

HOW DO GLOBAL LIQUIDITY PHASES MANIFEST THEMSELVES IN ASIA?

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Executive Summary

Whether or not we are now living in a “different world” in the aftermath of the 2008/09 global financial crisis (GFC) is not easy to judge. Only history will tell. But common sense suggests that given the catastrophe in the world’s largest economy and the unprecedented ultra-easy money policies that followed in response, we certainly cannot pretend that it is still business as usual. Too many changes have already occurred. The process is at the same time gradual yet rapid, clear yet complex. This poses a huge challenge for emerging Asian policy makers in guiding their domestic economies amid changes in the external environment.¹ Our intent in this monograph is to explicate the repercussions of the changing dynamics of global liquidity and explore what it means for emerging Asia as well as the new challenges for the region’s policy makers.

The dynamic nature of global liquidity since the mid-2000s is evident in the different stages of global capital flows. Increased bank-led flows characterize the period leading up to the GFC and the immediate aftermath of the Lehman Brothers bankruptcy in September 2008. Permissive liquidity conditions in the United States (US) dollar wholesale market were transmitted via the global banking system to the rest of the world, including emerging Asia. This first phase of global liquidity manifested itself in the expanded balance sheets of banks that resulted from increasing non-core liabilities that facilitated loans and risk-taking behavior. Even non-financial institutions took on the attributes of financial firms, which is known as “financialization,” as they increased the size of their balance sheets relative to sales-generating activities, and as a consequence contributed to the amplification of the financial cycle. The resultant currency appreciations further fueled capital flows into emerging Asia as borrowers’ balance sheets were strengthened.

¹ Emerging Asia is defined as the People’s Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei, China; Thailand; and Viet Nam.

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The second phase of global liquidity began in 2010 as a by-product of the quantitative easing (QE) and asset purchase policies of advanced economy central banks. A massive amount of capital inflows surged into emerging Asian markets searching for yield. The region's capital markets experienced a boom as governments seized upon the availability of low-cost financing through the bond market. The share of foreign ownership in local currency bond markets rose, as did banks' sovereign bond holdings. The issuance of international securities by both governments and private corporates in emerging economies also increased rapidly amid super-low interest rates.

Rising non-core liabilities in the first phase were highly procyclical and constituted an important transmission channel of global liquidity shock to emerging Asia. This led to financial cycles falling out of sync with domestic business cycles, reducing the effectiveness of monetary policy—on top of the risks caused by a bank-led credit boom—and thereby requiring a separate macro-prudential policy. Imposing a levy on non-core liabilities is an example of such a policy. Through the second phase, the role of non-banks in influencing monetary aggregates increased due to the functioning of capital markets, facilitated by asset managers that acted on behalf of investors such as pension funds and insurance companies.

The growing share of foreign ownership in emerging Asian equity and bond markets makes these markets more susceptible to volatility and capital outflows. The US Federal Reserve announcement in May 2013 of possible QE tapering generated outflows that may mark the beginning of the third phase of global liquidity. The region's economies with relatively weak fundamentals (e.g., twin deficits) were hardest hit, suffering from sharp exchange rate depreciations and falling asset prices. For firms with greater bond holdings than issued bonds outstanding, a further fall in asset prices driven by higher interest rates raises the probability of insolvency and bankruptcy. This should make the more careful gauging of alternative policies inevitable.

Introduction

The external environment is an important backdrop for Asian economic policy. Economies with open financial sectors and convertible capital accounts are particularly sensitive to global financial conditions. The sensitivity to external conditions also applies to economies that have an open trade sector while not necessarily having a fully open and liberalized financial system, such as the People's Republic of China (PRC) and India. Just as water will find cracks to flow through, so will global liquidity conditions find their way into domestic financial conditions.

The institutional details matter in terms of the channel through which global liquidity impacts domestic conditions, and the design and construction of policies to address them will need to take careful account of the institutional details of the financial system. The prolonged period of low interest rates and expansive central bank balance sheets maintained by advanced economy central banks in the aftermath of the global financial crisis (GFC), followed by the gradual reversal of such policies, has ignited a lively debate about capital flows and their impacts on macroeconomic and financial conditions in recipient economies. More importantly, some of the standard policy measures may need to be reviewed given the formidable role of “supply push” factors, the growing significance of capital markets in determining monetary aggregates, and the specific circumstances in each country.

In this monograph, we outline three phases of global liquidity and discuss the policy implications of each of these phases for emerging Asia.² The first phase of global liquidity is characterized as the period leading up to the GFC and the immediate aftermath of the failure of Lehman Brothers in September 2008. This first phase is marked by the expansion of the global banking system and

² Emerging Asia is defined as the People's Republic of China; Hong Kong, China; India; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Taipei, China; Thailand; and Viet Nam.

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the transmission of financial conditions across borders through capital flows intermediated by the global banking system. The concept of core and non-core liabilities is central to our analysis, in which the key themes are banking sector risk-taking and the expansion of leverage and bank balance sheets.

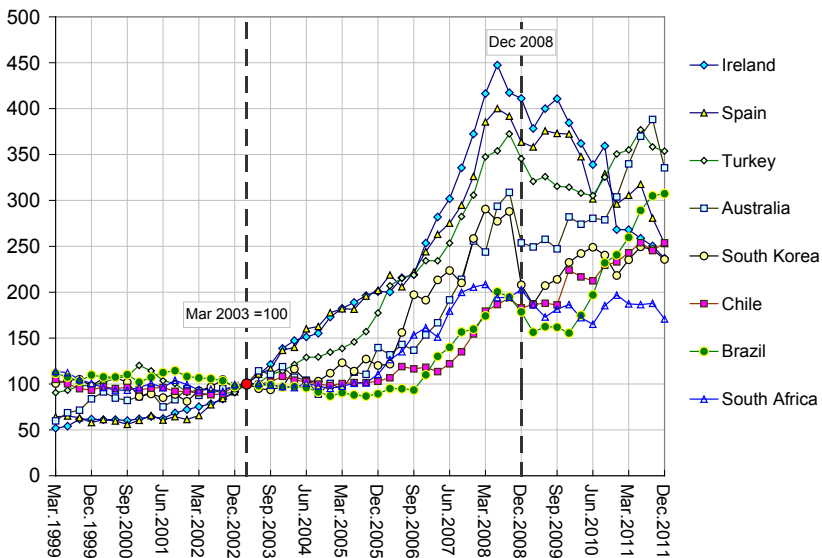
The second phase of global liquidity begins roughly in 2010, by which time all of the major advanced economy central banks had begun implementing quantitative easing (QE) and asset purchase policies that impacted bond markets—both sovereign and corporate—leading to much more permissive conditions in the fixed-income securities market (e.g., higher duration, lower long-term yields, and volatility). The protagonists in this second phase of global liquidity are the real money asset managers, rather than banks, and the key theme is the search for yield and the explosion in issuance from borrowers who were previously shunned as being risky or marginal borrowers. In the second phase, their securities were met with an apparently insatiable appetite from pension funds, life insurers, exchange-traded funds (ETFs), and mutual funds, among others.

The United States (US) Federal Reserve (Fed) announcement in May 2013 of possible QE tapering led to capital outflows from the emerging Asia, which likely signaled the beginning of a third phase. While the region is in a stronger position to weather external shocks than it was during the 1997/98 Asian financial crisis, the market turmoil following the Fed announcement points to the limitations of standard measures of addressing vulnerabilities. A reversal of capital flows is not new; it simply confirms the openness and interdependence of the emerging Asian financial sector within the global market. Yet, without understanding the nature of capital flows in the first and second phases, or the different circumstances surrounding the size and role of capital markets, we may fail to see the limitations of standard policy measures. The effectiveness of a certain policy may be more limited and the risks it creates can be greater than when the region's capital markets were still in their infancy. Thus, there is the need for a careful assessment of the benefits and costs of each policy.

The First and Second Phases of Liquidity

It was Calvo, Leiderman, and Reinhart (1993, 1996) who famously distinguished between the global “push” factors and the country-specific “pull” factors with respect to capital flows. Banking sector flows during the first phase of global liquidity exhibited the classic “supply-push” pattern characterized by the existence of common global factors that drive capital flows everywhere. **Figure 1** shows the cross-border banking sector claims of Bank for International Settlements (BIS)-reporting banks against counterparties in a diverse group of countries. There is a high degree of synchronization of banking sector flows across the disparate geographies of

Figure 1: Claims of BIS-Reporting Banks on Counterparties in Selected Countries (March 2003 = 100)



Source: Bruno and Shin (2012a); data from Bank for International Settlements (BIS) *Locational Banking Statistics*.

the recipient countries. At the same time, there is also a measure of diversity in the pattern of banking sector flows. Emerging Europe saw the most rapid increase in banking sector inflows during the period under review, followed by countries such as the Republic of Korea and Turkey.

Figure 1 is suggestive of a global push factor that drove financial conditions globally, running through the banking sector and impacting domestic financial conditions via the rapid expansion of bank lending funded by capital inflows.

The experience of Spain is particularly instructive of how global liquidity converts capital flows into domestic credit growth. Total bank credit in Spain stood at EUR414 billion in December 1998, shortly before the country joined the Eurozone, and subsequently increased five-fold to nearly EUR2 trillion in 2008 on the eve of the GFC (**Figure 2**). At the time of the launch of the euro, domestic bank lending in Spain could be financed entirely from Spanish residents (Figure 1), but global liquidity changed all that as capital flows and the lending boom fed off each other. At the peak of the cycle in 2008, only half of all bank lending in Spain was financed from domestic

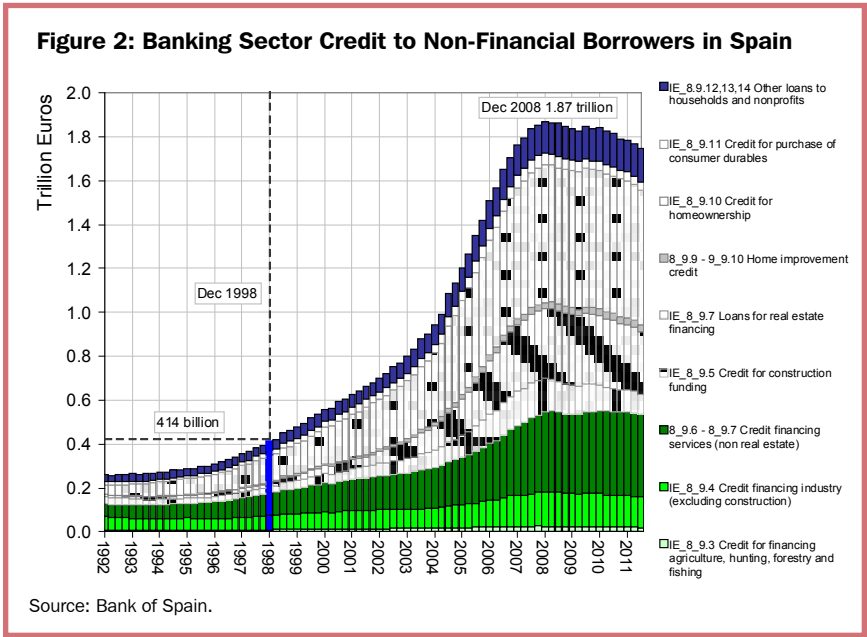
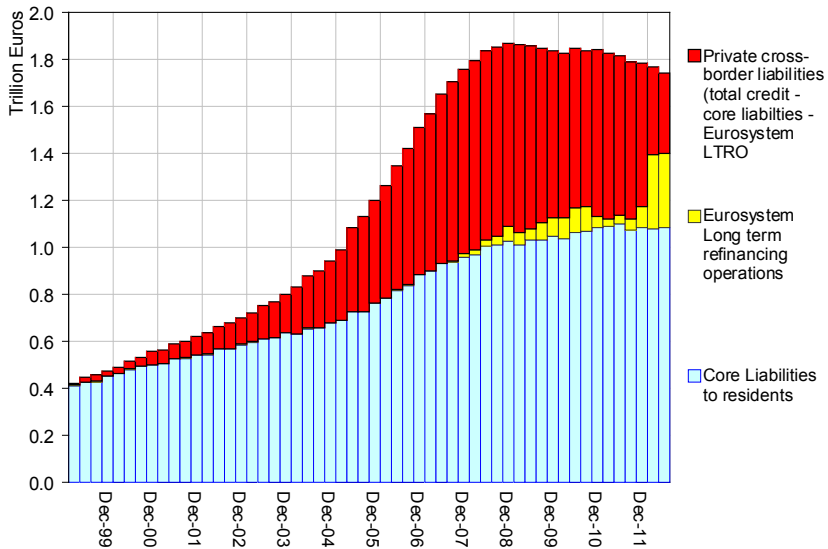


Figure 3: Funding Gap among Spanish Banks**Notes:**

1. Liabilities of banks in Spain to domestic residents are indicated as "core liabilities".
2. Upper area is lending financed with capital inflows; middle area is European Central Bank (ECB) funding.

Source: Bank of Spain.

sources. The rest came from capital inflows as foreign banks had rapidly increased their lending to Spanish banks (**Figure 3**). The experience of Spain underscores how the crisis in the Eurozone is part of a larger global picture. Global liquidity mirrors the procyclical nature of the global banking system.

As well as being the world's most important reserve currency and an invoicing currency for international trade, the US dollar is also the currency that underpins the global banking system as the funding currency of choice for global banks. The US hosts branches of around 160 foreign banks whose main function is to raise wholesale dollar funding in US capital markets and then ship these dollars to their respective head offices.

Some of these borrowed dollars eventually find their way back to the US to finance purchases of mortgage-backed securities and other assets. But many

of them will flow to Europe, Asia, and Latin America where global banks are active local lenders. Thus, global banks become carriers for the transmission of liquidity spillovers across borders. At the margin, the shadow value of bank funding will be equalized across regions through the portfolio decisions of global banks so that global banks become carriers of dollar liquidity across borders. In this way, permissive US liquidity conditions will be transmitted globally, and US monetary policy affects global financial conditions.

Figure 4 plots the assets and liabilities of foreign banks in the US (left panel) and their net interoffice assets (right panel).³ Normally, net interoffice assets would be negative as foreign bank branches act as lending outposts. However, we see that the decade between 2001 and 2011 was exceptional, with net interoffice assets turning sharply positive before reversing into negative territory during the height of the Eurozone crisis in 2011. In 2001–11, foreign bank offices, in effect, became funding sources (rather than lending outposts) for the parent bank.⁴ Cetorelli and Goldberg (2009, 2010) provide extensive evidence using bank-level data to demonstrate that capital markets reallocate funding within global banking organizations.

