

## Chapter 2

# The Three Phases of Global Liquidity

The external environment is an important backdrop in determining economic policy. Economies with open financial systems and convertible capital accounts are sensitive to global market conditions. Even economies with less open financial systems are affected. Those with liberalized trade and partially controlled financial systems are also influenced—through current account transactions and their financial repercussions.

In this chapter, we describe three recent phases of global liquidity and discuss the policy implications of each for emerging Asia.<sup>1</sup> The first phase is the period leading up to the 2008/2009 global financial crisis (GFC) and the immediate aftermath of the September 2008 Lehman Brothers collapse. This phase is marked by an expansion in global banking and the transmission of financial conditions across borders through capital flows—intermediated by the global banking system. The concept of core and noncore liabilities is central, as they help define the level of risk-taking and the expansion of leverage and bank balance sheets.

The second phase of global liquidity begins roughly in 2010, when several central banks in advanced economies began using quantitative easing (QE) and asset purchase policies. These affected bond markets—both sovereign and corporate—and led to much easier conditions in the fixed-income securities market—such as higher durations, lower long-term yields, and increased volatility. In emerging Asia, the result was the rapid growth of local currency (LCY) bond markets. Real money asset managers—rather than banks—are the protagonists in this second phase of global liquidity. The search for yield led to an explosion in issuance from borrowers previously shunned by markets as being too risky or marginal. Credit

---

<sup>1</sup> Broadly, emerging Asia comprises Brunei Darussalam; Cambodia; the People's Republic of China (PRC); Hong Kong, China; Indonesia; India; the Republic of Korea; the Lao People's Democratic Republic (Lao PDR); Malaysia; Myanmar; the Philippines; Singapore; Taipei, China; Thailand; and Viet Nam. Due to limited data for some economies, figures in this chapter may use a subset of the group, but is still referred to as "Emerging Asia."

expanded through corporate bond markets open to international investors, both in local currencies and in those of advanced economies, particularly the US dollar.

The May 2013 so-called taper tantrum—after the US Federal Reserve (US Fed) announced its intention to taper QE—and the financial squall that followed in emerging markets is our third phase of global liquidity. Large capital outflows from emerging Asia were linked to the impending end of easy money—as central banks in advanced economies said they would gradually “normalize” monetary policy. While emerging Asia remains much more capable of weathering external shocks than it was when the 1997/1998 Asian financial crisis struck, the “taper tantrum” turmoil exposed several vulnerabilities policy makers had not fully recognized. Capital flow reversals are certainly not new—they underscore the openness and interdependence of emerging Asian financial sector with global markets. Yet, without understanding the nature of capital flows in the first and second phases—particularly the growing size and role played by the region’s capital markets—it is easy to ignore the limitations of standard policy measures. A certain policy may be less effective, while the risks it creates can be greater than when the region’s capital markets were still in their infancy. Thus, a careful assessment of the benefits and costs of each policy is needed.

In the next section, we begin by examining the conceptual building blocks needed to understand the three phases of global liquidity. In particular, we review the accounting principles based on national income accounting and net capital flows that underpin the conventional approach to capital flows. This leads us to the gross capital flows—along with bank and corporate consolidated accounts—that expose otherwise hidden vulnerabilities. Afterward, we outline the three phases of global liquidity and provide an overview of empirical evidence especially as it pertains to Asia.

## 2.1 Conceptual and Measurement Issues

Measurement in international finance traditionally begins with national income accounting, with the aim of measuring aggregate output within a well-defined “economic territory,” based on the residence principle. An economic entity (such as a firm, or more generally an “enterprise”) is resident in an economic territory if its principal economic activity is conducted within its territorial boundaries. National income accounts further classify the activity into sectors and subsectors based on its output. The territorial boundary often coincides with national borders, but not always. The principle of measurement is based on residence rather than nationality. So even when headquartered elsewhere, a firm is counted as part of the aggregate activity of the territory if it conducts business within its boundaries.<sup>2</sup>

---

<sup>2</sup> BIS (2012) offers an introduction to the conceptual distinctions in measurement of international financial positions.

Boundaries serve two other roles in international finance given the convenience of defining aggregated data. First, the national income boundary is often used in aggregate economic models to define the decision-making unit. Thus, residents are aggregated into a representative individual that follows an aggregate consumption function. In particular, for example, the balance sheet of the decision-making unit is defined by the boundary set by national income accounting. The balance of payments and capital flows are defined by reference to increases in assets and liabilities of those inside the boundary against those outside. So capital inflows are defined as the increase in liabilities of residents to nonresidents, where the measurement is taken in net terms—they represent the increase in liabilities of residents to nonresidents net of any increase in claims of residents against nonresidents. As the measurement unit is the representative individual within the national income boundary, the restriction to net capital flows is quite natural.

Second, in simple economic models, the national income boundary also defines the currency area of a particular currency, so the real exchange rate between two national income territories is defined as the ratio of the prices between the two economic territories. The nominal exchange rate is defined as the price of one currency relative to another. Thus, implicitly, central bank monetary policy within the boundary affects residents within the boundary. To the extent monetary policy has spillover effects, either they may be captured through current account and trade balances, or they may be captured through capital inflows and outflows as measured in terms of residence.

To recap, the boundary of an “economic territory” in international economics serves three roles: (i) it is the boundary relevant for national income accounting; (ii) it defines the decision-making unit, especially its balance sheet; and (iii) it distinguishes domestic from foreign currency (FCY).

The three roles of the national income boundary is a convention followed in simplified economic models—even if the triple coincidence is not a logical consequence of output measurement. However, simple economic models that incorporate the triple coincidence were formulated and refined at a time when capital flows were not as central as they are today. Nonetheless, the simplification has served a useful purpose. Before financial globalization, the triple coincidence in the use of economic boundaries was a good approximation. However, with financial globalization, the triple coincidence has come increasingly under strain. Here, we recognize that the traditional role of national income boundary may not work as well in understanding today’s global financial markets.

Before examining the impact of global market conditions on emerging Asia, it helps to see what happened in advanced economies in the run-up to the GFC and how European banks intermediated US dollar funding between savers and borrowers in the US.

Two separate periods of global liquidity should be examined. The first—phase one—roughly began in 2003 and lasted until the 2008/2009 GFC. Global banking was at its center. Loose financial conditions were transmitted across borders through accelerating capital flows using banks. In this context, global bank leverage explains comovements in financial conditions across geography and across sectors.

