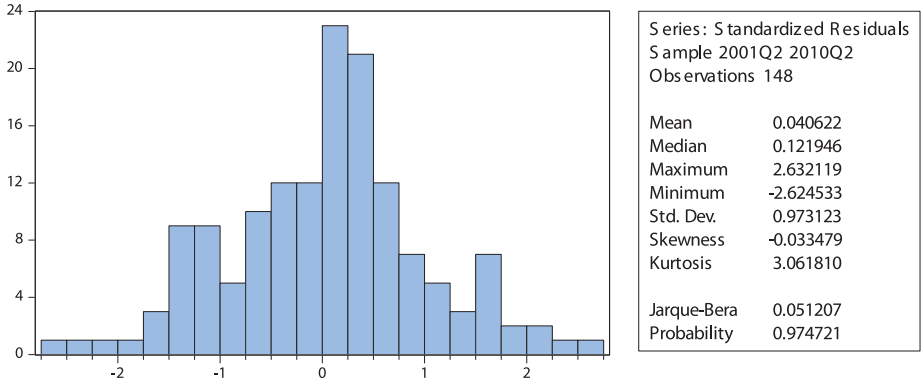
5.1.2 Estimation for Model I

Since the number of cross sections is less than the number of coefficients, a random effects model could not be estimated. Moreover, these four economies' foreign claims on Chinese Taipei have simultaneous correlation. Furthermore, the close relationship with Chinese Taipei is economy-specific, and would give rise to unequal variances of the individual economy's claims on Chinese Taipei.

In addition, according to the above-mentioned situation, when in the presence of cross-section heteroskedasticity and contemporaneous correlation for the pooled panel estimation, we not only had to address the problem of heteroscedasticity by imposing a White's cross-section heteroskedastic structure on the error term in the panel model, but also used the cross-section SUR (Seemingly Unrelated Regressions) model allowing for contemporaneous correlation between cross-sections. We try to estimate a feasible GLS (Generalized Least Square) with cross-section SUR specification correcting for both cross-section heteroskedasticity and contemporaneous correlation. Under the GLS with cross-section SUR specification, the research has made sure that

the residuals for Model I converged to normal distribution successfully. Therefore, the specification for Model I should be appropriate. Figure 1 shows all the statistics for Model I. The results show that Skewness and Kurtosis are near zero and three, respectively. As to the normality test, the Jarque-Bera value is quite low, indicating that null hypothesis of normality is accepted at a high level of confidence.

Figure 1. All the Statistics for the Model I



5.1.3 Analysis of the Determination of Foreign Bank Claims on Chinese Taipei

The GLS with cross-section SUR model, after correcting for serial correlation and adjustment for heteroskedasticity, is summarised in Table 4. A high Adjusted R-squared value of 0.658 indicates that the SUR model represents a good fit to the data, supported by a significant F-statistic of 22.717.

Table 4. The Determination of the Percentage Change of ForeignBank Claims on Chinese Taipei

Variables	Coefficient	t-Statistic
Constant	0.011	0.63
Host economy variables		
D(LOG(GDP_TW))	1.164	5.16 ***
D(REALRATE_TW)	0.003	0.08
DUMMY_GFC	0.014	0.56
DUMMY_GFC×D(EXPOSURE)	0.863	3.85 ***
Home economy variables		
D(LOG(GDP(-1)))×US	-1.998	-1.93 *
D(LOG(GDP(-1)))×JAPAN	1.095	2.23 **
D(LOG(GDP(-1)))×UK	1.042	1.31
D(LOG(GDP(-1)))×SWISS	-2.933	-1.23
D(REALRATE)×US	-0.135	-1.58
D(REALRATE)×JAPAN	0.046	0.44
D(REALRATE)×UK	-0.174	-2.42 **
D(REALRATE)×SWISS	-0.249	-0.70
D(LOG(CLAIMS(-1)))	0.588	11.87 ***
Number of Panel observations	148	
Adj. R^2	0.658	
Durbin h Stat.	-1.517	
F Statistic	22.717	
Pro(F Statistic)	0.000	

Note: *, **, *** indicate the 10%, 5%, and 1% level of statistical significance (two-tailed).

The findings of the empirical results in Model I are summarised as follows:

(1) For the four individual economy's claims on Chinese Taipei, the coefficient of *GFC_DUMMY×D(EXPOSURE)* is positive and significant. The link between the change of the exposures and their foreign bank claims on Chinese Taipei during the recent financial crisis is significant with a positive coefficient. The results apparently point to stable financing for these four economies' banks claims on Chinese Taipei during the global financial crisis.