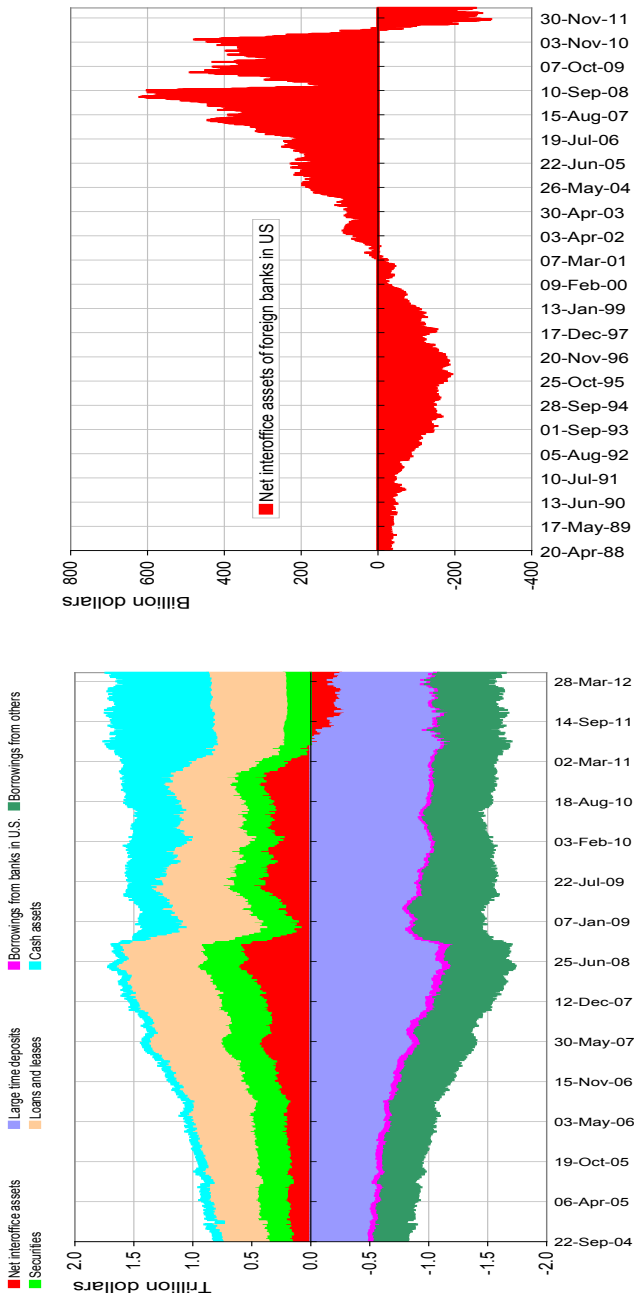
The net interoffice position of foreign banks in the US, therefore, reflects the extent to which global banks are engaged in supplying US dollar funding to other parts of the world. This is a reasonable proxy for the availability of wholesale funding provided to borrowers in a capital-recipient economy.

The large net positive interoffice accounts of foreign banks in the US highlight the potential for cross-border spillovers of monetary policy effects. Dollar funding that is shipped abroad to a bank's headquarters will be deployed globally according to portfolio allocation decisions that seek to maximize profitability. Thus, permissive liquidity conditions in the US dollar wholesale market will be transmitted via the global banking system to other parts of the world. Of course, the US dollar takes center stage as the currency that underpins the global banking system.

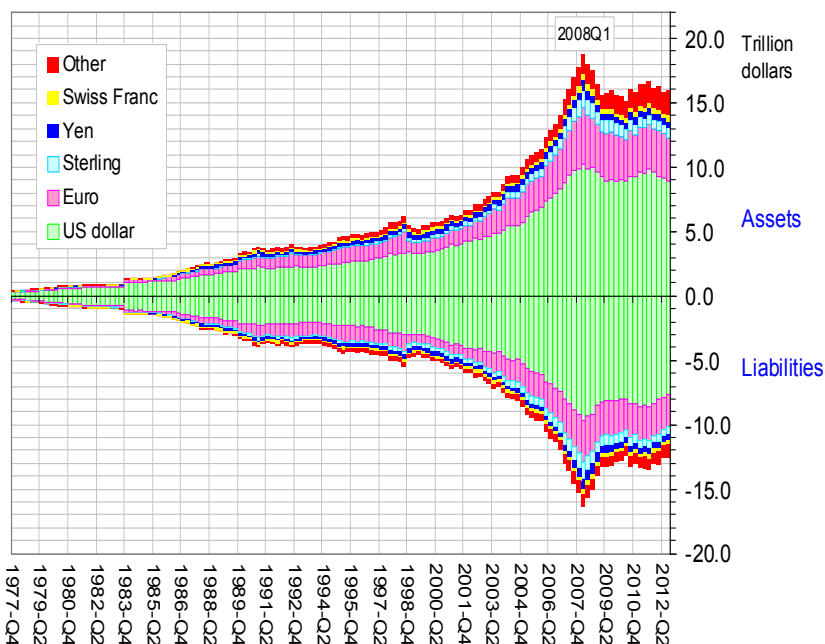
³ Net interoffice assets measure the net claim of the branch or subsidiary of the foreign bank on its parent.

⁴ As noted in BIS (2010) report, many European banks use a centralized funding model in which available funds are deployed globally through centralized portfolio allocation decision-making.

Figure 4: Net Interoffice Assets of Foreign Banks in the US



US = United States.
Source: Federal Reserve H8 Statistics on commercial banks.

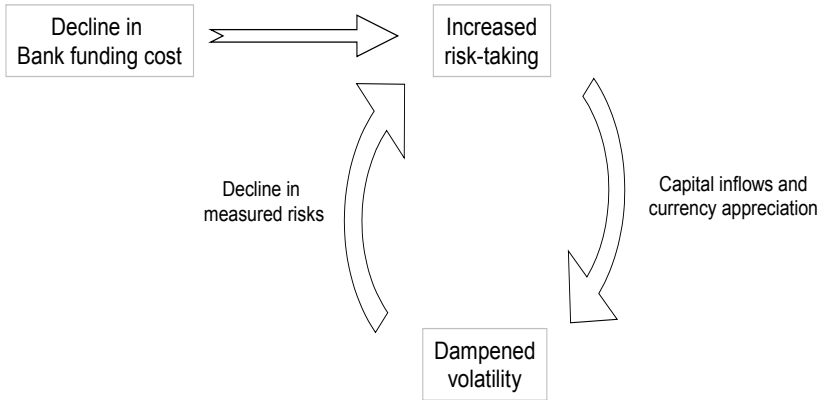
Figure 5: Foreign Currency Assets and Liabilities of BIS-Reporting Banks by Currency

Source: Bank for International Settlements (BIS) *Locational Banking Statistics*.

Figure 5 shows the foreign currency (FCY) assets and liabilities of global banks as tracked by the BIS and arranged by currency. The US dollar series shows the dollar assets and liabilities of banks outside the US, the euro series gives the EUR-denominated assets and liabilities of banks that are outside the Eurozone, and so on. The US dollar asset series reached more than USD10 trillion in 2008Q1, briefly exceeding the total assets of the US chartered commercial banking sector (Shin 2012). Such a risk-taking channel is a powerful determinant of leverage, thereby acting as the linchpin in the propagation of global liquidity (Bruno and Shin 2012b).

A further distinctive feature of the risk-taking channel is that currency appreciation can fuel capital inflows rather than stem them, as currency appreciation strengthens local borrower balance sheets and creates additional

Figure 6: Feedback Created by Currency Appreciation in the Presence of the Risk-Taking Channel



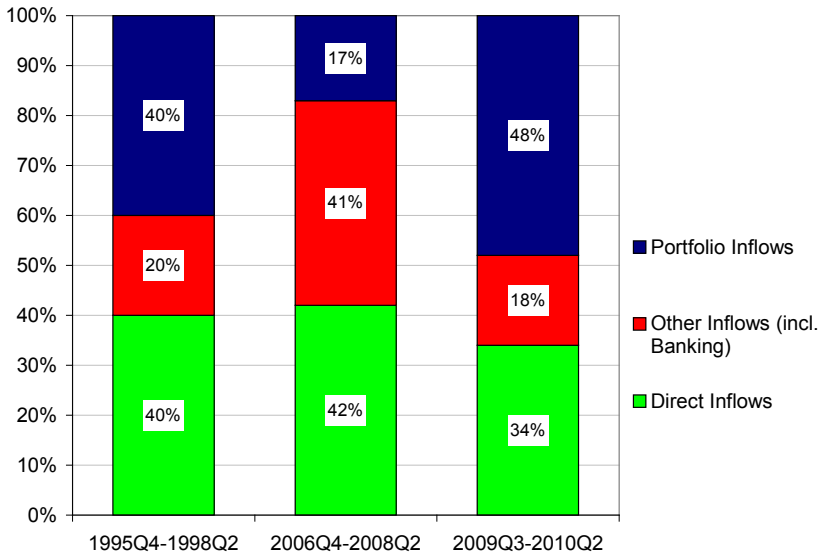
Source: IMF (2011).

slack in the lending capacity of banks, thereby stimulating further inflows (Figure 6).

A useful reference point in identifying the dividing line between the first and second phases of global liquidity is the policy document on capital flows issued by the Strategy, Policy, and Review department of the IMF (2011). The IMF document identifies three periods of rapid capital inflows in recent decades: 1995Q4–1998Q2, a period associated with the Asian financial crisis; 2006Q4–2008Q2, which is associated with the credit boom that led to the GFC; and 2009Q3–2010Q2, the aftermath of the crisis (Figure 7). Obviously, the most recent quarters that included the post-May 2013 trend of global capital flows, were not covered by the report.

The distinguishing feature of the credit boom that preceded the GFC is the role played by banking sector inflows. In contrast to the other two periods described above where banking sector inflows account for less than 20% of total inflows, banking sector inflows surged during the period leading up to the Lehman bankruptcy and its immediate aftermath.

Figure 7: Components of Capital Inflows to Emerging Economies in Three Surge Episodes



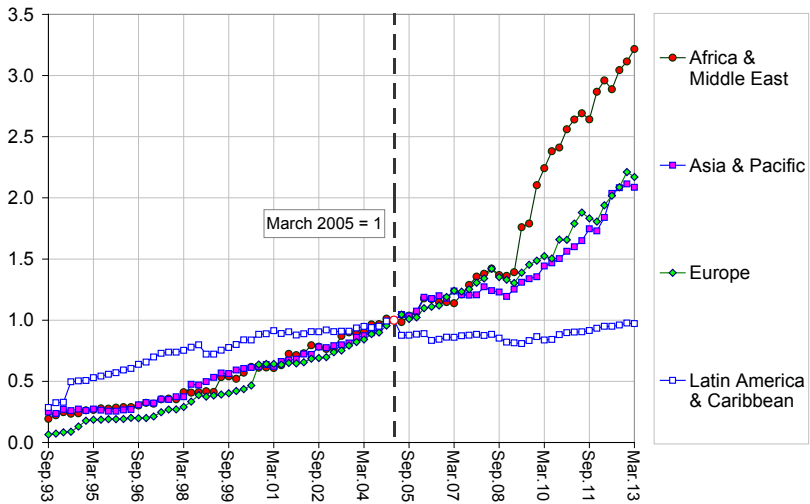
Source: IMF (2011).

The second phase of global liquidity manifests itself in the markets for sovereign and corporate debt. **Figure 8** plots trends in the outstanding amounts of international securities issued by governments in developing economies by region as defined by the BIS.⁵ The total outstanding amounts of international securities in each region are normalized to equal unity at the end of 2005Q1. We see from this chart that the issuance activity of governments in Africa and the Middle East has grown rapidly since 2008, with the amounts outstanding more than tripling since 2005Q1. Developing Asia and the Pacific and Developing Europe also saw rapid increases,⁶ although less rapid than in Africa. Developing Latin America, by contrast, did not see an increase in the amount of bonds outstanding in the period under review.

⁵ Available at <http://www.bis.org/statistics/secstats.htm>

⁶ The BIS site contains all country classifications.

Figure 8: Government International Debt Securities Outstanding
(2005Q1 = 1)

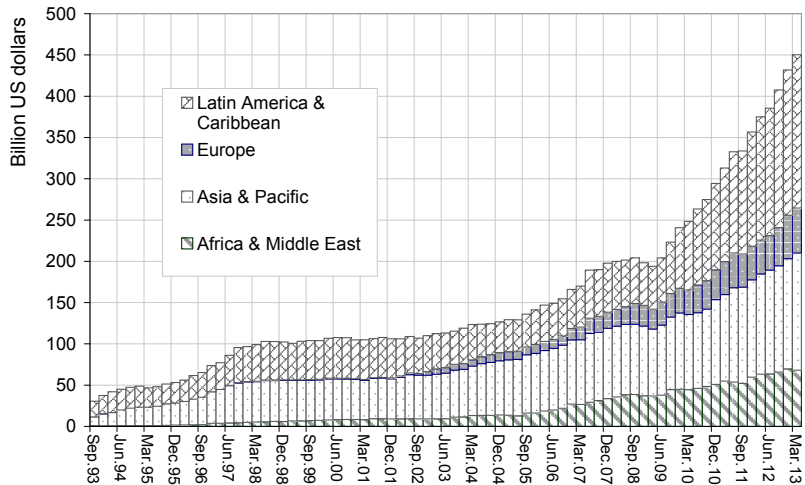


Source: Bank for International Settlements (BIS) *Debt Securities Statistics*.

Figure 8 provides the contextual backdrop for the numerous instances of international bond issuance by “frontier” sovereigns in Africa and elsewhere who have recently ventured into the international bond market having never tapped the capital market before.

The rapid pace of issuance activity is perhaps even starker for non-financial corporate issuers in developing countries. **Figure 9** presents total international securities outstanding issued by non-financial corporate borrowers in developing countries, based on BIS securities statistics and classified by region. We see that developing country corporate borrowers have increased their total international securities borrowing from less than USD200 billion in the aftermath of the Lehman crisis to USD450 billion in March 2013. It is notable that corporate borrowers in Latin America have increased their borrowing sharply, in contrast to the subdued borrowing activity of Latin American sovereigns.

Figure 9: Non-Financial Corporate International Debt Securities Outstanding by Developing Region



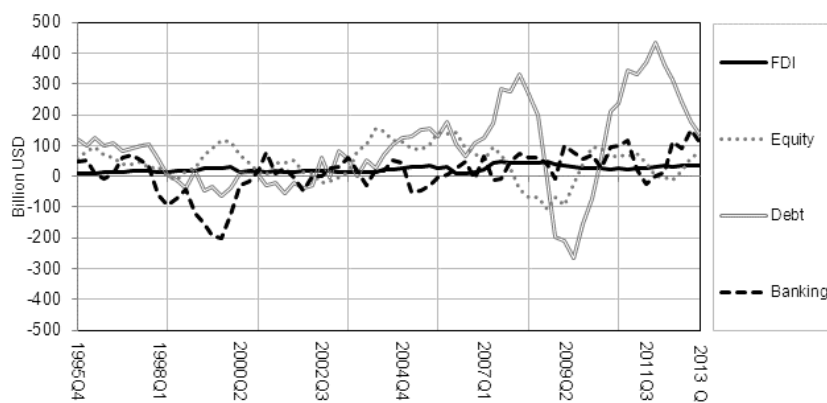
Source: Bank for International Settlements (BIS) *Debt Securities Statistics*.