## 2.2 First Phase of Global Liquidity

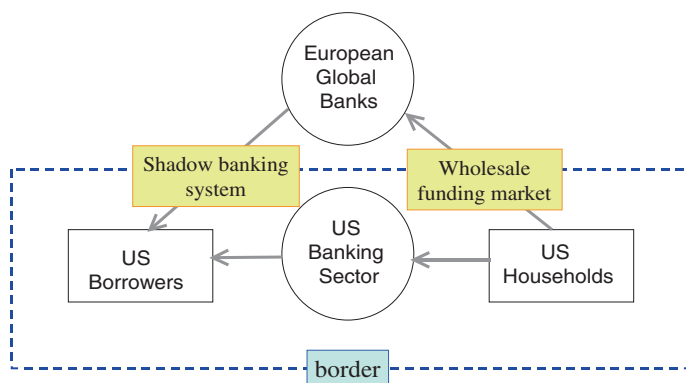
The first phase of global liquidity shows the importance of drawing the correct accounting boundaries for measurement in international finance. In particular, the US subprime crisis highlights the importance of tracking gross capital flows. Borio and Disyatat (2011) have argued that the traditional net capital flow measure as given by the current account imbalance may be a potentially misleading measure of financial vulnerability. European banks role in intermediating US dollar funding was discussed by Shin (2012). Cetorelli and Goldberg (2008, 2010) provide extensive evidence using bank-level data to demonstrate that capital markets reallocate funding within global banking organizations.

### 2.2.1 Round-Trip Bank Flows to the US

During the first phase, European banks played a pivotal role in global financial flows. They effectively sustained the shadow banking system in the US by drawing on dollar funding in the wholesale market to lend to US residents through the purchase of securitized claims on US borrowers (Fig. 2.1).

Although their presence in the domestic US commercial banking sector was small, the shadow banking system made the impact of these European global banks on overall credit conditions much larger. This role underscores the importance of tracking gross capital flows.

European global banks intermediate US dollar funds in the US by drawing on wholesale dollar funding—for instance, from US money market funds (MMFs), which are then reinvested in securities ultimately backed by US mortgage assets. Capital first flows out of the US and then back in. This way, the cross-border flows



**Fig. 2.1** European banks in the US shadow banking system. *Source* Shin (2012)

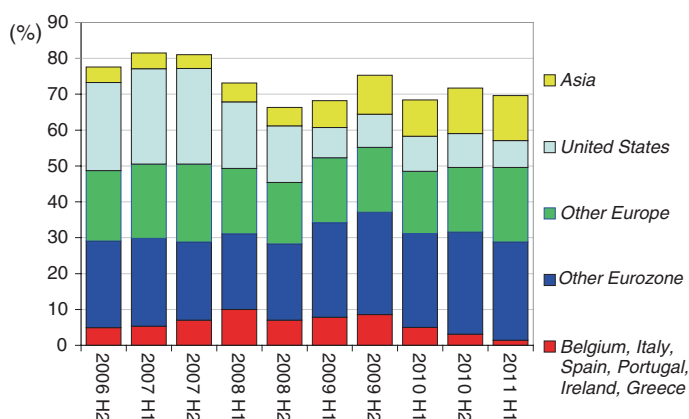
generated net out and thus do not appear as imbalances in the current account. Based on the Bank for International Settlements (BIS) banking statistics and information on borrowers from US MMF holdings, it is revealed that in the run-up to the GFC, MMFs in the US were the base of the shadow banking system, recycling wholesale funding to US borrowers via the balance sheet capacity of banks, especially European banks.

The amount owed by banks to US prime MMFs—based on the top 10 prime MMFs—represented \$755 billion of the approximate \$1.66 trillion total in prime MMF assets, classified by nationality of the borrowing bank (Fig. 2.2). US prime MMFs nearly bailed out completely from the European Union (EU) periphery as of the second half of 2011, as a snapshot of the dollar amounts by nationality of borrowing banks on 30 June 2011 makes clear (Fig. 2.3).

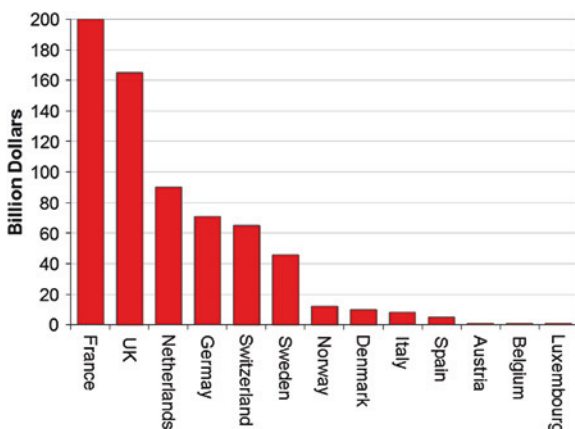
How gross flows net out is shown in Fig. 2.4, which plots US gross capital flows by category. Positive quantities (and bars) indicate gross capital inflows (the increase in claims of foreigners on the US), while negative quantities indicate gross capital outflows (the increase in claims of US residents on foreigners).

The gray-shaded bars indicate the increase in claims of official creditors on the US. This includes the increase in claims of the People's Republic of China (PRC) and other current account surplus economies. While official flows are large, private sector gross flows are larger still. The negative bars before 2008 indicate large outflows of capital from the US (principally through banks), which then re-enter the economy through purchases of non-Treasury securities.

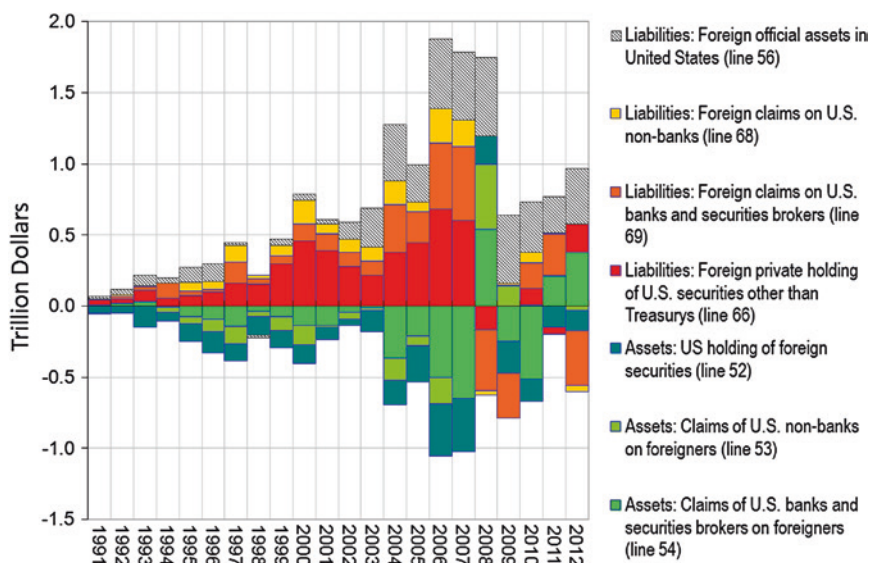
We can gain additional insights on the nature of the gross capital flows through the banking system by following interbank claims of foreign banks operating in the US.