(2) For the relationship between the movement in the real GDP growth of Chinese Taipei and the change of foreign bank claims, the coefficient of

D(LOG(GDP_TW)) is positive and significant. As we expected, the finding show that foreign claims would be pro-cyclical in accordance with host economy growth. The findings are consistent with that of Martinez-Peria et al. (2005).

(3) For the change of real GDP growth in the home economy, the analysis found that banks from Switzerland and the United States reduced claims in response to increased profit opportunities in the home economy (in response to higher home growth) but only the coefficient of the movement of real GDP growth for the U.S. is significant with a negative sign. On the other hand, it is statistically significant with a positive coefficient between the movement of real GDP growth for Japan and the change of foreign bank claims on Chinese Taipei. This means that an increase in real GDP growth of Japan will positively affect Japanese banks to extend credit in Chinese Taipei.

(4) For the change of real interest rate for the home economy, the change in the home real interest rate has the expected negative impact on the change of foreign bank claims on Chinese Taipei. This variable is statistically significant for the United Kingdom at the relative level of confidence.

5.2 Model II

5.2.1 Panel Unit Root Test

Using pooled panel estimation method for Model II, we also have to ensure that all variables in Model II are stationary by the panel unit root test. We made use of the Levin-Lin-Chu Test (LLC test) for the panel unit root test. Table 5 shows the results of the panel unit root test, using data from 2000 Q1 to 2010 Q2. The research also found that all variables in Model II are I(0) level stationary. Consequently, the first difference for these I(0) variables is not taken in the pooled panel estimation.

Table 5. Panel Unit Root Test Result of Model II

Variables	Levin-Lin-Chu Test (LLC test)
	Level
LOG(CLENDING_CDEPOSITS)	**-3.56*** **
ROE(-1)	**-27.65*** **
LOG(INTERBANK_ASSETS)	**-8.65*** **
LOG(EQUITY_ASSETS(-1))	**-3.73*** **
D(LOG(ASSETS(-1)))	**-0.86*** **

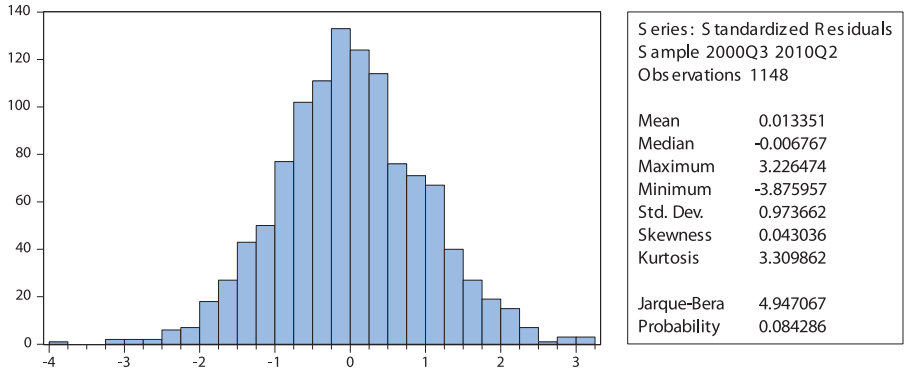
Note: 1. There is only an exogenous regressor (i.e. constant term) in LLC test equation.
2. Automatic selection of lag length is based on SIC for LLC test.
3. *,**, and *** indicate the 10%, 5%, and 1% level of statistical significance.

5.2.2 Estimation for Model II

Indeed, the research had intended to use a fixed-effects method in Model II to capture systemic differences among panel observations results. However, the paper had to consider what the statistical values for Model II represented, such as low D-W and high JB values, using a fixed-effects panel model. Consequently, we had to consider how to increase estimation efficiency.

In addition, foreign banks in Chinese Taipei face the same competition environment and have some characteristics in common. However, foreign banks may have specific business and management strategies to affect their overseas affiliates' lending behaviour. Therefore, as in Model I, cross-section heteroskedasticity and contemporaneous correlation exist in Model II as well. In view of the above-mentioned situation in Model II, we also have to tackle the cross-section heteroskedasticity and the contemporaneous correlation in order to increase estimation efficiency. As in the presence of heteroskedasticity and correlation for the pooled panel estimation of Model I, the Model II analysis also attempts to estimate a feasible GLS (Generalized Least Square) specification correcting for both cross-section heteroskedasticity and contemporaneous correlation. Under the GLS with cross-section SUR specification, the paper ensures that the residuals for Model II converge successfully to a normal distribution as well. Therefore, the specification for Model II should be acceptable, although not completely satisfactory. Figure 2 presents the statistics for Model

Figure 2. All the Statistics for Model II



II graphically. The results show that Skewness and Kurtosis are also near zero and three, respectively. With respect to normality for the residuals of Model II, although null hypothesis of normality is accepted at a relative low level of confidence of 0.08, it is at least more than 0.05.