The Case of Emerging Asia

The first and second phases of global liquidity that are manifest in capital flows have important implications for emerging Asia. For our analysis, it is useful to break down capital flows into four types: “FDI” (foreign direct investment), “equities” (equity portfolios), “debt” (debt securities and other debt including derivatives), and “bank” (capital flows intermediated by the banking sector). Bank-led and debt-led flows are the most volatile among the four types. **Figure 10** shows a turnaround from negative to positive levels of debt-led and bank-led flows in five Asian countries (Indonesia, Japan, the Republic of Korea, the Philippines, and Thailand) during the second half of the 2000s.

Classifying the trend of capital flows into “surges” (a sharp increase in inflows), “stops” (a sharp decrease in inflows), “flight” (a sharp increase in outflows), and “retrenchment” (a sharp decrease in outflows), **Figure 11** confirms

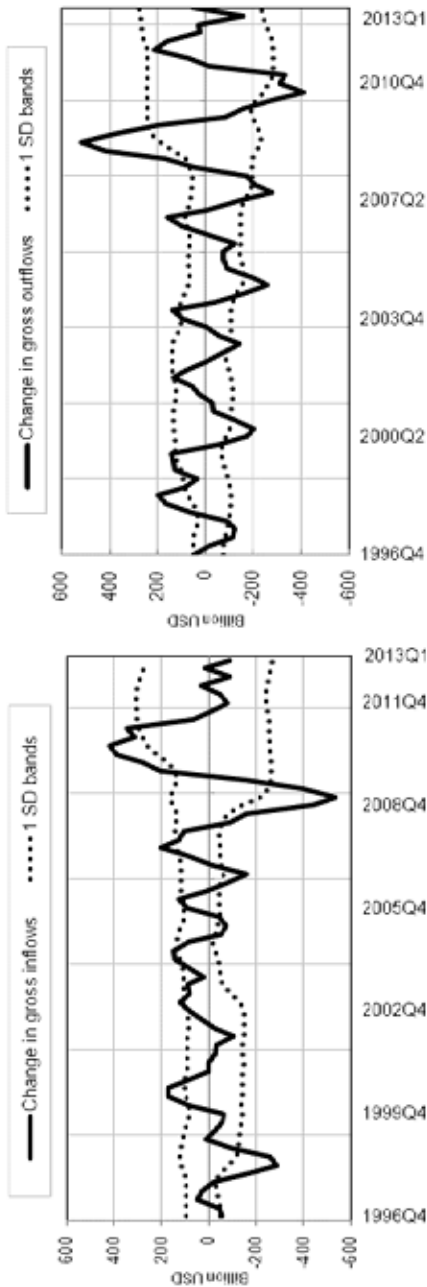
Figure 10: Gross Capital Inflows in Selected East Asian Countries



Note: Data include gross capital inflows for Indonesia, Japan, the Republic of Korea, the Philippines, and Thailand.

Source: ADB calculations using data from IMF Balance of Payments Statistics.

Figure 11: Gross Capital Inflows and Outflows in Selected East Asian Countries



Notes:

1. Data include gross capital inflows and outflows for Indonesia, Japan, the Republic of Korea, the Philippines, and Thailand; computed as year-on-year change based on a 4-quarter moving sum. Inflows refer to bank flows from other investments on the liabilities side (assigned a positive value); outflows refer to bank flows from other investments on the assets side (assigned a negative value).

Source: ADB calculations using data from IMF Balance of Payments Statistics.

the volatility of debt-led and bank-led flows, where changes exceeding one standard deviation occurred most frequently.

The following pattern emerges for the five Asian countries cited above:

- Surges: equity-led in 2009Q4–2010Q1; debt-led in 2002Q2, 2005Q4, and 2007Q2–2007Q4; bank-led in 2004Q1 and 2010Q2
- Stops: equity-led in 2008Q1–2008Q3; debt-led in 1997Q1–1997Q3 and 1998Q3; and bank-led in 1997Q4–1998Q2 and 2008Q4–2009Q2
- Flight: equity-led in 2007Q4; debt-led in 2005Q4; bank-led in 1999Q3, 2001Q2, 2002Q4–2004Q3, 2006Q1–2006Q2, 2007Q2–2007Q3, and 2010Q1
- Retrenchment: debt-led in 1997Q3–1998Q2 and 2008Q2; bank-led in 1996Q4–1997Q1, 1998Q3–1998Q4, 2002Q1, 2005Q2, and 2008Q3–2009Q2

For South Asia, the following pattern was observed:

- Surges: equity-led in 2003Q4, 2007Q2–2007Q4, and 2010Q1; debt-led in 2004Q4–2005Q3 and 2006Q4–2007Q1; bank-led in 2003Q2–2003Q3, 2004Q1, and 2008Q1
- Stops: equity-led in 1998Q2 and 2008Q3–2009Q1; debt-led in 2000Q1, 2002Q1–2002Q2, and 2009Q2
- Flight: equity-led in 2006Q1, 2006Q4–2007Q2, and 2012Q3–2012Q4; debt-led in 2000Q4–2001Q2, 2004Q2, and 2008Q4; bank-led in 2004Q1 and 2009Q1
- Retrenchment: equity-led in 2011Q2–2011Q4; debt-led in 2000Q1, 2001Q4–2002Q2, and 2007Q3; bank-led in 1998Q4–1999Q4, 2002Q3, and 2007Q4–2008Q2

In the case of bank-led flows, deleveraging by European banks contributed to the volatility. As funding conditions in Europe deteriorated toward the end of 2011, bleak economic prospects and doubts over fiscal sustainability undermined the value of sovereign and other assets. Bond issuance by banks fell, especially uncollateralized issuance in fiscally challenged countries; outflows due to fund withdrawals surged, particularly in Italy and Spain; and exposure to a number of European Union (EU) institutions dropped sharply.

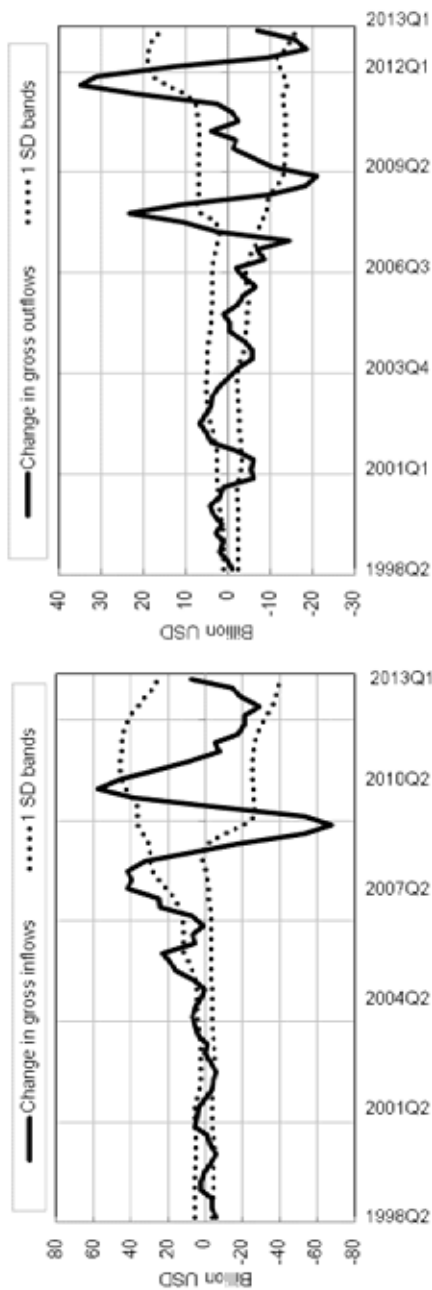
Figures 11 and 12 clearly show that capital flows to Asia intensified before the GFC. These flows can be beneficial, but their volatile pattern and procyclicality can also act as a channel that transmits the build-up of financial risks and imbalances. A recent study examining the procyclicality of financial systems in Asian countries confirms that bank liabilities are highly procyclical, as indicated by the significantly positive real gross domestic product (GDP) elasticities, although the degree of procyclicality varies across countries (Hahm, Shin, and Shin 2013a). In countries with relatively high real GDP elasticities, such as the Republic of Korea and Indonesia, non-core liabilities are more procyclical than core liabilities. Also, non-core liabilities such as foreign borrowings tend to be more procyclical during boom periods.

With respect to US monetary policy, our findings reveal that bank liabilities are responsive to both domestic and US policy interest rates, but there are some differences across the countries studied. In the Republic of Korea and Singapore, bank liabilities tend to increase faster when Fed funds rates are low, which indicates that US monetary policy has important spillover effects on bank leveraging in emerging Asian countries. Regarding the impact of the interoffice assets of foreign banks in the US, bank liabilities in many Asian countries respond positively to US cross-border interoffice loans and the elasticities are higher for non-core liabilities. The impact of global market uncertainty, as measured by the CBOE Volatility Index (VIX), seems less significant in Asian countries, and in many cases, the elasticity has an opposite sign.

Overall, the findings of the study suggest that non-core bank liabilities, especially foreign bank borrowings, are highly procyclical and constitute an important transmission channel of global liquidity shocks to Asian economies. In open emerging economies, financial cycles can be much different from domestic business cycles due to cross-border linkages through non-core funding. The implication is that monetary policy alone is not sufficient to lean against procyclicality and financial cycles in open emerging market economies, and thus policy makers need to also have access to macroprudential tools.

Another study (Hahm, Shin and Shin (2011)) using a panel probit model analyzes the incidence of financial crises in a large sample of emerging

Figure 12: Gross Capital Inflows and Outflows in Selected South Asian Countries



Note:

1. Data for South Asia include India, Pakistan, and Sri Lanka.
2. The period covered is 1995Q1 until 2013Q1 for India and Pakistan, and 1995Q1 until 2011Q4 for Sri Lanka.
3. Computed as year-on-year change based on a 4-quarter moving sum.
4. Inflows refer to bank flows from other investments on the liabilities side (assigned a positive value); outflows refer to bank flows from other investments on the assets side (assigned a negative value).

Source: ADB calculations using data from the IMF's *Balance of Payments Statistics*.

economies. It finds that non-core bank liabilities do have explanatory power for subsequent crises.⁷ The empirical performance of measures for non-core liabilities is encouraging even when more traditional measures, such as the ratio of credit to GDP, are included. In particular, banks' foreign liabilities constitute a major component of their non-core liabilities in many emerging market economies where the domestic wholesale bank funding market is not sufficiently developed to support rapid growth in bank lending.⁸

The overall results from these studies are consistent with the hypothesis that non-core bank liabilities matter more in open emerging market countries than in relatively closed economies. However, the impact of non-core liabilities manifests itself highly non-linearly and heterogeneously across different crisis episodes. Policy makers in emerging Asian countries must take these complex interaction effects into consideration when pursuing capital market liberalization by designing a careful macroprudential policy framework as a guard against potential risks.

This discussion is appropriate for an economy, such as the Republic of Korea, where the domestic banking sector has access to funding from the global banking system. However, in some financial systems at an earlier stage of development, or where the banking sector is legally restricted from having access to the global banking system, the distinction between core and non-core liabilities will look different, although the principles from the system-

⁷ There is an extensive literature on leading indicators of emerging market financial crises. However, their focus has been on fitting exercises in which the objective is to maximize the statistical goodness of fit of the model rather than to investigate the particular channels in detail.

⁸ The investigation in this study complements that in Gourinchas and Obstfeld (2012), who conduct an empirical study using data from 1973 to 2010 for both advanced and emerging economies on the determinants of financial crises. They find that two factors emerge consistently as the most robust and significant predictors of financial crises: a rapid increase in leverage and a sharp real appreciation of the currency.

wide accounting framework will continue to apply.⁹ (This topic will be discussed in more detail in the next section.)

Regardless of the openness of the system, however, a large increase of highly volatile debt-led and bank-led flows poses a difficult challenge for policy makers seeking to maintain macro and financial stability. Bank-led flows can alter the size and composition of bank balance sheets to the point that the risks of a banking crisis increase. On the asset side, loan-to-value ratios can rise quickly due to excessive credit expansion and other forms of risky investment, while an increase in non-core liabilities through bank-led flows can heighten banks' risky behavior and increase their leverage.¹⁰ In times of external shock, bank credit can also be disrupted. With a stronger currency as a result of capital inflows, banks are willing to take greater risks by extending more credit as the balance sheet of borrowers improve.¹¹

Such risks are particularly important for bank-dependent Asian countries with open capital accounts where bank leverage tends to exceed cyclical norms. As shown in **Figure 13**, the growth of bank credit in emerging Asia accelerated prior to the GFC. Even after the GFC, growth continued to rise in some countries. This rapid expansion coincided with rising demand for property, causing a persistent increase in property prices and exposing the region to the risk of a bubble bursting. Credit for consumption also surged, fueling the growth of consumption to allow for high economic growth amid a global economic slowdown.

⁹ When the domestic banking sector is mostly closed from the global banking sector, deposits will constitute the lion's share of banking sector liabilities, and traditional monetary aggregates such as M2 become highly variable and procyclical, encompassing volatile banking liabilities. In such instances, it may be more meaningful to decompose M2 into its core and non-core components. The non-core component of deposits might include the deposits of non-financial companies that end up recycling funding within the economy and hence become integrated into the intermediary sector. The PRC and India are two examples of where this distinction between core and non-core liabilities may be usefully employed. In both cases, FCY-denominated bank liabilities and market-based funding instruments play a much smaller role than in a more open economy such as the Republic of Korea.

¹⁰ See Azis (2013c) and Forbes and Warnock (2012).

¹¹ The amplified effect of cross-border flows on the supply of credit due to the changing risk behavior of banks is shown in Bruno and Shin (2012).