**Fig. 2.2** Amount owed by banks to US prime money market funds (% of total, by nationality of borrowing bank). *Source* Fitch; and *Global Financial Stability Report October 2011*, International Monetary Fund

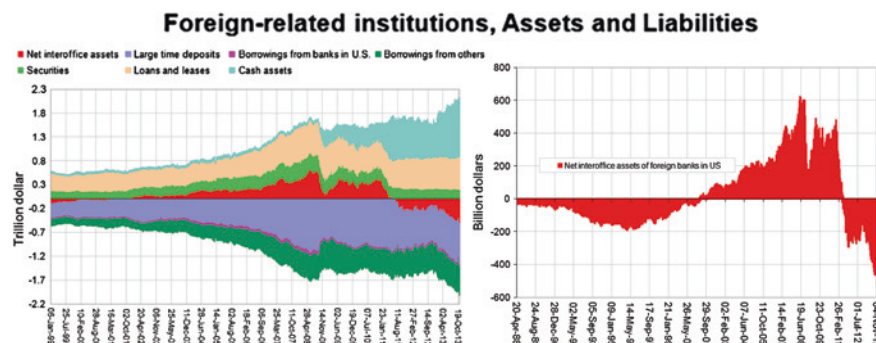


**Fig. 2.3** Amount owed by banks to US prime money market funds (as of June 30, 2011, by nationality of borrowing bank). *Source* Fitch; and *Global Financial Stability Report October 2011*, International Monetary Fund



**Fig. 2.4** US annual capital flows by category. *Source* Shin (2012); data from US Bureau of Economic Analysis

Figure 2.5 plots the assets and liabilities of foreign banks in the US (left panel) and their net interoffice assets (right panel). Normally, we would expect net interoffice assets to be negative, as foreign bank branches act as lending outposts. However, the decade between 2001 and 2011 was exceptional, when net interoffice assets turned sharply positive, before reversing into negative territory during 2011. Foreign bank branches and subsidiaries in the US are treated as US resident banks in the balance of payments, which are based on residence, not nationality.



**Fig. 2.5** Net interoffice assets of foreign banks in the US. *Source* H8 series on commercial banks, Federal Reserve Board

Therefore, Fig. 2.5 sheds light on the nature of gross capital outflows as shown in the balance of payments.

The schematic of the round-trip capital flows through European banks (see Fig. 2.1) is useful in understanding gross flows. European banks' US branches and subsidiaries drove the gross capital outflows through the banking sector by raising wholesale funding from US MMFs and then shipping them to headquarters.

Gross capital flows to the US through European bank lending via the shadow banking system played a pivotal role in influencing US credit conditions in the run-up to the subprime crisis. However, since the Eurozone had a roughly balanced current account—the UK was actually a deficit economy—their collective net capital flows vis-à-vis the US do not reflect the influence of their banks in setting overall US credit conditions.

The distinction between net and gross flows is a classic theme in international finance. But it deserves renewed attention given the new patterns of international capital flows. Focusing on the current account and the global savings glut obscures the role of gross capital flows and the “global banking glut.”

The role of European banks shows the importance of drawing the right boundaries in international finance. Capital flows are traditionally viewed as the financial counterpart to savings and investment decisions, in line with the narrative of capital flowing “downhill” from capital-rich countries with lower rates of return to capital-poor countries with higher returns. From this perspective, the focus is typically on net capital flows, as that is what counts in funding an economy's borrowing requirements.

However, in the case of European banks intermediating US dollar funding, the boundary defined for national income accounting is crossed twice, so that the usual net flows do not capture the financial intermediaries engaging in the maturity transformation in the mortgage market. Of course, net capital flows are also of concern to policy makers. Current account imbalances have implications for the long-run sustainability of the net external asset position.

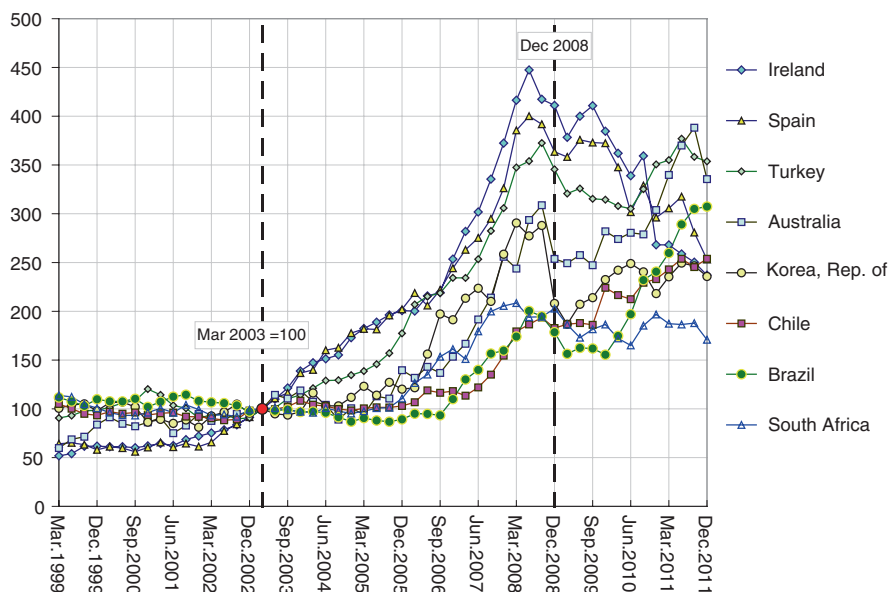
However, if the objective is to gauge credit conditions and overall financial vulnerability, the current account was of limited use in gauging overall credit conditions in the run-up to the 2008 GFC. Rather than the global savings glut, a more plausible culprit for subprime lending in the US was the global banking glut.



Two questions are especially pertinent in this context. First, why did banking capacity rise so rapidly in Europe? And second, why did European rather than US banks expand intermediation between US borrowers and savers? Two likely elements of the answer to both questions are (i) Europe's regulatory environment and (ii) the advent of the euro. The EU was the jurisdiction that applied Basel II regulations more quickly, while the rapid growth of cross-border banking within the Eurozone after 1999 provided fertile conditions for upscaling European banking capacity. By contrast, Basel II was implemented more slowly in the US with a cap on leverage maintained (at least in the regulated banking sector; US investment banks were of course exempt, as shown by the high investment bank leverage ratios, as exemplified by Lehman Brothers).

### 2.2.2 Banking Sector Flows to the Rest of the World

Figure 2.6 shows the cross-border banking sector claims of BIS-reporting banks against counterparties for a diverse group of economies. There is a high degree of synchronization of bank flows across the disparate geographies of recipient economies. At the same time, there is also a measure of diversity in the pattern of flows.



**Fig. 2.6** Claims of BIS-reporting banks on counterparties in selected economies (March 2003 = 100). *Source* Bruno and Shin (2012); data from *Locational Banking Statistics*, Bank for International Settlements (BIS)



Emerging Europe saw the most rapid increase in banking sector inflows during the period, followed by countries such as the Republic of Korea and Turkey.