5.2.3 Analysis of the Determination of Foreign Bank Lending on Chinese Taipei

For Model II, the GLS with cross-section SUR model, after correction for contemporaneous correlation and adjustment for heteroskedasticity, is summarised in Table 6. A high Adjusted R-squared value of 0.839 indicates that the SUR model represents a good fit to the data for Model II, supported by a significant F-statistic of 373.695. Furthermore, the independent variables are quite significant statistically as well.

Table 6. The Determination of Foreign Banks Lending in Chinese Taipei

Variables	Coefficient	t-Statistic	
Constant	3.702	**142.69**	***
DUMMY_CRISIS×DUMMY_FRA	0.353	**4.99**	***
DUMMY_CRISIS×DUMMY_HK	0.353	**12.29**	***
DUMMY_CRISIS×DUMMY_JAP	0.262	**14.34**	***
DUMMY_CRISIS×DUMMY_SWISS	0.948	**19.32**	***
DUMMY_CRISIS×DUMMY_UK	0.048	0.33	
DUMMY_CRISIS×DUMMY_US	0.103	**2.23**	**
DUMMY_FRA	0.341	**9.05**	***
DUMMY_HK	-0.489	**-23.26**	***
DUMMY_JAP	-0.455	**-26.27**	***
DUMMY_SWISS	-1.362	**-35.08**	***
DUMMY_UK	0.083	**1.77**	*
DUMMY_US	-0.639	**-20.12**	***
ROE(-1)	-0.002	**-19.31**	***
LOG(INTERBANK_ASSETS)	0.330	**51.74**	***
LOG(EQUITY_ASSETS(-1))	0.299	**30.08**	***
D(LOG(ASSETS(-1)))	0.143	**8.43**	***
Number of Panel observations	1148		
Adj. R^2	0.839		
D-W Stat.	1.606		
F Statistic	373.695		
Pro(F Statistic)	0.000		

Note: *, **, *** indicate the 10%, 5%, and 1% level of statistical significance (two-tailed).

Examining the sign and significance of each in Model II, we find that the coefficients of DUMMY_CRISIS×DUMMY_ECONOMY for almost all the six economies except UK are positive and statistically significant at the relative level of confidence as expected. They reveal that almost all foreign bank subsidiaries provided stabilising effects on Chinese Taipei from the shock caused by the global financial crisis between 2007 and 2009. This finding is consistent with that of Navaretti et al. (2010).

Concerning the significance of the bank financial characteristics, the coefficient of *ROE(-1)* is significant and negative, i.e., unprofitable banks would take more credit risks to increase profits. The coefficient of *LOG(INTERBANK_ASSETS)* is also significant indicating that access to the interbank capital market provides foreign banks with complementary capital for customer loans.

As for solvency, the coefficient of *LOG(EQUITY_ASSETS(-1))* is also significant and positive. This can mean that high capital ratios could correspond to liabilities constraints which are less serious so that banks have sufficient scope to expand their lending. Furthermore, with respect to growth of bank assets, the coefficient of *D(LOG(ASSETS(-1)))* is statistically significant and positive. The results show that bank assets growth would stimulate lending or conversely, the decline in assets would result in more conservative lending behaviour, thereby having a positive impact on bank lending.

5.3 Summary of the Empirical Results

According to the above empirical results, several findings are obtained as follows:

(1) The empirical results indicate that foreign banks in Chinese Taipei could provide a stabilising effect during the financial crisis

The results in Model I point to stable financing during the global financial crisis for foreign bank claims on Chinese Taipei. Furthermore, the results of Model II show that almost all the foreign banks in Chinese Taipei from different groups of economies except UK had a stabilising effect for their local lending during the global financial crisis.

However, this could also be explained by the fact that since major working capitals of foreign bank affiliates are funded from the local market, they could not be injected into the parent companies.

(2) The effect of Chinese Taipei's economic growth on foreign bank claims is highly significant and positive

Model I examines the impact of macroeconomic factors on foreign bank claims. The results from the analysis show that a change in real GDP growth of Chinese Taipei had a significantly positive effect on the movement of foreign bank claims over the cycle, showing that foreign bank claims are pro-cyclical.