Figure 13: Credit Growth in Emerging Asia

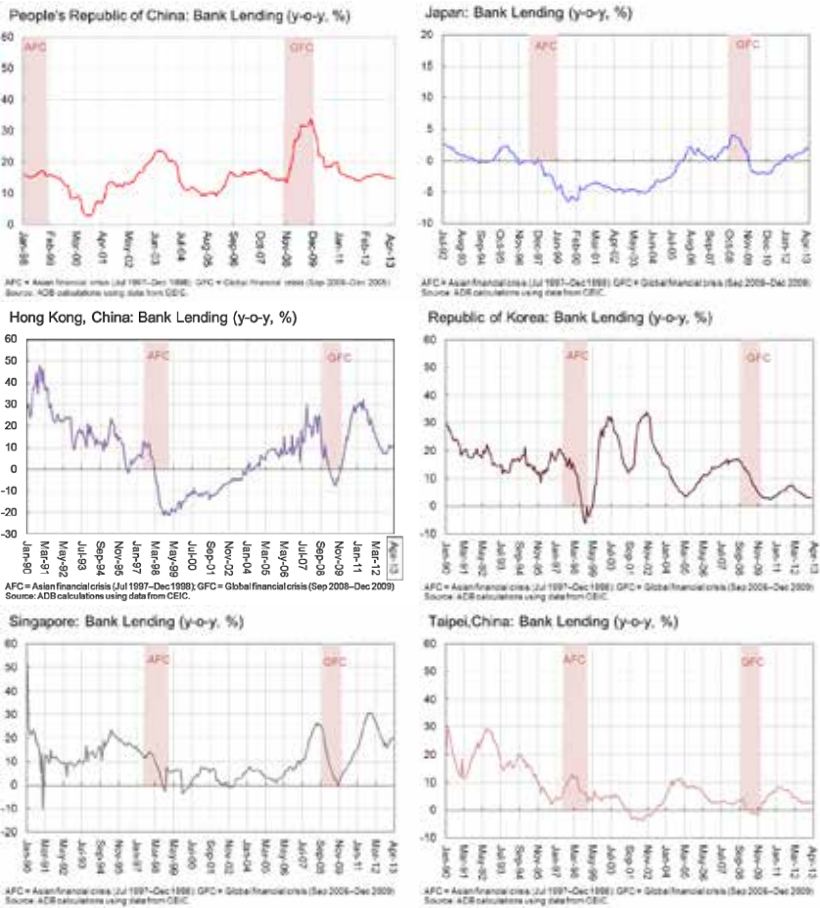
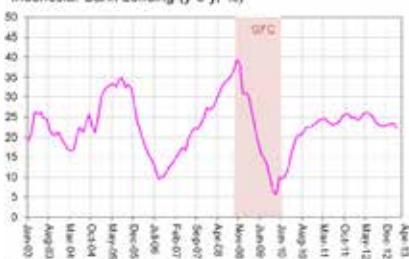
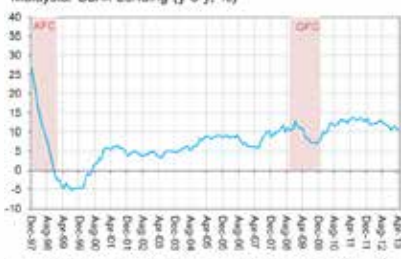


Figure 13 continuation

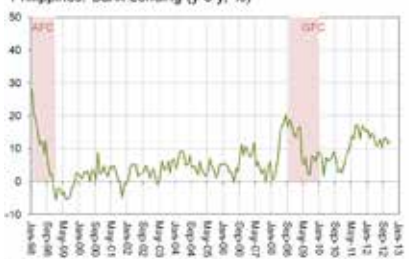
Indonesia: Bank Lending (y-o-y, %)



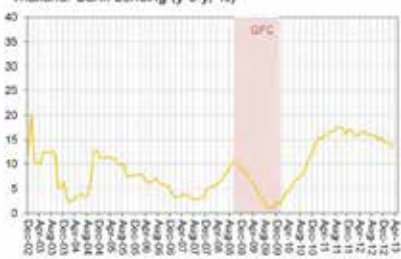
Malaysia: Bank Lending (y-o-y, %)



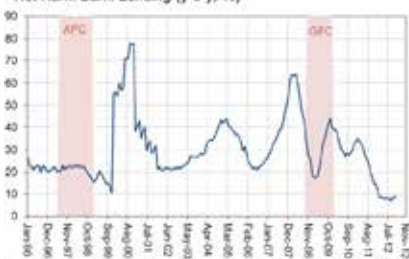
Philippines: Bank Lending (y-o-y, %)



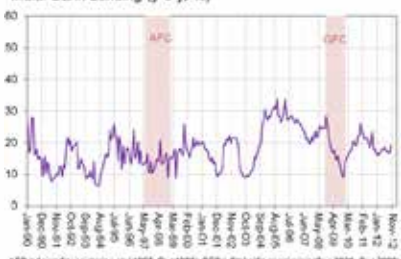
Thailand: Bank Lending (y-o-y, %)



Viet Nam: Bank Lending (y-o-y, %)



India: Bank Lending (y-o-y, %)



We investigate the implications for bank behavior by using flow-of-funds (FOF) data from five Asian economies: Indonesia; the Republic of Korea; the Philippines; Taipei, China; and Thailand. The period under review is divided into pre-GFC (2000–06) and GFC (2007–11). In the set of charts in **Figure 14**, the two periods are depicted as squares and triangles, respectively. We match the flow of different components of liabilities and assets based on the FOF data and estimate the trend line in both periods for each economy. In particular, we compare the (i) correlation of liabilities with total assets across different types of liabilities, and (ii) correlation of assets with non-core liabilities (or core liabilities in the case of households) across different types of assets. The former aims to capture what type of liabilities move in sync with changes in assets (source of funds), the latter aims to identify the type of assets that non-core liabilities are invested in (use of funds).

Figure 14 shows that the financial sector in the Philippines exhibited a significant change in investment behavior between the pre-GFC and GFC periods. The preference for non-core sources (non-deposits) increased, with the slope doubling, while the slope of currency and deposits declined. With growing non-core liabilities, investment by the financial sector is more diversified in favor of non-loans, particularly securities and equities. In the case of Indonesia, banks have been increasingly seeking funds from non-currency and deposit sources. They continue to allocate the bulk of their funds for loans, presumably dominated by credit for consumption, real estate, and other non-tradable sector assets. However, in both countries, the preference for securities and non-loan assets has risen faster than that for lending.

Like in Indonesia, the tendency among the financial sector in Thailand has been to allocate additional funds to loans. The corresponding loan slope is close to unity (0.99 and 0.93 during the pre-GFC and GFC periods, respectively). In the case of the Republic of Korea, the FOF data show a persistently strong tendency toward extending loans. Such a strong preference is depicted by a higher slope for loans than for non-loans. A shift of preference in favor of raising funds from non-core sources is also observed. The non-core share of banks' liabilities remained high, although it has been declining in recent years.

Figure 14: Bank Behavior in Selected Emerging Asian Economies

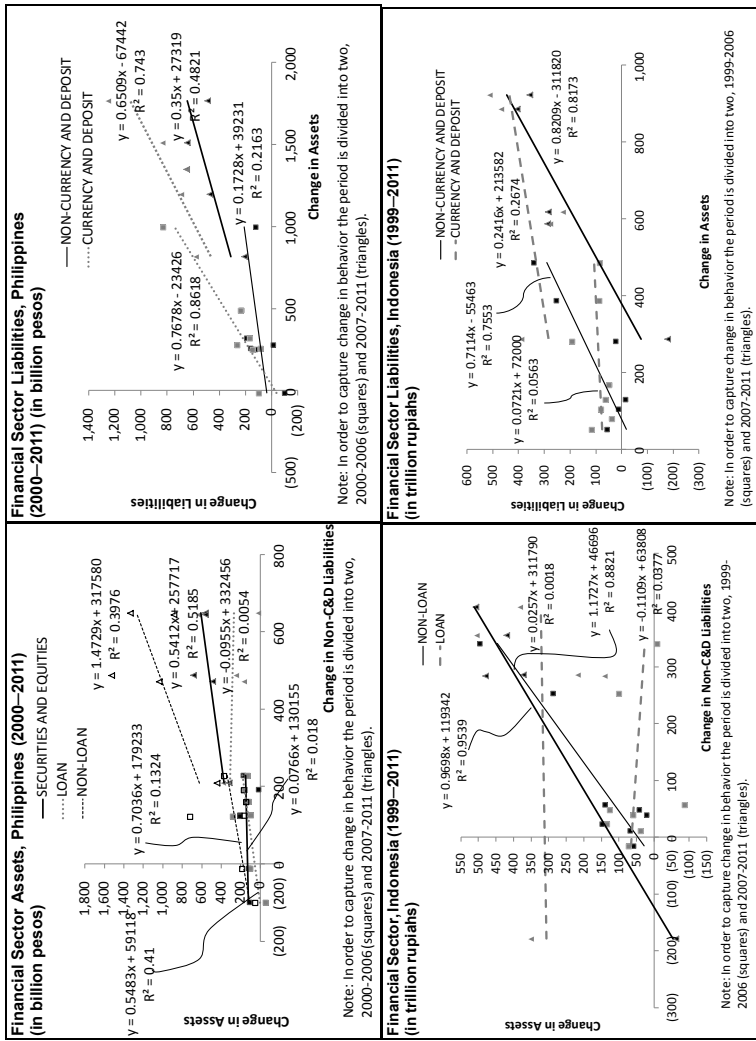
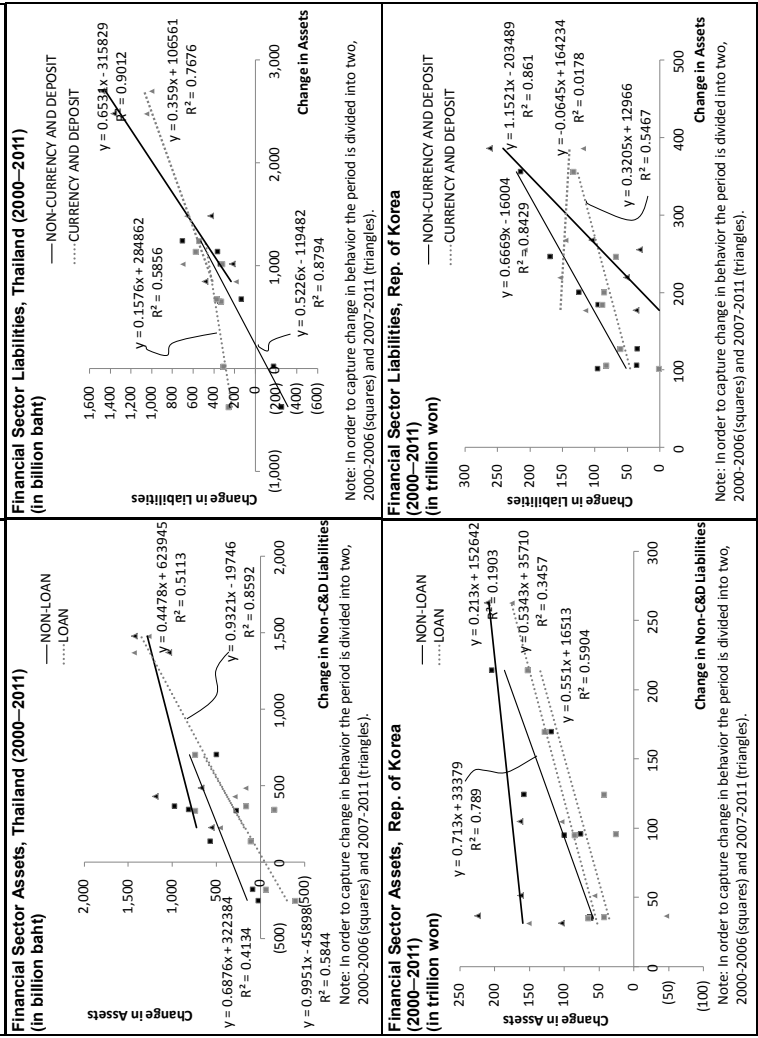


Figure 14 continued



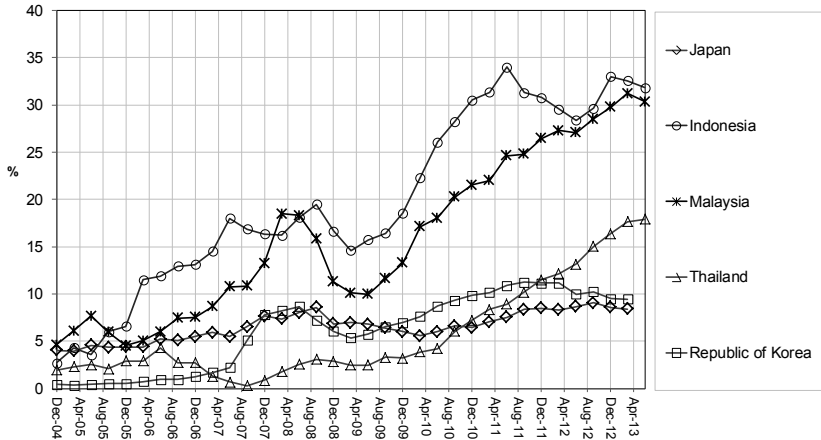
Source: Flow-of-funds (FOF) data from national sources.

It is clear that as banks and other financial institutions expand their liabilities using non-core sources, they tend to diversify their asset holdings by allocating the additional funds either to loans or other risky financial assets. As a large portion of loans are directed toward the property sector and other forms of consumer credit, vulnerabilities multiply. Although the level of non-core liabilities in most countries is not yet alarming, if left unattended it could threaten macro and financial stability.

The attraction for banks of holding financial assets has been enhanced by improved liquidity in capital markets as foreign funds flocked to the region as a result of ultra-easy monetary policies in advanced economies. As foreign investors shun risky holdings like equities, while at the same time seeking high risk-returns, emerging Asia's LCY bond market has become especially attractive. The safe haven status of Asia, relative to other developing regions, has reinforced these flows. The yields of traditionally safer US Treasuries and those of emerging market debt moved in the same direction after the GFC. The recent downgrade of global growth expectations has pushed emerging Asian LCY bond yields lower, in tandem with those in advanced economies, implying that the credit risks associated with LCY bonds in the region's emerging markets are significantly lower than in the past.

The share of foreign ownership in some of the region's LCY bond markets has increased, reaching roughly one-third of the total in Indonesia and Malaysia, and more than 10% in the Republic of Korea and Singapore (**Figure 15**). In spite of the positive nature of this trend, the relatively small size of emerging Asian LCY bond markets and their limited liquidity exposes these markets to foreign withdrawals. The volatility that may result can adversely impact market liquidity and reduce the attractiveness of the region's bond market—as it directly impacts investor perceptions of the collateral value of emerging Asian LCY bonds. A recent study by Azis et.al (2013) reveals that in some Asian markets, the impacts of the external shock and volatility of the US and European bond markets associated with the Lehman failure and the Eurozone crisis have been significant.

Figure 15: Share of Foreign Ownership in Selected Emerging Asian LCY Bond Markets



Source: ADB calculations.

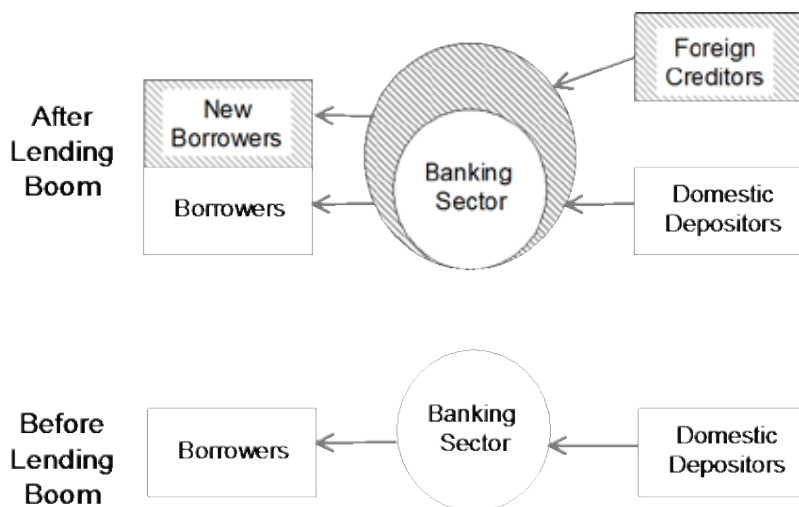
In short, the global flows that fueled capital market liquidity in emerging Asia (second phase) have clearly affected the region's financial sector as it is the largest holder of LCY bonds. With ample liquidity from non-core liabilities (first phase), banks expanded not only their loans but also their financial assets, including LCY sovereign bonds. These developments will have some bearing on the implications for available policy choices.