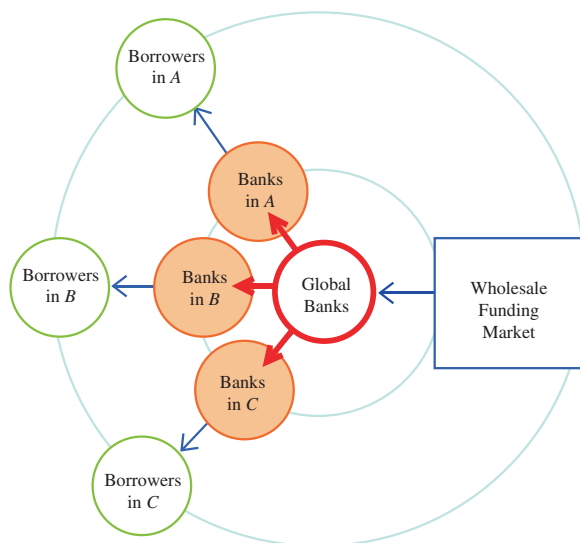
This suggests a global push factor that drove financial conditions globally, running through banks. It affected domestic financial conditions via the rapid expansion of bank lending funded by capital inflows.

Figure 2.7 depicts the institutional backdrop to the operation of the global banking system. Banks with access to the US dollar funding market through US MMFs channel funding from US financial markets to banks in other parts of the world (denoted as regions A, B, and C). The global banks include US-domiciled banks, but as discussed above, global banks with European headquarters were particularly active in channeling US dollar funding from the US to other parts of the world.

The interconnected nature of the global banking system generates spillover effects of financial conditions across borders. The greater ease in raising wholesale funding from the center through cheaper US dollar bank funding rates implies greater availability of funding to regional banks. This in turn translates into more lenient lending conditions to ultimate borrowers in regions A, B, C, etc. The global factors motivating the decisions of global banks will determine credit conditions in all locations through the institutional structure of the global banking system. The spillover effects thus generated mean that more accommodative credit conditions associated with global liquidity at the center lead to lower risk-adjusted lending rates, inducing firms to apply lower discount rates in their investment decisions. For any given fundamental cash flows, lower discount rates and higher net present values induce firms to take on more investment projects and greater risk.

Empirically, it has been shown that the leverage of the global banks at the center of the system can serve as a summary statistic for the activity of global banks in channeling funding from the center to the periphery. In this sense, global

**Fig. 2.7** Structure of the global banking system.  
Source Bruno and Shin (2013)

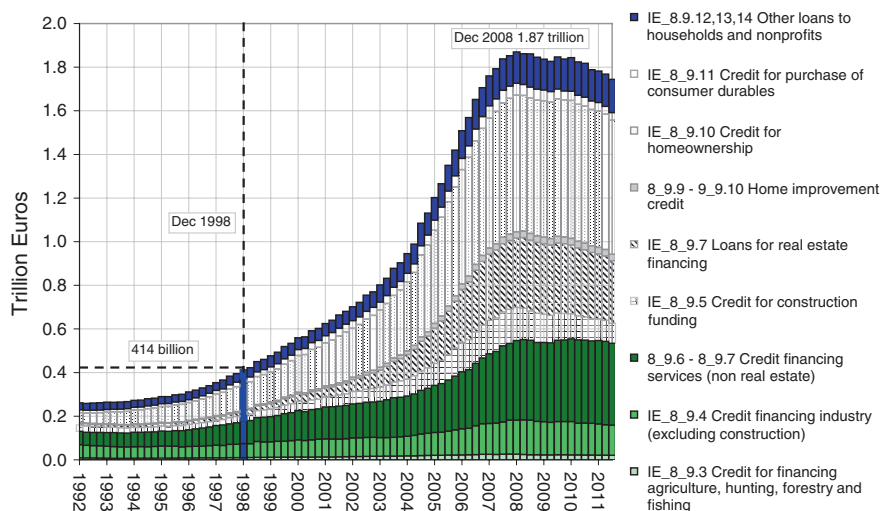


bank leverage turns out to be a useful proxy for the single global factor that determines credit availability to all borrowers across all peripheral economies.

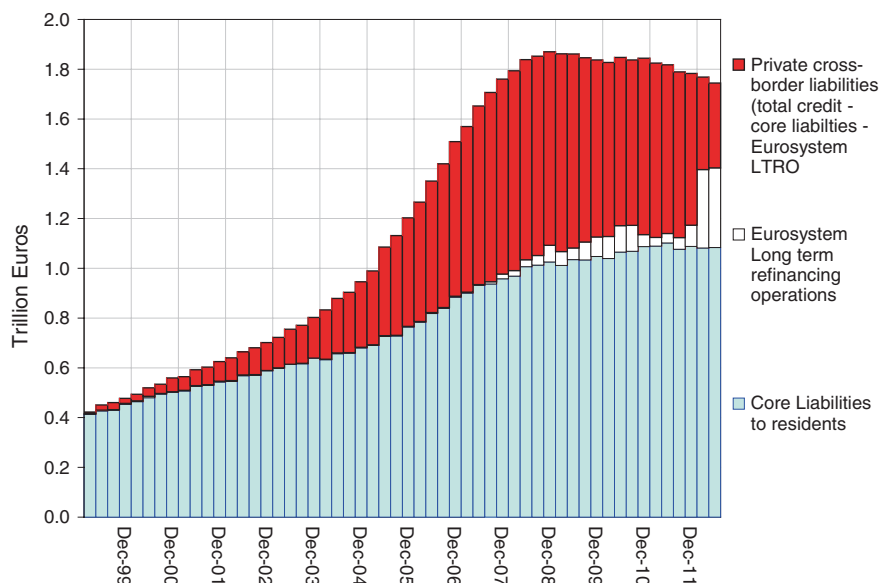
Spain's experience is particularly instructive in how global liquidity converts capital flows into domestic credit growth. Total bank credit in Spain was EUR414 billion in December 1998, shortly before the economy joined the Eurozone. It subsequently increased fivefold to nearly EUR2 trillion in 2008 on the eve of the GFC (Fig. 2.8). At the time the euro was launched, domestic bank lending in Spain could be financed entirely from Spanish residents. But global liquidity changed all that, as capital flows and the lending boom fed off one another. At the peak of the cycle in 2008, only half of all bank lending in Spain was financed from domestic sources. The rest came from capital inflows as foreign banks had rapidly increased lending to Spanish banks (Fig. 2.9). This underscores how the Eurozone crisis is just part of a larger global picture. Global liquidity mirrors the procyclical nature of the global banking system.