Furthermore, movement in the real interest rate in Chinese Taipei positively affected the change of foreign bank claims on Chinese Taipei but was insignificant statistically. This implies that foreign bank claims are mainly affected by real GDP growth rather than real interest rates of Chinese Taipei.

(3) The effect of push factors on foreign bank claims is less significant

According to the empirical results of Model I, the relationship between economic factors of the home economy and the change of foreign bank claims is insignificant, although there are some variables with statistical significance. This could mean that economic factors of the home economy did not play a vital role for foreign bank claims on Chinese Taipei, so that foreign banks' role in transmitting shocks into Chinese Taipei through claims seems insignificant.

(4) Individual bank characteristics would have an important influence on foreign bank affiliates' lending in Chinese Taipei

From the panel empirical results of Model II, the research also finds that individual bank characteristics of foreign bank affiliates in Chinese Taipei could affect their lending behaviour significantly. The paper took into consideration several factors such as return on equity, funding from interbank, solvency, and bank's assets growth. The findings also reveal that these bank characteristics have a statistically significant relationship with foreign banks' lending in Chinese Taipei.

6. Policy Implications

While the research uses macro and micro data to test the determinants of host economy lending by multinational bank subsidiaries, we have not estimated the same regressions for domestically owned banks as a benchmark group. In light of this, simply based on Model I and Model II, it is difficult to find the linkage between financial and monetary policies and foreign bank lending. However, some policy implications can still be derived from this paper.

6.1 Prevention from Economy Concentration of Foreign Banks

The findings from Model II tell us that financial characteristics of foreign bank affiliates which are more or less affected by parent companies' financial situations, have significant impacts on their lending. For example, in June 2008, the assets of Chinese Taipei branches of Citibank and HSBC plunged suddenly because they remitted large amounts of earnings for liquidity injections into parent

companies. In order to prevent shock transmissions by foreign bank affiliates from their parent companies during the financial crisis, host governments should closely supervise the concentration of foreign banks from specific economies or regions.

6.2 Supervision for Liquidity and Funding Conditions of Foreign Bank Affiliates

The empirical results from Model II also show that the decline in capital would decrease foreign bank affiliates' loan extensions. However, the interbank call loan market provides complementary funding for foreign bank affiliates in Chinese Taipei for credit extension. In view of this, the Central Bank or authorities of financial inspection would need to closely supervise banks' liquidity and funding conditions. For example, they could require foreign bank branches to finance most of their capital from stable sources and maintain specific capital adequacy ratios, especially in times of a financial crisis. The Central Bank may provide the bank undergoing liquidity problems with sufficient funds through accommodation and open market operations to prevent sudden and sharp decreases of their loans.

6.3 The Importance of Monitoring Foreign Banks' Influence on Chinese Taipei

Although total assets of foreign banks in Chinese Taipei are currently much less than domestic banks, they are, nonetheless equivalent to 30% of Chinese Taipei's GDP while the size of foreign banks' assets continues to grow. This could have a sizeable impact on the host economy and warrant their close monitoring.

7. Conclusion

As the trend towards greater international financial integration persists, the debate on the behaviour of foreign banks is likely to continue. In this paper, we have made use of macro and micro data to examine the determinants of foreign bank lending, especially during the recent global financial crisis.

Our empirical findings indicate that foreign bank claims, which are pro-cyclical in line with Chinese Taipei GDP growth, seem affected mainly by the local demand, but are little affected by the real interest rate of Chinese Taipei or economic factors of home economies. Therefore, our empirical results from Model I indicating that multinational banks did not pull out much of their claims

on Chinese Taipei at times of crises may be because Chinese Taipei's economy was not as hard hit as developed economies.

In addition, the empirical results of Model II show that foreign bank affiliates' lending in Chinese Taipei is affected by individual bank-specific characteristics. Almost all foreign bank affiliates in Chinese Taipei provided a stabilising effect in their lending during the crisis. This could be because their major funding sources came from Chinese Taipei's interbank call loans, which remained ample during the crisis, in addition to the fact that they had lesser opportunities to inject funds into their parent companies. However, in view of foreign bank affiliates' market share of lending in Chinese Taipei being less than that of domestic banks, it would not be expedient to just simply conclude that foreign bank affiliates present a stabilising force for Chinese Taipei.

However, the decline of capital would decrease foreign bank affiliates' loan extensions in Chinese Taipei. Therefore in view of this, the Central Bank or monetary authorities would still need to prudently supervise banks' liquidity and funding conditions and stepping in to provide funds to banks with temporary liquidity problems to avoid a credit crunch.

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