Core and Non-Core Liabilities under Different Systems

In addressing the procyclicality of financial systems, the distinction between a banking sector's core and non-core liabilities is crucial. Core liabilities can be defined as the funding that the bank draws on during normal times, and is mainly sourced domestically. What constitutes core funding will depend on the context and the economy in question, but the retail deposits of the household sector are a good example of core liabilities.

When banking sector assets are growing rapidly, the amount of core funding available is likely to be insufficient to finance the rapid growth in new lending. This is because retail deposits grow in line with the aggregate wealth of the household sector. In a lending boom when credit is growing very rapidly, the pool of retail deposits available is not likely to be sufficient to fund the increase in bank credit. Other sources of funding must then be tapped. This state of the financial cycle is thus reflected in the composition of bank liabilities.

Such procyclical behavior in the banking sector has consequences for capital flows. Banks are intermediaries who borrow in order to lend, and they must raise funding in order to lend to their borrowers. When credit is expanding rapidly to the point of outstripping the pool of available retail deposits, banks will turn to other sources of funding to support credit growth, often including other banks operating as wholesale lenders in the capital market. In this respect, there are close parallels between currency crises and credit crises. The link comes from the fact that the procyclical behavior of banks that fuels the credit boom is financed through capital inflows via the banking sector. Indeed, one of the key results unearthed by our empirical investigation is that

Figure 16: Lending Boom Financed by Non-Core Liabilities

Note: Increased lending during a credit boom is financed by non-core liabilities.
Source: Authors' illustration.

the most consistently reliable indicator of vulnerability to both a currency crisis and a credit crisis is a high level of bank liabilities to foreign creditors.¹²

Figure 16 is a schematic illustration of the build-up of vulnerabilities associated with the growth of non-core liabilities. The bottom panel is the banking sector before a credit boom, while the top panel illustrates the system after the boom. When traditional deposit funding fails to keep up with credit growth, the banking sector's expansion is funded by non-core liabilities—in this case, from foreign creditors—which increases the sector's vulnerability to deleveraging by the same foreign creditors.

¹² By addressing the up-phase of the financial cycle and the potential for the compression of risk premia during lending booms, our approach differs from models of leverage constraints or collateral constraints that bind only in a downturn. In such models, lending is always below optimum levels. As well as focusing on downturns, our focus is also on the up-phase of the cycle when risk premia become compressed, leaving the economy vulnerable to a potential reversal.

Two features distinguish non-core liabilities. First, non-core liabilities include claims held by intermediaries on other intermediaries. Second, they include liabilities to foreign creditors, which are typically the global banks and hence also intermediaries, albeit foreign ones. Even for liabilities to domestic creditors, if the creditor is another intermediary, the claim tends to be short term. The distinction between core and non-core liabilities becomes meaningful once there are differences in the empirical properties of the two types of liabilities.

For emerging Asia, more thought is needed on a useful classification system between core and non-core liabilities. In an open, emerging economy where the banking system is open to funding from global banks, rapid increases in the non-core liabilities of the banking system show up as capital inflows through increased FCY-denominated liabilities in the banking system. For this reason, the banking sector's FCY-denominated liabilities can be expected to play a key role in diagnosing the potential for financial instability.

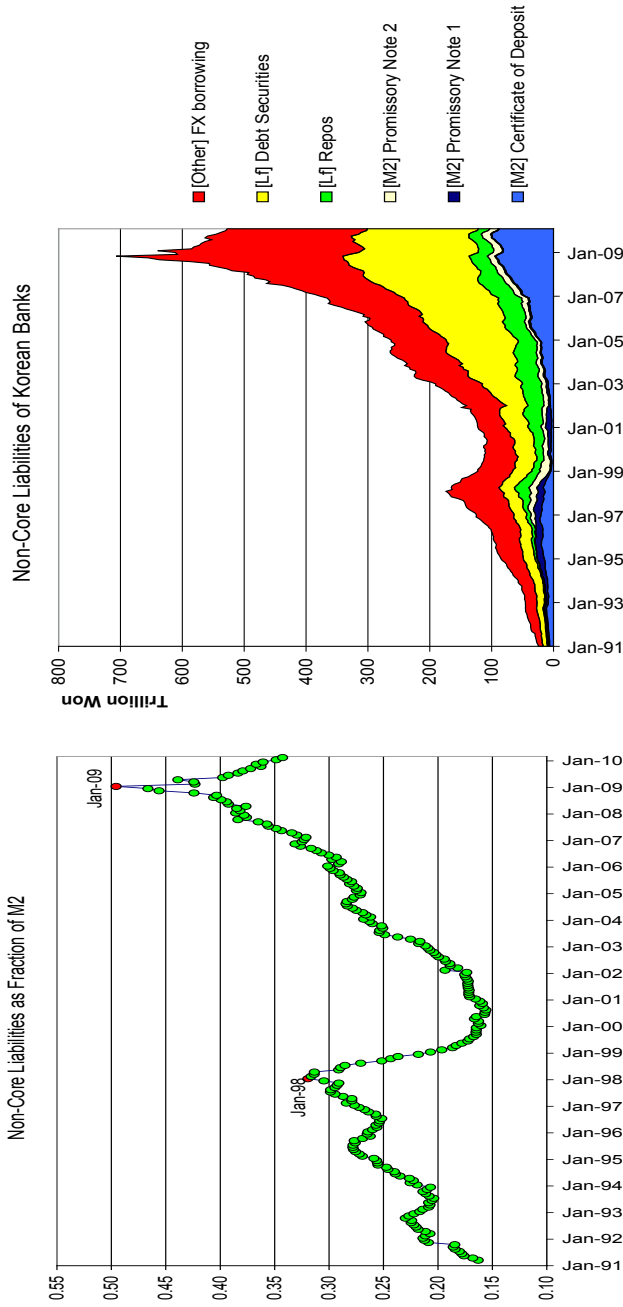
For the Republic of Korea, Shin and Shin (2010) proposed a definition of non-core liabilities as the sum of (i) FCY-denominated bank liabilities, (ii) bank debt securities, (iii) promissory notes, (iv) repos, and (v) certificates of deposit (CDs).¹³ This measure of non-core liabilities is an approximation of “true” non-core liabilities defined in our accounting framework above, as the classification is still based upon financial instruments rather than actual claim holders. For instance, bank debt securities such as debentures and CDs can be held by households, and these must be excluded from non-core liabilities.

The right panel of **Figure 17** plots six categories of non-core liabilities in the Korean banking sector, based on definitions taken from Shin and Shin (2010). It is notable how the first peak in non-core liabilities coincides with the 1997/98 Asian financial crisis. After a lull in the early 2000s, non-core liabilities increase rapidly in the run-up to the GFC.¹⁴ The left panel is the plot of

¹³ The inclusion of CDs in non-core liabilities is motivated by the fact that CDs are often held by financial institutions engaged in the carry trade that use CDs as an alternative to holding Korean government securities.

¹⁴ The peaks in the series occur some weeks after the start of the crisis, as the non-core series are measured in Korean won and the won depreciated sharply during the 1997/98 Asian financial crisis and the GFC, thereby increasing the won value of FCY-denominated liabilities.

Figure 17: Non-Core Liabilities of Banks in the Republic of Korea



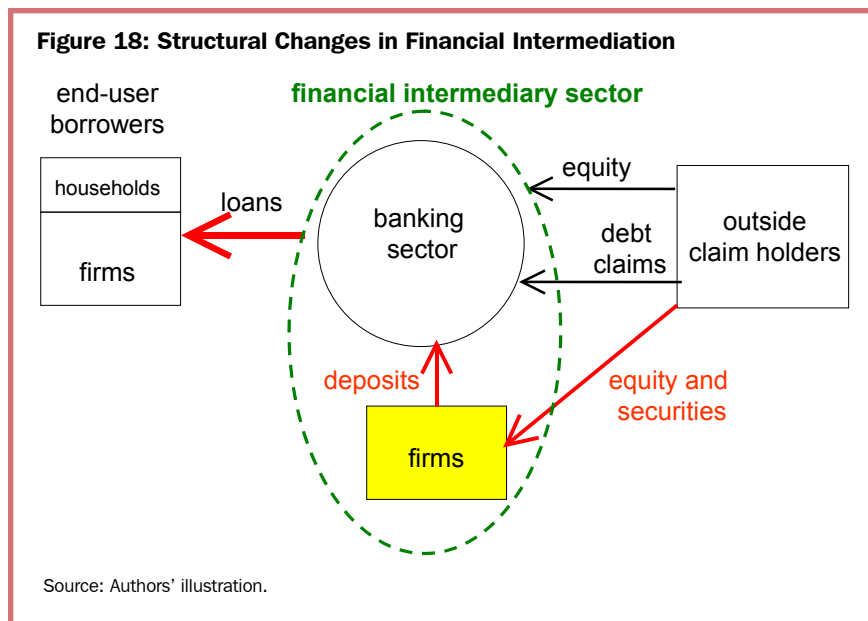
Note: Panel on right plots six categories of non-core liabilities of banks in the Republic of Korea measured in Korean won; panel on the left plots the non-core series as a fraction of M2.
Source: Bank of Korea and Shin and Shin (2010).

non-core liabilities as a fraction of the M2 money supply. The substantial variation in the ratio of non-core liabilities to M2—ranging from a low of around 15% in the early 2000s to a peak of 50% following the bankruptcy of Lehman Brothers—emphasizes the highly procyclical nature of non-core liabilities.

The sequencing of reforms matters as well. If the liberalization of non-financial corporate funding proceeds ahead of the liberalization of the banking sector, as was the case in Japan during the 1980s, it becomes profitable for large manufacturing firms to recycle liquidity and act as *de facto* financial intermediaries by raising funds in capital markets through securities and then depositing the funds in the banking system through time deposits. Through this process, the financial assets of non-financial corporations increased dramatically, together with their financial liabilities (Hattori, Shin, and Takahashi 2009). **Figure 18** illustrates the change in financial structure that this recycling of liquidity entails. When non-financial firms play the role of *de facto* financial intermediaries, the stock of M2 will rise rapidly due to the increasing deposit claims on the banking sector. Meanwhile, the banking sector itself will be under increasing pressure to find new borrowers since one of their traditional customers (manufacturing firms) no longer need funding; instead, banks and manufacturing firms will have undergone a role reversal, with these firms pushing deposits into the banking sector rather than receiving loans from the banks.

Under such circumstances, the distinction between core and non-core banking sector liabilities does not coincide neatly with the distinction between deposit and non-deposit liabilities. In many developing countries at an early stage of financial development, or in those that are generally closed to the global banking system, the principle behind the distinction between core and non-core liabilities is better expressed as the distinction between the retail deposits of the household sector and the wholesale deposits of non-financial companies.

In practice, however, the classification into core and non-core liabilities is not so clear-cut. For small and medium-sized enterprises (SMEs) with an owner-manager, bank deposits can be seen as household deposits. On the other hand, a firm could have access to market finance and the ability to issue bonds and then deposit the proceeds of the bond sale in the banking



system. This is what happened in Japan in the 1980s, for instance. This latter case should not be counted as a core liability since the creditor firm is acting like an intermediary that borrows in financial markets to lend to banks.¹⁵

Thus, what is considered to be core or non-core will depend on an economy's financial system and its institutions. For economies with banks operating in developed, open capital markets, and non-core funding will typically take the form of wholesale funding of the bank from capital markets, sometimes denominated in FCY. However, if the economy has a closed capital account and its banks are prevented from accessing capital market funding from abroad, then what is considered non-core funding could be quite different.

¹⁵ Additional ambiguities are presented by items such as the trust liabilities of the banking sector. Many of the trust liabilities are to non-financial corporates and face many of the same definitional hurdles. In addition, it may be better to have a more graduated distinction between core and non-core liabilities, allowing an intermediate category to take account of such ambiguities. Nevertheless, the distinction between core and non-core bank liabilities provides a better window into the actual exposure of the banking sector to financial risk and its willingness to increase that exposure. As such, the relative size of non-core liabilities can be used as a monitoring tool to reflect the stage of the financial cycle and the degree of vulnerability to potential setbacks.

A comparison between the PRC and the Republic of Korea helps illustrate this point. **Figure 19** plots the monthly growth rates of various banking sector liability aggregates for the Republic of Korea (left panel) and the PRC (right panel). The growth rates have been filtered through a Hodrick–Prescott (HP) filter at business cycle frequency. The HP filter is used here with hindsight to highlight differences in time series patterns, as opposed to the real-time, trend-finding exercise under Basel III.

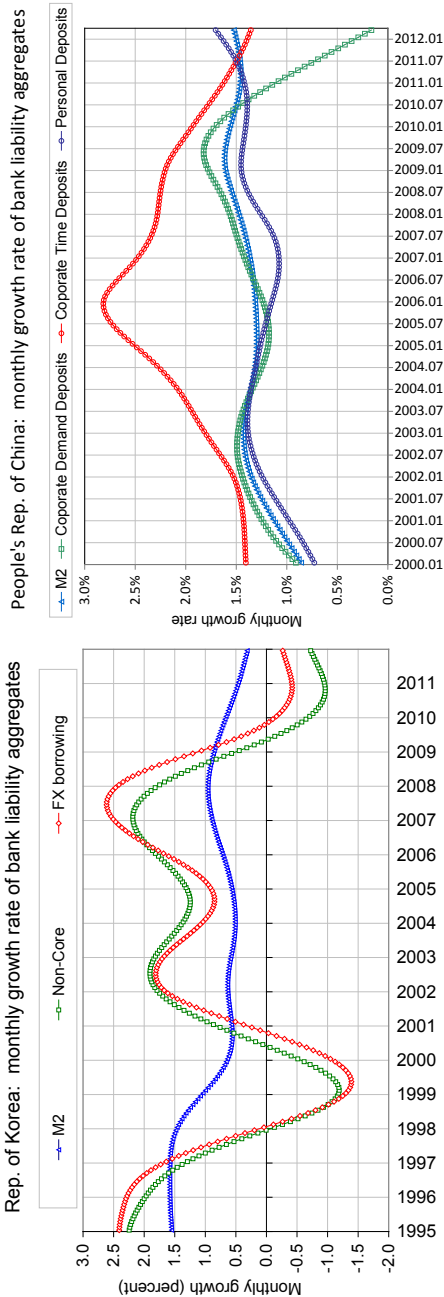
In the Republic of Korea, banks have access to capital markets, either directly or through the branches of foreign banks operating in the country. For this reason, the most procyclical components of the bank liability aggregates are those associated with wholesale funding, especially the series for FCY-denominated liabilities of the banking sector. The other non-core liabilities are bank debentures, repos, and other non-deposit items such as promissory notes (Shin and Shin 2010). Before the 1997/98 Asian financial crisis and the GFC, non-core liabilities grew rapidly, only to crash with the onset of each crisis. In contrast, the growth of M2, reflecting household and corporate deposits, is much less variable over the cycle.