Aside from being the world's most important reserve currency and invoicing currency for international trade, the US dollar also 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 the funds 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 flow to Europe, Asia, and Latin America where global banks are active local lenders. Thus, global banks become carriers for the transmission of cross-border liquidity spillovers. At the margin, the shadow value of bank funding is equalized



**Fig. 2.8** Banking sector credit to nonfinancial borrowers in Spain. *Source* Bank of Spain



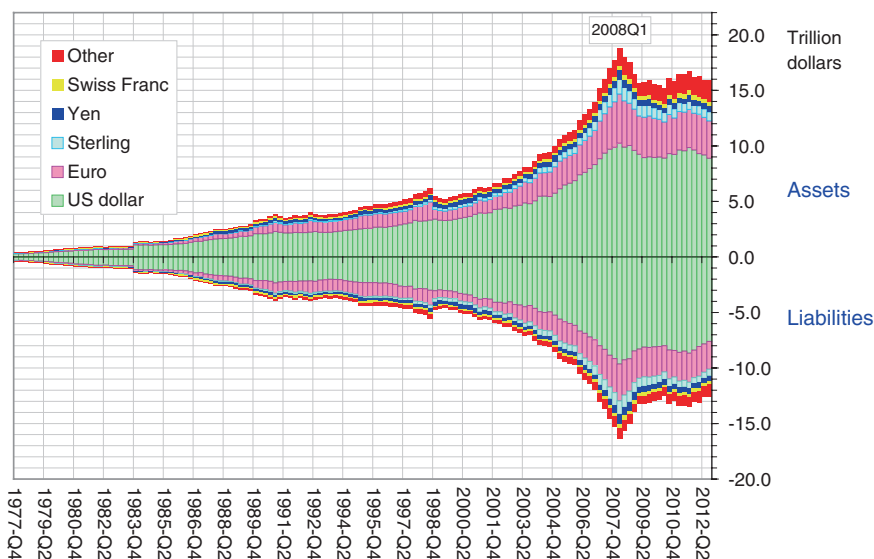
**Fig. 2.9** Funding gap among Spanish Banks. *Source* Bank of Spain

across regions through portfolio decisions of global banks, so global banks become carriers of dollar liquidity across borders. In this way, permissive US liquidity condition is transmitted globally, and US monetary policy affects global financial conditions.

As noted earlier, the net interoffice assets of foreign banks in the US turned sharply positive before reversing during the height of the Eurozone crisis in 2011. During 2001–2011, foreign bank offices, rather than being lending outposts, in effect became funding sources for the parent bank. 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 shipped abroad to bank headquarters will be deployed globally based on 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 underpinning the global banking system.

Figure 2.10 shows the FCY assets and liabilities of global banks as tracked by the BIS and arranged by currency. The US dollar series shows dollar assets and liabilities of banks outside the US, the euro series gives the EUR-denominated assets and liabilities of banks outside the Eurozone, and so on. The US dollar asset



**Fig. 2.10** Foreign currency assets and liabilities of BIS-reporting banks (by currency). *US* United States. *Source* BIS Locational Banking Statistics Table 5A, Bank for International Settlements (BIS)

series reached more than \$10 trillion in 2008Q1, briefly exceeding the total assets of the US chartered commercial banking sector. Such a risk-taking channel is a powerful determinant of leverage, thereby acting as the linchpin in the propagation of global liquidity.

### 2.2.3 Exchange Rates and Leverage

Currency appreciation can fuel capital inflows rather than stem them, as currency appreciation strengthens local borrower balance sheets and creates additional slack in the lending capacity of banks, thereby stimulating further inflows. This is a distinctive feature of the risk-taking channel of capital flows through the banking system. This argument is developed in Bruno and Shin (2013), who construct a model of bank capital flows that track the balance sheet relationships in the global banking system, rather than follow the national income boundaries as in the conventional approach to capital flows.

The analysis highlights an important policy lesson. In dealing with capital inflows, a frequently encountered policy prescription is for the authorities of the capital-recipient economy to allow the currency to appreciate, engineering an expenditure switching effect from tradables to nontradables. However, when bank capital flows are involved, the prescription may not easily remedy the credit

booms and manage capital inflow pressures. Indeed, policy makers are at risk of inadvertently creating an even bigger boom-bust episode.

To grasp this point, it is important to understand the link between currency appreciation and the buildup of overall bank leverage. The channel is through shifts in the effective credit risk faced by banks who lend to local borrowers that may hold a currency mismatch. When the LCY appreciates, local borrower balance sheets become stronger, resulting in lower credit risk and hence expanded bank lending capacity. In this way, currency appreciation leads to greater risk-taking by banks. This “risk-taking channel” of currency appreciation links exchange rates and financial stability.

Consider the example of a foreign bank branch lending in dollars to local borrowers who convert the proceeds of the dollar loan into LCY—possibly to hedge the currency risk from long-term export receivables, or to engage in outright speculation that the LCY will appreciate further. In this situation, an initial appreciation of the recipient economy’s currency will strengthen the balance sheets of domestic borrowers who borrowed in dollars. As borrowers become more creditworthy, bank loan books show less risk, creating additional lending capacity. In this way, the initial impulse from an appreciating domestic currency can be amplified. A reinforcing mechanism exists through which greater bank risk-taking reduces credit risk, which drives even greater bank risk-taking and further appreciation of the domestic currency, thereby completing the circle.

In this setting, an appreciating domestic currency may not have the presumed effect of curtailing capital inflows. The upward phase of the cycle will give the appearance of a virtuous circle, in which the mutually reinforcing effect of real appreciation and improved balance sheets operate in tandem. Once the cycle turns, however, the amplification mechanism operates in reverse, reinforcing the financial distress of borrowers and the banking sector in general.

The rapid growth of a banking sector fueled by capital inflows and an appreciating currency has been a classic early warning indicator of emerging economy crises. Gourinchas and Obstfeld (2012) conduct an empirical study using data from 1973 to 2010 and find that two factors emerge consistently as the most robust and significant predictors of financial crises—a rapid increase in leverage and sharp real currency appreciation. This holds for both emerging and advanced economies and holds throughout the sample period. Schularick and Taylor (2012) similarly highlight the role of leverage in financial vulnerability, especially the leverage associated with the banking sector.

Economists have traditionally seen exchange rate appreciation driven by capital inflows as self-correcting. Once the currency has appreciated sufficiently, investors responsible for the capital inflows will recognize the change in the risk–return configuration and will therefore slow their investment. Indeed, the standard prescription of the official sector continues to follow a lexicographic ordering in which the real exchange rate should be allowed to appreciate sufficiently, and all the domestic macroeconomic policy responses should be exhausted before (and as a last resort) deploying measures to stem capital inflows directly.

Standard caveats of course accompany the standard prescription. Domestic distortions could be responsible for both capital inflows and exchange rate appreciation. For example, foreign investors may be willing to take long positions in the domestic economy, in particular in the short run, due to very high domestic interest rates. In this case, there may be a positive correlation between short-term inflows and exchange rate appreciation. But the ultimate cause will be a third factor—the distortion in domestic yields. Problems are exacerbated if monetary authorities then attempt to limit appreciation. Anticipated appreciation plus the high domestic interest rate will attract additional inflows, dooming any attempt to limit appreciation. The implication is that that policy makers should not attempt to use capital controls to defend policy inconsistencies, which many times cannot be resolved in the short run.<sup>3</sup>

When bank credit constitutes the bulk of inflows, there is an additional caveat to the standard prescription of letting the currency appreciate. The behavior of banks and other leveraged institutions is influenced by their capital position and perceived risks. Currency appreciation and strong profitability, coupled with tranquil economic conditions, can be seen by banks as a cue to further expand lending, leading to further capital inflows.

Therefore, the basic philosophical divide is between those who do and do not believe that real appreciation eventually chokes off capital inflows due to a reassessment of the attractiveness of the destination currency. Members of the first camp (the traditional view) believe that capital flows are driven by textbook portfolio investors who are driven by fundamental assessments of currency values, while members of the second camp believe that capital flows are driven not only by assessments of fundamental value but also by the short-term imperatives of bank balance sheet capacity—and what Borio and Disyatat (2011) refer to as the “excess elasticity” of credit.

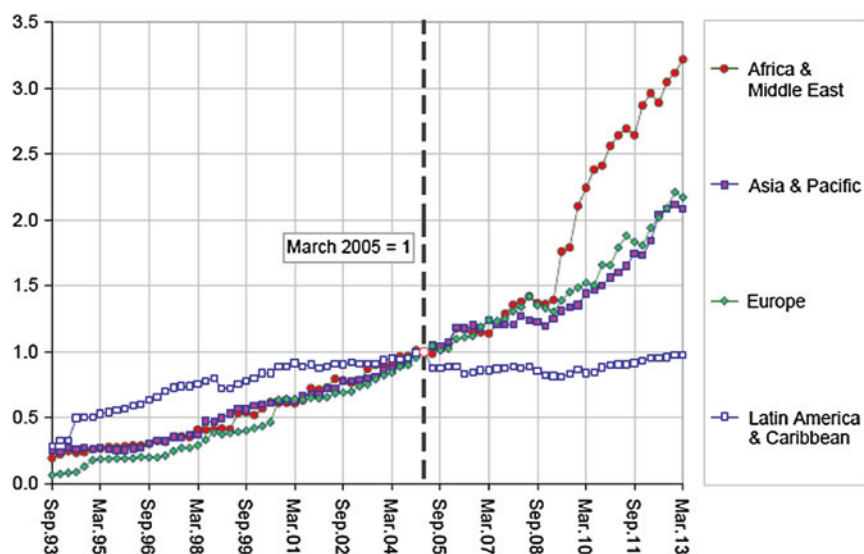
For these reasons, macroprudential policy and monetary policy complement one another well when global liquidity is operating strongly, as prudential rules create sufficient space for domestic monetary policy to operate without the distortionary effects of capital flows.

## 2.3 Second Phase of Global Liquidity

The second phase of global liquidity appears through sovereign and corporate debt markets. Figure 2.11 plots trends in the outstanding amounts of international securities issued by governments in developing economies by region as defined by the BIS. The total outstanding amounts of international securities in each region are normalized to equal unity at the end of 2005Q1. Issuance from governments in Africa and the Middle East has grown rapidly since 2008, with amounts

---

<sup>3</sup> Chile’s experience in the 1990s and Brazil’s more recently highlight this point.



**Fig. 2.11** Government international debt securities outstanding (2005Q1 = 1). *Source* Debt Securities Statistics, Bank for International Settlements

outstanding more than tripling since 2005Q1. Developing Asia and the Pacific and developing Europe also saw rapid increases, although less rapid than Africa. Developing Latin America, by contrast, did not see an increase in the amount of bonds outstanding.

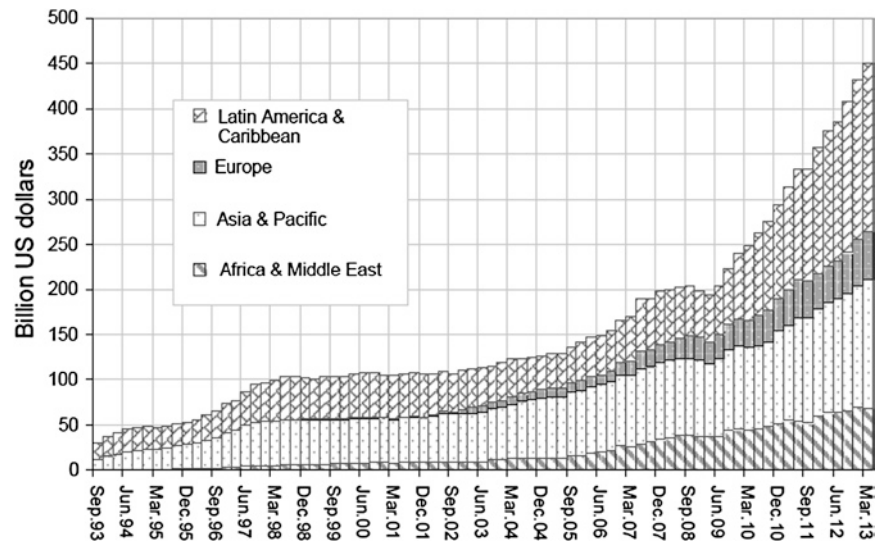
This provides the contextual backdrop for the numerous international bond issues by “frontier” sovereigns in Africa and elsewhere who have only recently ventured into the international bond market.

The rapid pace of new issuance is perhaps even starker for nonfinancial corporate issuers in developing economies (Fig. 2.12). Corporate borrowers in emerging economies have increased their total international securities borrowing from less than \$200 billion in the aftermath of the Lehman crisis to \$450 billion by March 2013. Here, corporate borrowers in Latin America have increased borrowing sharply, in contrast to the subdued borrowing activity of Latin American sovereigns.

During the “taper tantrum” of May 2013, one conceptual challenge was to reconcile what appeared to be the small net external debt position of many emerging economies with the apparently disproportionate impact of the promise of eventual tighter global monetary conditions on their currencies and financial markets.

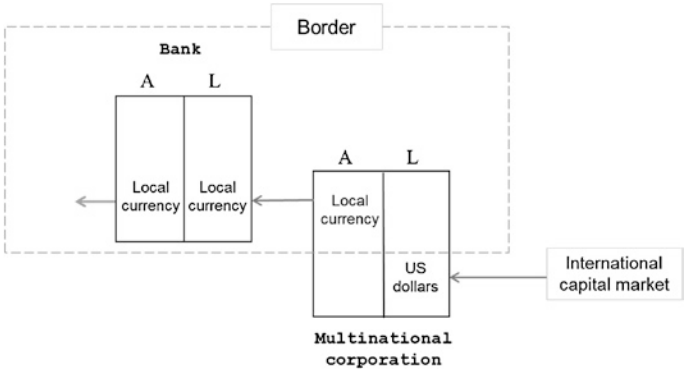
One piece in the puzzle may be the role played by nonfinancial corporates (NFCs) that operate across borders. When corporate activity is conducted in more than one territory—as defined by the traditional national income border—measuring exposures at the national income border itself may not capture the strain on corporate balance sheets.