The right panel of Figure 19 shows that in the PRC, the sub-components of M2 exhibit considerable variation in their time series properties. For an economy such as the PRC, where banks are prevented from accessing international capital markets, applying the same core and non-core liability classifications as in the Republic of Korea would be inappropriate.

More thought is needed on how financial conditions are transmitted across the border into the PRC. As mentioned above, just as water finds cracks to flow through, even a closed financial system is not entirely immune to global financial conditions. This is especially true for a highly trade-dependent economy such as the PRC; if banks are prevented from accessing international capital markets, then non-financial firms will be the conduit for the transmission of financial conditions.

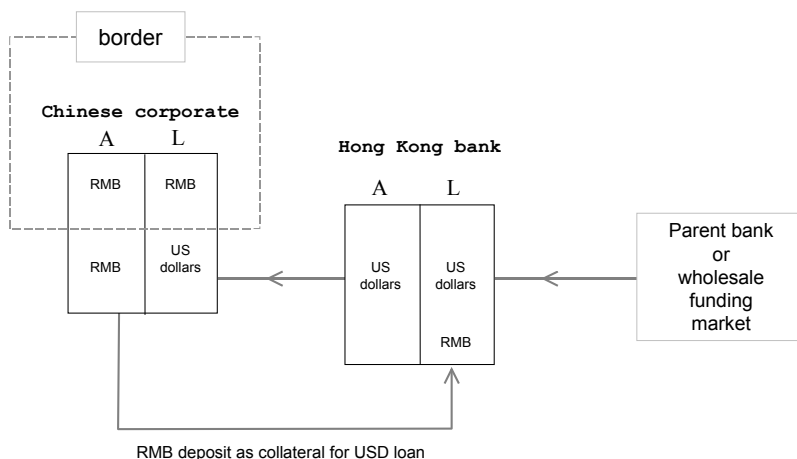
Figure 20 depicts the activities of a Chinese non-financial firm with operations outside the PRC that borrows in US dollars from an international bank in Hong Kong, China and posts renminbi deposits as collateral. The

Figure 19: Monthly Growth Rates of HP-Filtered Bank Liability Aggregates



Sources: Bank of Korea and People's Bank of China.

Figure 20: Borrowing Relationship Structure among Non-Financial Corporates in the PRC



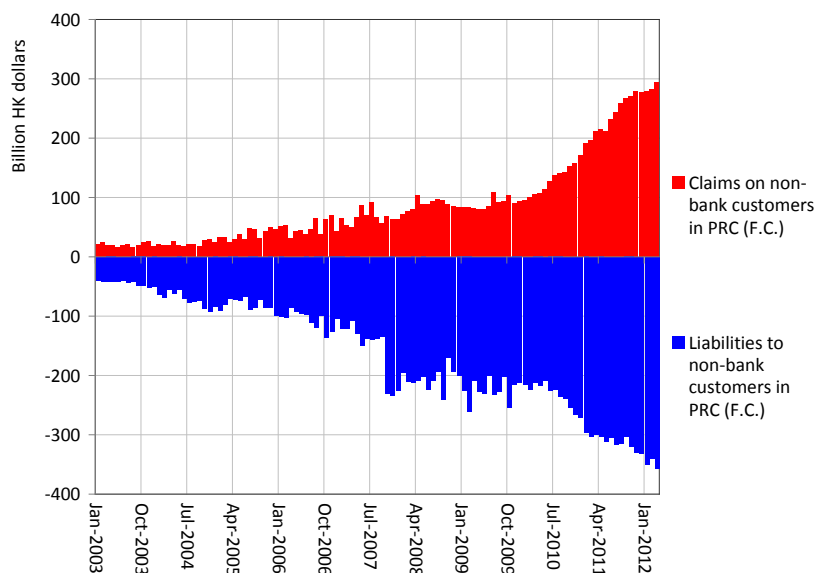
Source: Authors' illustration.

transaction would be akin to a currency swap, except that the settlement price is not chosen at the outset. The transactions instead resemble the operation of the old London Eurodollar market in the 1960s and 1970s. For the Chinese firm, the purpose of having US dollar liabilities and holding the proceeds in renminbi may be to hedge their export receivables, or simply to speculate on renminbi appreciation.

Figure 21 provides the evidence for the transactions depicted in Figure 20, plotting the FCY claims and liabilities of banks in Hong Kong, China to customers in the PRC. In this case, the FCY would be (mainly) US dollars for the assets and (mainly) renminbi for the liabilities. Both have risen dramatically in recent years, reflecting the rapidly increasing amount of US dollar funding available to non-financial corporates.

The procyclical pattern in corporate deposits visible in the right panel in Figure 21 may be due to such activities among non-financial corporates. In addition, such activities may also explain why the PRC has been experiencing dollar shortages amid the deterioration of global funding markets due to the

Figure 21: Claims and Liabilities of Banks in Hong Kong, China to Non-Bank Customers in the PRC



PRC = People's Republic of China, FC = foreign currency.

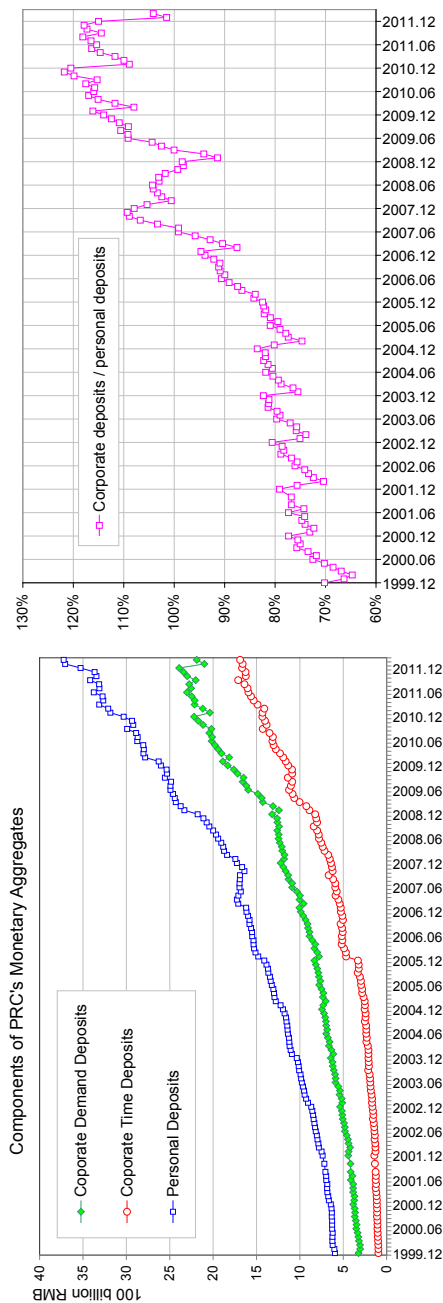
Source: Hong Kong Monetary Authority.

crisis in Europe. During this period, the renminbi has been under pressure and depreciating against the US dollar. Although the PRC's banking system is largely closed, the global activities of its non-financial firms will be reflected in the corporate deposits within M2 when these firms hold the proceeds of US dollar liabilities in their accounts in the PRC.¹⁶

Figure 22 illustrates the growth in the component of the PRC's money stock that is due to the deposits of corporates rather than households. The left panel shows the time trend in personal deposits and corporate deposits, while the right panel shows the ratio of corporate to personal deposits. There is

¹⁶ Note, however, that the new policy direction of the financial sector in the PRC, which is gradually moving toward openness together with a further push for renminbi internationalization (Azis 2013a), may eventually narrow the distinction between the PRC and other countries.

Figure 22: Components of the PRC's Monetary Aggregates



PRC = People's Republic of China.
Source: People's Bank of China.

an increase in the proportion of corporate deposits in recent years, which is consistent with the operations of Chinese corporates.

The excess liquidity generated by the activity of non-financial corporates in the PRC will be an important element of the lending boom in the country. It is reminiscent of the lending boom in Japan in the 1980s following financial liberalization that allowed Japanese companies to access global capital markets. Both in Japan in the 1980s and in the PRC more recently, monetary aggregates, especially corporate deposits, played the role of non-core liabilities in the way that FCY borrowing by Korean banks played the role of non-core liabilities in the Republic of Korea. The point of contact between the FCY liabilities in the Republic of Korea and the corporate deposits in the PRC is that both are liabilities of banks.¹⁷

This points to a broader theme of the financialization of non-financial companies, where non-financial firms have taken on attributes of financial firms by increasing the size of their balance sheets relative to their sales-generating activities. As a consequence, they contribute to the amplification of financial cycles. Therefore, as monetary policy moves from the role of banks to the functioning of bond markets and the availability of credit to borrowers from long-term investors, such as asset managers that act on behalf of pension funds and insurance companies, the role of non-financial firms will take on increasing significance.

¹⁷ Provided we have the correct demarcation between core and non-core liabilities, the same method of tracking the ratio of non-core to core liabilities as an early warning indicator of financial vulnerability can be applied.

Capital Flow Reversals: The Third Phase?

The first and second phases of global liquidity set the stage for a new episode that may mark a distinct third phase. The vulnerability caused by bank-led flows through non-core liabilities in the first phase is associated with procyclicality, where a bank's health can deteriorate despite improvements made since the Asian financial crisis. While the credit cycle can therefore still be impinged, it is the vulnerability caused by debt-led flows that has been exposed as a more pressing concern.

Debt-led flows have had the effect of raising the level of foreign ownership in emerging Asian capital markets, enhancing market liquidity and attracting banks with ample funds to hold financial assets on their balance sheets. When a shock causes sporadic and sudden outflows, this link between banks and capital markets can weaken bank balance sheets when asset prices fall.

A shock that led to such capital outflows occurred in May 2013 following the US Fed Chairman's remarks on the possibility of QE tapering and the subsequent suggestion that the tapering could start in late 2013 and be completed by mid-2014. The remarks sparked a sell-off in bond markets in the US, with bond yields rising from 2.13% at the beginning of June to 2.74% on 8 July. Interest rates have since eased a little, following the Fed's clarification that the start of tapering is not imminent and will remain dependent on economic conditions. But the bond market sell-off has spread to emerging markets, with the immediate impact being rising bond yields, higher interbank rates, and depreciating currencies, albeit the impacts have not been felt evenly across all economies.

From May to August 2013, capital outflows from emerging Asia's top 10 economies were estimated at USD86 billion, half of which comprised outflows from the PRC. This is still relatively small compared with the USD2.1 trillion

of inflows between November 2008 and April 2013, an estimate that is based on foreign exchange reserves data. Between June and August, foreign investors withdrew roughly USD19 billion from Asian LCY bond markets. Given the small size of the market in some countries, a significant impact was inevitable, especially where the fundamentals are weak (e.g., fiscal and current account deficits). India and Indonesia are notable examples of such countries where policy choices are now more limited.

Table 1 shows that, in 2Q13, while there were four emerging Asian countries with current account deficits, only India and Indonesia also had fiscal deficits in 2012. India and Indonesia also have the two lowest ratios of foreign exchange reserves over GDP and the two highest rates of inflation among the 11 countries listed. As risk perceptions for both countries increased, they had to endure the region's largest capital outflows and sharpest currency depreciations (**Figure 23**).

Between end-May and end-July, government bond yields in Indonesia rose dramatically—increasing between 145 basis points (bps) and 250 bps—to shift the yield curve upward and at the same time flatten it. This was expected amid capital outflows and given the large share of foreign ownership in the LCY bond market. By June, foreign investors were net sellers, with capital outflows of IDR15.76 trillion during the month. Bond market sentiment was also dampened by warnings from rating agencies of a possible sovereign rating downgrade. The cumulative effect of these factors translated into higher borrowing costs, which may have led the private sector to postpone using local markets to fund new investments.

Since the banking sector is the biggest holder of bonds in emerging Asia (**Figure 24**), vulnerabilities in bond markets have adverse effects on bank balance sheets. To the extent that the LCY bond market is preferred because it provides a more stable source of long-term funding without the risk of currency mismatch, such a trend is unfavorable. With a rising fiscal deficit, however, there was no choice for the Indonesian government but to continue issuing bonds.

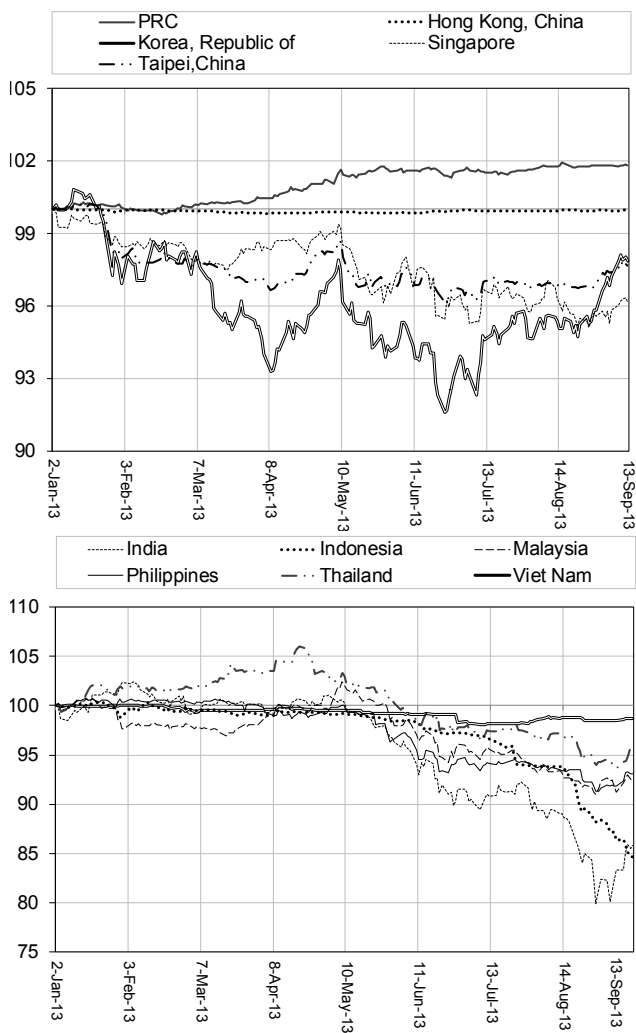
Table 1: Vulnerability Indicators (1997 vs. latest available data)¹

| | Fiscal Balance (% GDP) | | Current Account (% GDP) | | Reserves less gold (% GDP) | | Short-Term External Debt / Reserves | | Inflation (%) | |
|-------------------------|---------------------------|------|----------------------------|---------------------|-------------------------------|--------|---|--------|------------------|---------------------|
| | 1996 | 2012 | 1997Q2 ² | 2013Q2 ³ | 1997Q2 | 2013Q1 | 1997Q2 | 2012Q4 | Jun-97 | Latest ⁴ |
| China, People's Rep. of | -1.8 | -1.6 | 0.8 | 2.3 | 13.5 | 40.7 | 28.8 | 12.4 | 2.8 | 2.7 |
| Hong Kong, China | 2.1 | 3.2 | – | -1.9 | 39.9 | 114.2 | 280.6 | 65.3 | 5.5 | 6.9 |
| India ¹ | -7.0 | -6.9 | -3.1 | -3.6 | 1.3 | 15.4 | – | 54.0 | 12.2 | 9.6 |
| Indonesia | 1.0 | -1.8 | -1.8 | -4.3 | 8.6 | 11.6 | 191.0 | 49.0 | 5.3 | 8.6 |
| Korea, Rep. of | 0.2 | -2.9 | -2.1 | 3.5 | 6.3 | 27.4 | 232.0 | 44.1 | 4.0 | 1.4 |
| Malaysia | 0.7 | -4.5 | -4.4 | 3.7 | 24.1 | 44.9 | 69.2 | 25.5 | 2.2 | 2.0 |
| Philippines | 0.3 | -2.3 | -4.2 | 5.3 | 10.2 | 27.9 | 105.5 | 21.2 | 5.6 | 2.5 |
| Singapore | 21.3 | 3.9 | 20.0 | 20.0 | 82.7 | 92.1 | 245.4 | 75.1 | 1.7 | 1.8 |
| Taipei, China | -1.4 | -1.6 | 1.5 | 11.6 | 30.5 | 83.9 | 26.6 | 12.1 | 1.8 | 0.1 |
| Thailand | 2.1 | -4.1 | -7.9 | -5.1 | 17.1 | 43.7 | 157.7 | 15.8 | 4.4 | 2.0 |
| Viet Nam | -0.9 | -6.9 | -8.2 | 4.6 | 7.0 | 19.4 | 53.3 | 56.3 | 2.3 | 7.3 |

¹For India, latest figures are compared with 1991 (annual), not 1997.²Annual 1996 current account as % of GDP data for People's Republic of China; Hong Kong, China; India; Malaysia; Philippines; Thailand; and Viet Nam.³2012Q4 data for Viet Nam; 2013Q1 data for Hong Kong, China; India; Republic of Korea; Malaysia; and Philippines.⁴Refers to July 2013 except Singapore (June 2013).