**Fig. 2.12** Nonfinancial corporate international debt securities outstanding by developing region. *US United States.* Source **Debt Securities Statistics**, Bank for International Settlements

A schematic illustration of a multinational corporation borrowing US dollars through an overseas subsidiary—either from a global bank or from the corporate bond market—helps tell the tale (Fig. 2.13). If the proceeds of the borrowing are sent to headquarters through a capital account transaction, the traditional balance of payments accounts would show a net capital inflow in the form of greater external liabilities of the headquarters to its overseas subsidiary. However, if the multinational firm chooses to classify the transaction as part of trade flows in goods and



**Fig. 2.13** Nonbank Firm as surrogate intermediary. *US United States, A assets, L liabilities.* Source Authors' illustration

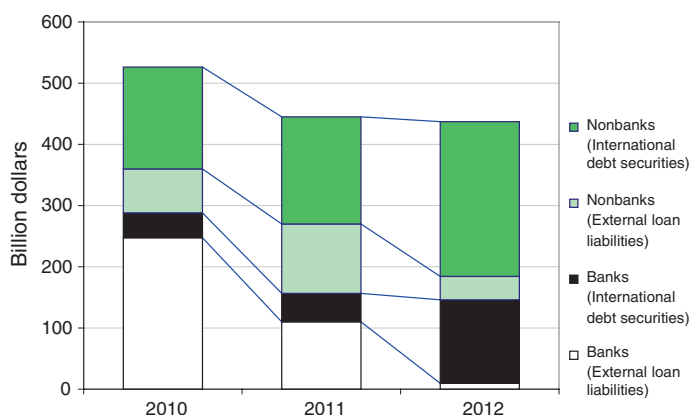
services, the vulnerability of the multinational firm to external financial shocks may not be captured through the usual residence-based balance of payments accounts.

Drawing on the discussion in Azis and Shin (2013) helps illustrate the second phase of global liquidity and the importance of emerging market debt securities as the channel for emerging market borrowers to gain access to global capital markets.

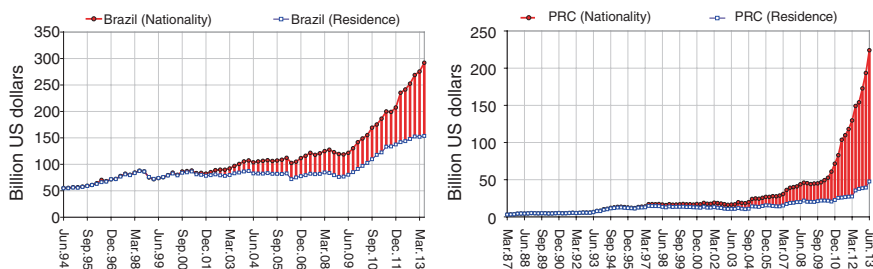
There has been a clear shift from banks to the bond market since 2010 (Fig. 2.14). The black and white bars refer to borrowing by emerging market banks. The dark gray bars refer to borrowing by nonbanks. The numbers are net financing amounts for each year and hence denote increases in amounts outstanding. The white bars shrink rapidly, indicating that capital flows from global banks to emerging market banks have slowed to a trickle. Instead, emerging market banks have increased issuance in debt securities. For nonbanks, growth in net issuance of international debt securities has been even more dramatic.

The international debt securities numbers are based on a borrower's nationality rather than the usual practice of classifying them by residence (the reason “external” is in inverted commas). A borrower's nationality is defined by the location of its headquarters. If an emerging market corporate borrower issues corporate bonds through its overseas subsidiary—say in London—the usual balance of payments definition (based on residence) would treat the bonds as the liability of the UK entity. However, the emerging market company will manage its finances by reference to its consolidated balance sheet. Thus, it would be important to consider the consolidated balance sheet in explaining the behavior of the emerging market company, taking account of debt securities issued offshore to reconstruct the total assets and liabilities of the decision-making unit.

Offshore debt issuance by emerging market firms has expanded rapidly (McCauley et al. 2013). Figure 2.15 plots the international debt securities outstanding of borrowers from Brazil and the PRC, plotted by residence and



**Fig. 2.14** Net “external” financing of emerging economies. *Source* Turner (2014)



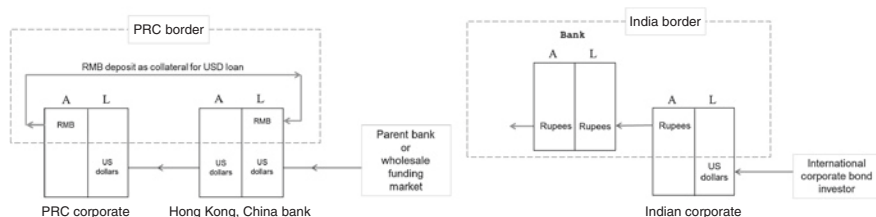
**Fig. 2.15** International debt securities outstanding (all borrowers, by residence and nationality of issuer). *Source* BIS securities statistics Table 11A and 12A, Bank for International Settlements (BIS)

nationality. The difference between the two series reflects the offshore international debt securities issuance. It was small until after the GFC, but widened dramatically thereafter. The scale of the charts shows just how large the outstanding amounts are. Most offshore issuance has been in US dollars, so these corporates have become much more sensitive to US interest rates and exchange rates fluctuations.

This sheds light on what had been a puzzle. As mentioned earlier, the May 2013 “taper tantrum” and emerging market squall in January 2014 posed the quandary of reconciling small net external debt positions of many emerging economies (measured in usual residence terms) with the apparently disproportionate impact of the intention and then start of tighter global monetary conditions on their currencies and financial markets. One piece in the puzzle may be the role of offshore debt issuance by firms operating across borders. When corporate activity straddles borders, measuring exposures at the border itself may not capture the strain on corporate balance sheets.

There are two instances where a firm’s true external exposure may not be captured in residence-based statistics (Fig. 2.16). The left panel shows a PRC corporate with an office in Hong Kong, China, borrowing US dollars from a Hong Kong, China bank, depositing renminbi in the bank’s PRC office as collateral. This transaction resembles the London Eurodollar currency swap transaction of the 1960s and 1970s, which worked like a straight collateralized loan. The right panel illustrates schematically an Indian company which borrows in US dollars through its London subsidiary and defrays the group’s costs using the dollars, but then accumulates Indian rupees at headquarters. The rupees are held as time deposits in a local bank in India. In both cases, the firm has engineered a currency mismatch. In effect, the firm has taken on a carry trade position, holding cash in LCY financed with dollar liabilities. Intra-group accounts would keep track of the subsidiary’s claims on headquarters, but the accumulation of claims may occur through the firm’s day-to-day operations rather than an explicit financial transaction classified as capital inflows on the balance of payments.