Source: ADB calculations using data from ADB Asian Development Outlook, CEIC, Haver Analytics, and national sources.

Figure 23: Exchange Rate Indexes (2 Jan 2013 = 100)



PRC = People's Republic of China.

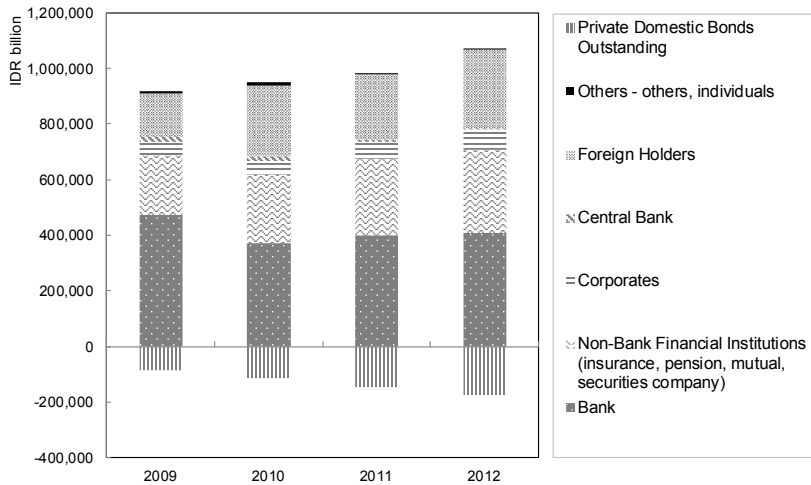
Notes:

1. Spot market exchange rates are quoted as US\$ per unit of local currency.

2. An increase means appreciation while a decrease means depreciation.

Source: ADB calculations using data from Datastream.

Figure 24: Outstanding Bond Holdings by Investor Versus Private Domestic Debt Issuance in Indonesia

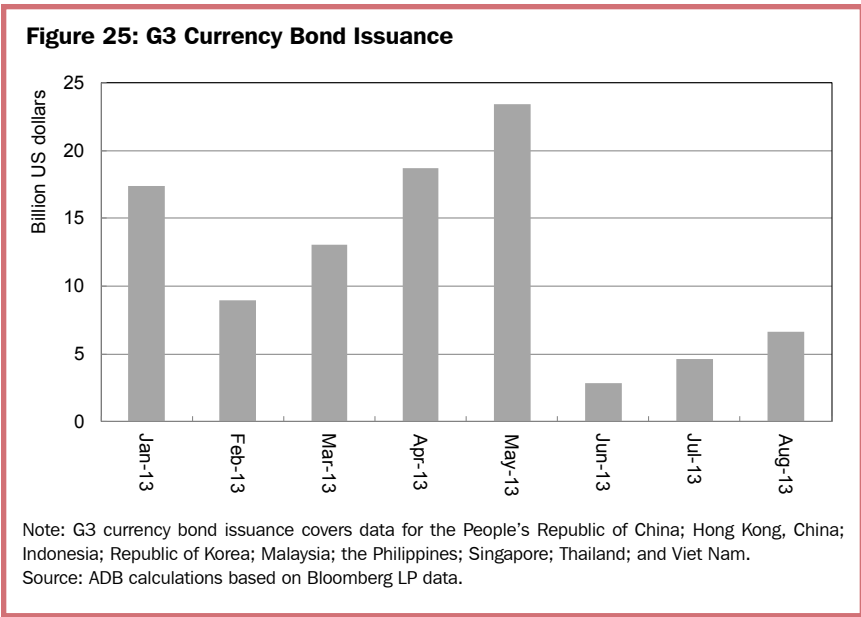


Source: AsiaBondsOnline.

Issuing FCY bonds has become harder and more expensive as well. As displayed in **Figure 25**, the issuance of FCY bonds in emerging Asia declined dramatically in June and only slightly recovered in subsequent months. Although Figure 25 does not include India, the same situation applies to the world's second largest country as Indian firms' overseas bond sales have slowed down significantly. Only one Indian company (Indian Oil) has managed to sell a US\$-denominated bond since 22 May when the Federal Reserve hinted at QE tapering.¹⁸

For emerging Asia as a whole, FCY bond issuance fell from USD81 billion in the first 5 months of 2013 to only USD7.5 billion in June and July. The high-yield market was particularly hard hit. Given that global investors hunted for

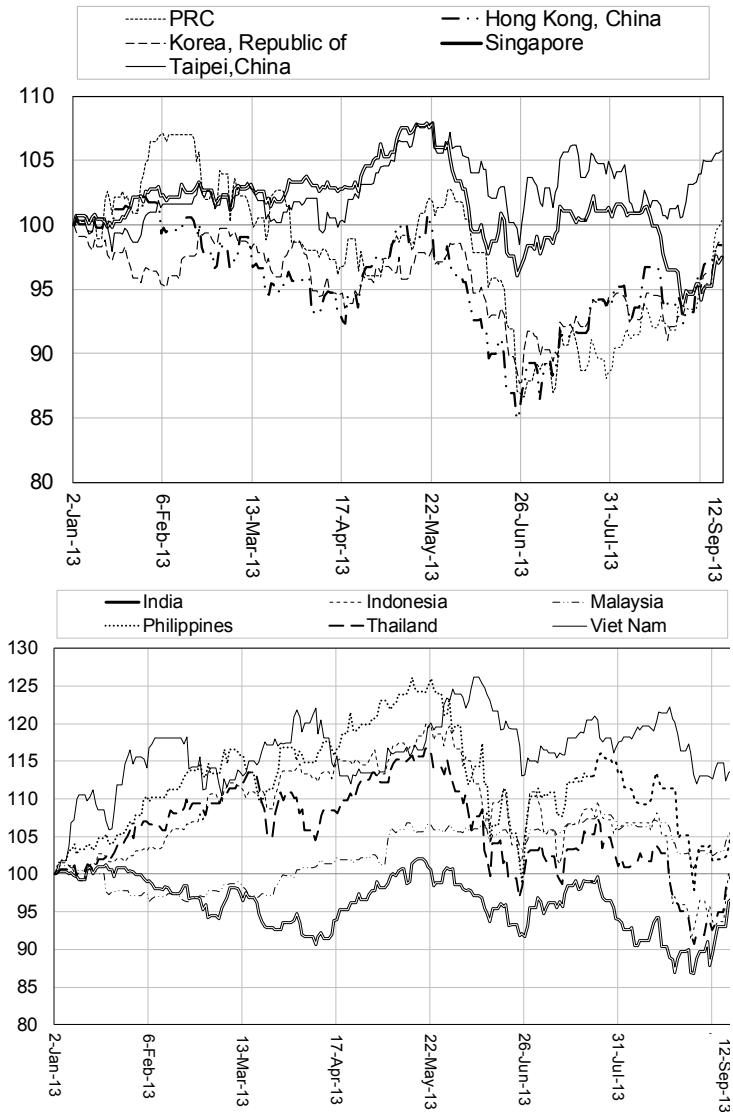
¹⁸ Indian Oil sold a USD500 million 10-year bond with a coupon of 5.75%. Meanwhile, two public sector banks—Canara Bank and Syndicate—have deferred their plans to raise funds through FCY bond issuances. Canara Bank was planning to raise USD1 billion and Syndicate was seeking USD500 million.



Asia's high-yield bonds during the second phase of global liquidity, this trend clearly reflects a dramatic turnaround in capital flows.

Even countries with relatively sound fundamentals experienced capital outflows, as risks in US market were perceived to be less significant. With the exception of the Chinese renminbi and the Philippines peso, the exchange rate in all emerging Asian countries depreciated against the US dollar following the 22 May announcement. Bond markets in Hong Kong, China; Malaysia; the Philippines; and Singapore—markets which are traditionally seen as safe havens due to strong economic fundamentals—all saw a rise in 10-year bond yields. Bond yields in the PRC and Viet Nam were the only exceptions as they remained unaffected by the selloff.

Typically prone to behavior that can be characterized as “buying the rumor and selling the news,” equity markets also suffered a similar predicament. The swings in asset prices (**Figure 26**) reflect the region's thin, illiquid markets as prices jumped, especially in interest-rate-sensitive sectors. **Table 2** summarizes

Figure 26: Stock Price Index (2 Jan 2103 = 100)

Notes:

1. For the People's Republic of China (PRC), daily stock price indexes are the combined Shanghai and Shenzhen composites, weighted by market capitalization in US dollars.
2. Data as of 12 September 2013.

Source: ADB calculations using data from Bloomberg.

Table 2: Changes in Global Financial Conditions

| | 2-Year Government Bond (bps) | 10-Year Government Bond (bps) | 5-Year Credit Default Swap Spread (bps) | Equity Index (%) | FX Rate (%) |
|---------------------------------|------------------------------------|-------------------------------------|---|------------------------|-------------------|
| Major Advanced Economies | | | | | |
| United States | 20 | 87 | 0 | 1.7 | – |
| United Kingdom | 15 | 104 | (7) | (3.7) | (5.0) |
| Japan | (1) | (16) | (1) | (6.9) | 3.5 |
| Germany | 23 | 57 | (0.3) | (0.4) | (3.4) |
| Emerging Asia | | | | | |
| China, People's Rep. of | 90 | 70 | 11 | (2.0) | 0.2 |
| Hong Kong, China | 21 | 127 | 9 | (1.3) | 0.1 |
| India | 169 | 133 | 150 | (1.4) | (14.5) |
| Indonesia | 315 | 290 | 110 | (16.3) | (16.2) |
| Korea, Rep. of | 19 | 60 | 4 | 0.5 | 2.6 |
| Malaysia | 29 | 67 | 47 | (0.6) | (8.5) |
| Philippines | 49 | 70 | 35 | (16.1) | (6.4) |
| Singapore | (3) | 100 | 0 | (9.6) | (0.1) |
| Taipei, China | 16 | 41 | 6 | (2.1) | 0.3 |
| Thailand | 26 | 104 | 42 | (14.3) | (6.0) |
| Viet Nam | 100 | (25) | – | (5.3) | (0.5) |
| Select European Markets | | | | | |
| Greece | 2 | 99 | 0 | (7.7) | (3.4) |
| Ireland | 40 | 56 | 18 | 4.1 | (3.4) |
| Italy | 65 | 61 | 6 | (0.1) | (3.4) |
| Portugal | 219 | 188 | 247 | 0.6 | (3.4) |
| Spain | 18 | 28 | 23 | 5.5 | (3.4) |

– = not available, bps = basis points, FX = foreign exchange.

Notes:

1. Data reflect changes between 22 May 2013 and 12 September 2013.
2. For Emerging Asia, a positive (negative) value for the FX rate indicates the appreciation (depreciation) of the local currency against the US dollar.
3. For European markets, a positive (negative) value for the FX rate indicates the depreciation (appreciation) of the local currency against the US dollar.

Source: Bloomberg LP, Institute of International Finance (IIF), and Thomson Reuters.

the direction and magnitude of changes in bond yields, credit default swap (CDS) spreads, equity markets, and exchange rates since 22 May.

With rising capital outflows, weakening capital markets, and depreciated exchange rates, market confidence was adversely affected, as indicated by the rise in CDS spreads, which increased by almost 60 bps in Indonesia from the beginning of April to end-July. The Indian CDS spread experienced an even steeper increase following the QE tapering announcement. Consistent with other vulnerability indicators, India and Indonesia (along with Viet Nam) are at the top among emerging Asian economies, having the highest CDS spreads among the 11 countries listed (**Figure 27**). When it comes to market confidence and perceptions, however, economic fundamentals may be secondary. CDS spreads in the PRC, Malaysia, and the Philippines also increased despite better fundamentals. Since the 22 May announcement, investors have generally had a reduced appetite for emerging markets bonds.

In sum, the third phase of global liquidity is a story about capital flow reversals triggered by the recent Fed announcement, leading to elevated risk perceptions toward emerging Asian markets. Although countries with weak fundamentals were hit hardest, outflows occurred across the board. The repercussions for capital markets and exchange rates, however, were varied.

Policy Implications

The three phases of global liquidity have somewhat different underlying mechanisms, but the policy challenges for capital-recipient economies are equally significant during all three phases. For those economies that have been affected by the first two phases of global liquidity and where economic fundamentals are relatively weak, the policy challenges in the third phase are even more daunting.

To deal with inflows, just letting the currency appreciate may not be sufficient to stem credit booms and manage capital inflow pressures when global liquidity is rampant. Policy makers are at risk of inadvertently pursuing a course leading to an even bigger boom–bust episode. Some combination of micro- and macro-prudential instruments, in concert with domestic monetary policy tools, will be crucial in leaning against the wind. Macroprudential policy and monetary policy are likely to be strong complements to one another when global liquidity is operating strongly, with prudential rules creating sufficient space for domestic monetary policy to operate without the distortionary effects of capital flows.

Consider the Republic of Korea, which was hit hard in the 1997/98 Asian financial crisis, and was again severely affected in the financial turmoil after the failure of Lehman Brothers in September 2008. In both cases, the source of vulnerability was the rapid build-up of short-term FCY liabilities in the banking sector. Recognizing this fact, the Republic of Korea introduced a series of macroprudential measures beginning in June 2010 aimed at building resilience against capital flow reversals in the banking sector and the associated disruptions to domestic financial conditions.

The first policy measure (announced in June 2010) was a leverage cap on the notional value of FCY derivatives contracts (encompassing currency swaps and forwards) that banks could maintain.¹⁹ For foreign bank branches, the leverage cap was set at 2.5 times their capital, while for domestic Korean banks the cap was set at 50% of their capital. Foreign banks could, in principle, increase their positions by allocating greater capital to their branches in Korea, but the leverage cap lowers the return to capital for banks engaged in this segment of their business, thereby serving as a disincentive to expand their derivative positions.

The second component was the levy on the non-core liabilities of the banks, also known as a “macroprudential stability levy.” The levy consists of an annualized 20 bps charge on non-deposit FCY liabilities with maturities up to 12 months. Lower rates are applied in a graduated manner to maturities of more than 1 year. The proceeds of the levy are paid into a special segregated account of the foreign exchange reserves, rather than into the general revenue of the government. In this respect, the Korean levy was designed from the outset as a financial stability tool, rather than as a fiscal measure, in contrast to the outwardly similar bank levies introduced by several European countries after the GFC. Also, by targeting non-core liabilities only, the levy was designed to address the procyclicality of the banking sector while leaving unaffected (as much as possible) the intermediation of core funding from savers to borrowers. The Korean non-core liabilities levy was relatively novel compared to more standard capital-related or capital-control tools such as the unremunerated reserve requirements (URR). Although the non-core levy was discussed beginning in February 2010 and press coverage followed the introduction of the policy early that year, the measure was only announced formally in December 2010, after the conclusion of the G20 Seoul summit in November. The legislation was passed in April 2011 and the levy became operational in August 2011.²⁰

¹⁹ International Monetary Fund (2012).

²⁰ Ibid.

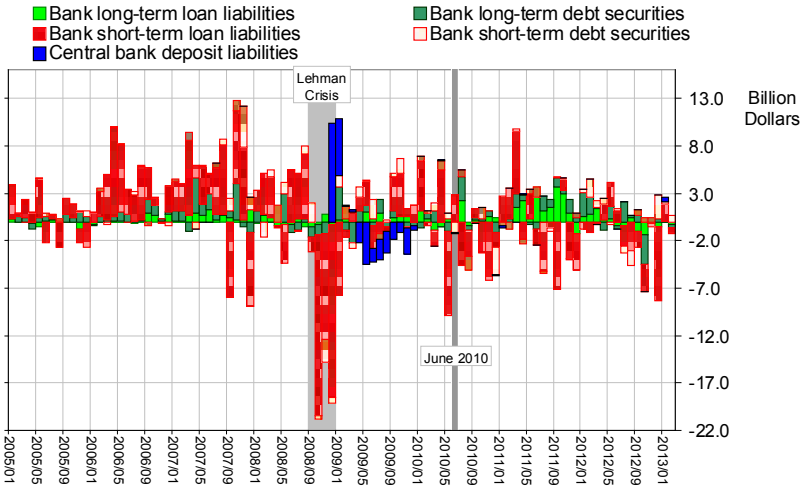
Bruno and Shin (2013) give a preliminary empirical assessment of the impact of the Korean macroprudential measures. Their assessment is based on a panel study in which the Republic of Korea is one of 48 countries in a sample that encompasses both advanced and emerging economies. Their approach is to treat the countries other than the Republic of Korea as a comparison group and ask how the Republic of Korea's susceptibility to global supply-push factors in terms of capital flows compares to other countries during the sample period. Then, having obtained a benchmark for comparison from this cross-country panel study, we ask whether the empirical relationship between the Republic of Korea and the comparison group changed in any noticeable way following the sequenced introduction of macroprudential measures in the Republic of Korea beginning in June 2010.

They found that capital flows into the Republic of Korea did, indeed, become less sensitive to global supply-push factors after the introduction of the macroprudential measures. Interestingly, this change in the Republic of Korea's sensitivity to global factors stands in contrast to the other countries in the region. Clearly the Korean experience is the opposite of the experience of Australia, Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam, whose sensitivity to global factors actually increased after June 2010.

Figure 28 indicates that short-term bank liabilities in the Republic of Korea continued to shrink after 2010 and were replaced with long-term liabilities in the form of long-term securities and loans. The panel regression study allows a more rigorous assessment of the policies by examining the Republic of Korea's experience in comparison with other countries. The results confirm the impression that the Republic of Korea's sensitivity to global supply-push factors decreased after the introduction of the macroprudential policies in 2010.

The Korean measures should be seen in the context of the broader debate on macroprudential policies. The evidence from the Republic of Korea suggests that macroprudential measures aimed at enhancing financial stability may be effective at mitigating vulnerability to external financial shocks.

Figure 28: Monthly Capital Flows to the Banking Sector in the Republic of Korea



Source: The Bank of Korea.

The key challenge for policy makers in general is to identify vulnerabilities. While each country's circumstances may be different, broad principles can be useful. For countries with open capital markets, international capital flows into the banking sector will be key indicators of financial vulnerability. During a boom when bank assets are growing rapidly, the funding required outstrips the growth of the domestic deposit base. The unmet need is often filled by capital flows from international banks and is reflected in the growth of the short-term FCY-denominated liabilities of the domestic banking system. As such, short-term FCY bank liabilities can be viewed as being volatile non-core liabilities of the banking sector. For countries with relatively closed financial systems, where domestic banks do not have ready access to funding provided by the global banking system, a better approach would be to adapt existing conventional monetary aggregates to address financial stability concerns. The key distinction is not how liquid the claims are, but rather who holds

the claims. The distinction between household retail deposits and corporate deposits in the banking sector plays a particular important role in this regard.²¹

Entering the third phase of global liquidity, Asia is facing a different set of policy challenges. With the reversal of capital flows, policy makers have to deal with a depreciating currency, an economic slowdown, falling asset prices, and rising inflation. While this may look like a standard financial crisis, two circumstances distinguish it from the classical case of a financial crisis. First, the trigger of capital outflows is a decrease in perceived risks toward the US market, not changes in the fundamentals of the emerging Asian economy. Second, capital markets in emerging Asia have grown steadily since the 1997/98 crisis such that the monetary aggregates are no longer influenced solely by monetary policy and the policy effects on the balance sheets of various institutions ought to be gauged more carefully.²²

Given the enormous size of the capital inflows driven by unprecedented ultra-easy money policies in advanced economies, it has become more difficult to restore the new equilibrium by using domestic economic policies when the flows reverse. Dealing with structural issues to enhance efficiency and productivity that can improve current account and fiscal balances is important, but this entails medium-term policies. Countering the perception of relatively lower risks in the US market by raising domestic interest rates is far less effective compared to doing so when outflows are being driven by deteriorating domestic conditions. Only a very large increase in interest rates may be able to counter such outflows, but the risk of a recession can be huge. Confidence will likely deteriorate, fueling more capital outflows and thereby weakening the currency further in a scene reminiscent of the 1997/98 Asian financial crisis.

²¹ Invoking the accounting principle that defines the core versus non-core liabilities of the banking sector may prove useful in guiding classification exercises. Core liabilities are the claims of the household sector on the intermediary sector. Non-core liabilities are the claims of the intermediary sector on itself. There may be ambiguities in applying this principle (as exemplified by the case of Japan during the 1980s).

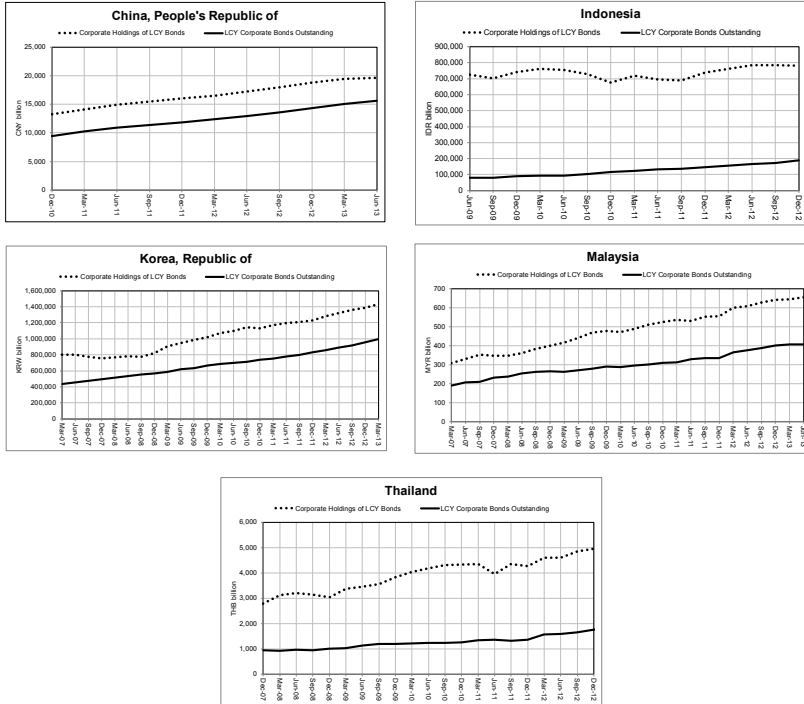
²² Traditional monetary aggregates were defined around their legal form, and how liquid they were in transactions. These traditional aggregates will be less effective as a macroprudential monitoring tool without further adaptation where the role of capital markets in financial intermediation has increased.

As capital markets in emerging Asia have developed over the years, domestic agents and institutions have taken advantage by holding financial assets to safeguard decent returns. Firms needing to secure long-term financing without risking a currency mismatch can raise funds through capital markets. Since the 1997/98 crisis, more governments in Asia have started to utilize LCY bond markets for budgetary purposes. In such an environment, the quality of a firm's balance sheet is influenced by the mark-to-market price or the value of financial assets it is holding. Decreasing value of bond issuance reduces debt obligation but falling value of bond holdings hurts the firm's net worth.

Figure 29 shows the trend of LCY bond holdings and bond issuance in the corporate sector, including banks and other non-bank financial institutions, in selected countries in emerging Asia. In all cases, holdings exceed issuance; in some countries, the gap is quite sizable. In the Indonesian case, for example, bond holdings are almost four times larger than bond issuance. If bond prices were to fall due to rising yields prompted by higher interest rates, the asset values on corporate balance sheets would likewise deteriorate. Some firms with strong fundamentals and ample liquidity may be able to withstand this pressure, but others, such as small banks, may not be able to do so. Banks without ample liquidity and with a relatively large amount of non-performing loans would be in a very difficult position. Thus, what started as a liquidity problem could easily turn into a solvency problem.

In an era of expanded capital markets in emerging Asia, defending the exchange rate by raising interest rates, therefore, carries the risk of bankruptcy for domestic firms.²³ Allowing the currency to slide without much intervention will not only avoid insolvency, but also help to preserve foreign exchange reserves. But if this path is taken, the economy still has to confront three risks: imported inflation, rising foreign debt payments, and deteriorating market confidence due to a weakening currency. Of these three, only the last one reflects a short-term challenge. The first two, while important, cannot be resolved in the short-term.

²³ This is aside from the obvious adverse effects on SMEs, whose borrowing behavior is more interest-rate sensitive than that of large firms, and from the direct growth-dampening effects of higher interest rates.

Figure 29: LCY Corporate Bonds Outstanding and Corporate Holdings of LCY Bonds

LCY = local currency.

Notes:

1. "Corporate" includes banks, non-bank financial institutions, and other corporate entities. It excludes government institutions, foreigners, and individuals.
2. "Corporate Holdings of Bonds" include holdings of both government and corporate bonds.

Source: AsianBondsOnline.

To deal with the problem of imported inflation, import dependence must be reduced, especially in the export sector. But that will require structural changes and medium-term policies in the areas of technology, education, business environment, and investment incentives, among others. The problem of increased debt payment is linked to a debt structure in which the portion of FCY-denominated debt with short-term maturities is high; that is, the double

mismatch problem.²⁴ Policies to discourage or even penalize such behavior are either ineffective or have impacts that are felt only in the medium-term. More extreme policies, such as debt rescheduling or debt default, can backfire as investors may further shun the market.

That leaves us with the confidence factor, the most unpredictable component. Economic fundamentals can certainly play a role. Lowering current account and fiscal deficits, for example, will help restore investor confidence. Yet, this requires making changes in the production-cum-export structure and expanding the tax base, the results of which cannot be expected to be seen in the short-run. Cuts in imports of certain goods may help, but at the risk of falling investment and retaliation from trading partners. Allowing exports of low-hanging products, such as unprocessed materials, may quickly boost exports, but at the cost of stifling high value-added production-cum-exports, not to mention degrading the environment (resource depletion). Thus, the unknown aspect of market confidence is the most difficult to deal with.

New policy packages or other actions to be taken by the authorities may be a necessary (albeit insufficient) condition for restoring market confidence. Fully restoring market confidence usually involves some measure of guarantees, direct financial resources, or the setting-up of precautionary funds like swap agreements and emergency funds from outside sources including international and regional organizations, and multilateral banks. Even with the implementation of macroprudential policies, domestic financial safety nets may be inadequate to deal with financial instability due to the large scale and volatility of capital flows. In such cases, regional financial safety nets can be useful. The Chiang Mai Initiative Multilateralization (CMIM) is an example of such an institution within the ASEAN+3 framework.²⁵ To the extent the power of an individual country's safety nets is relatively limited, and in some cases nowhere near a match for the damaging force that the enormous capital flows can exert,

²⁴ Despite a bitter lesson from the 1997/98 Asian financial crisis, some institutions continued to borrow in FCY because of the ample supply of cheap money driven by the easy money policies of advanced economies.

²⁵ ASEAN+3 comprises the 10 member countries of the Association of Southeast Asian Nations (ASEAN) plus the PRC, Japan, and the Republic of Korea.

regional cooperation in the provision of financial safety nets can complement domestic efforts and existing bilateral swaps (Azis 2012, Azis 2013b). It can also minimize the probability of extra- and intra-regional contagion.

Regulators and the corporate sector also have a vital part to play, for example, by making mark-to-market accounting more flexible to prevent a downward spiral in asset prices. Dealing with market confidence is a very difficult task. Markets are not to be fought with, nor surrendered to. Thus, at the end of the day, what may matter most is implementing existing policies in a consistent and persistent manner, rather than creating new ones.

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How Do Global Liquidity Phases Manifest Themselves in Asia?

Given the catastrophe in the world's largest economy and the subsequent unprecedented ultra-easy money policies, policy makers around the world have to face a new environment. The resulting capital flows in emerging market economies were huge and volatile. These flows have been intermediated through the banking sector (Phase One), and through the capital market, especially the fast growing bond market (Phase Two). Benefits and risks arise with these flows. The risks came to the fore after some signs emerged that the quantitative-easing policy in the US may slow down or even reverse, causing a reversal of capital flows. The analysis in this monograph expands on the implications of such a trend for emerging Asia, where financial cycles are falling out of sync with business cycles, reducing the effectiveness of monetary policy and thereby requiring a separate macro-prudential policy.

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