Thus, the standard external debt measures compiled on a residence basis may not fully reflect the true vulnerabilities relevant for explaining market behavior. If the overseas subsidiary of an emerging market company takes on US dollar debt

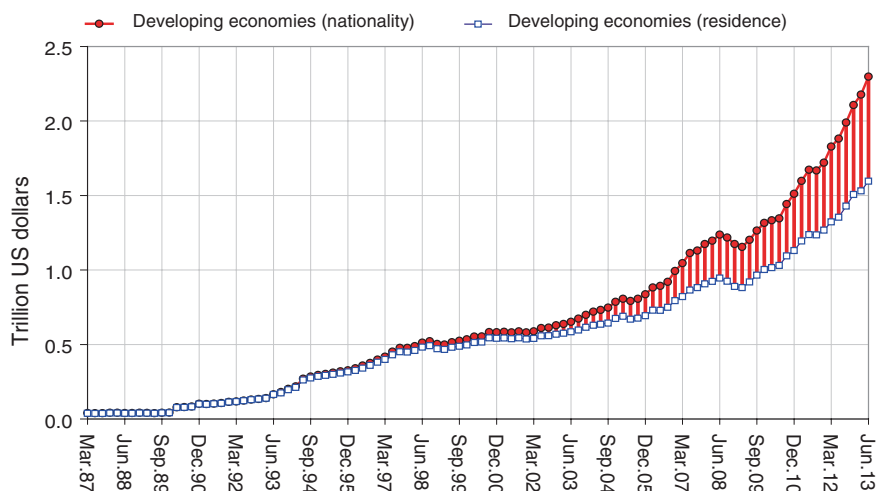


**Fig. 2.16** Straddling the border through international transactions. A assets, L liabilities. *Source* Authors' illustration

holding LCY-denominated financial assets at headquarters, then the company as a whole faces a currency mismatch, even if no currency mismatch is captured in official net external debt statistics.

Nevertheless, the firm's fortunes (and hence actions) will be sensitive to currency movements and thus foreign exchange risk. One motive for taking the carry trade position may be to hedge export receivables. Alternatively, the carry trade position may be motivated by the prospect of financial gain should the domestic currency strengthen against the US dollar. In practice, however, the distinction between hedging and speculation may be difficult to draw.

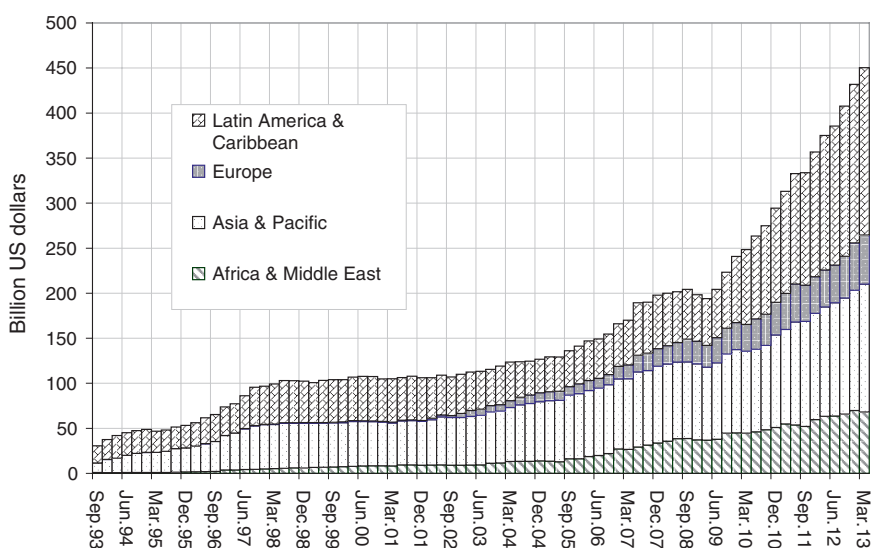
Figure 2.17 plots the total international debt securities outstanding of all borrowers from developing economies as defined by the BIS, plotted by residence and by nationality. As before, the difference between the nationality and residence series accounts for the offshore issuance of international debt securities. Again, the



**Fig. 2.17** International debt securities outstanding—developing economies (all borrowers, by nationality and residence of borrower). *Source* BIS securities statistics Table 11A and 12A, Bank for International Settlements (BIS)

difference remained small until after the GFC, but has widened since—\$701 billion at the end of June 2013. Figure 2.18 plots the international debt securities outstanding only for NFCs, arranged by region. Amounts outstanding increased after the crisis for all regions, but especially for Latin America.

Chung et al. (2013) highlight the relevance of monetary aggregates as a potential indicator of the channel through which offshore issuance of emerging market firms may influence domestic financial conditions. For firms that straddle the border, their financial activities are likely to leave an imprint on the domestic financial system hosting its headquarters. If the firm issues debt offshore in FCY but accumulates liquid financial assets in domestic currency—in the form of claims on domestic banks or in the shadow banking system in the headquarter economy—then keeping track of the firm’s corporate deposits and short-term financial assets will give an indirect indication of its overseas financial activities and hence the broad financial conditions that prevail in international capital markets. Chung et al. (2013) show that external financial conditions are reflected in the monetary aggregates of capital-recipient economies through the increased size of corporate deposits, as measured by the IMF’s International Financial Statistics (IFS). As the firm will borrow more under permissive financial conditions, we would expect to see the conjunction of both the firm’s increased indebtedness and greater holdings of cash and short-term investments on the consolidated balance sheet. In other words, the firm’s financial assets and financial liabilities will increase together, as verified in Shin and Zhao (2013). This way, the greater NFC claims on the domestic banking system may reflect the indirect impact of more permissive financial conditions



**Fig. 2.18** Nonfinancial corporates’ international debt securities outstanding—developing economies (by nationality of issuer). *Source* BIS Debt Securities Statistics, Bank for International Settlements (BIS)

globally. Also, to the extent there is a global factor driving global financial conditions, we would expect NFC claims globally to fluctuate in line with global financial conditions. So measures on the liability side of a bank's balance sheet may be a superior indicator of overall credit conditions than tracking the asset side as a whole. The advantage of liability measures comes from the role NFCs play "straddling" the border. Their activities are not easily monitored through usual external debt measures using locational definitions in balance of payments and national income statistics.

## 2.4 The Case of Emerging Asia

The first and second phases of global liquidity have important implications for emerging Asia. For our analysis, we break down capital flows into four types: "foreign direct investment" (FDI); "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.

Debt-led and bank-led capital flows shifted from negative to positive in five Asian economies during the second half of the 2000s (Fig. 2.19).<sup>4</sup>

Classifying capital flow trends 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), the following pattern emerges for the economies cited above:

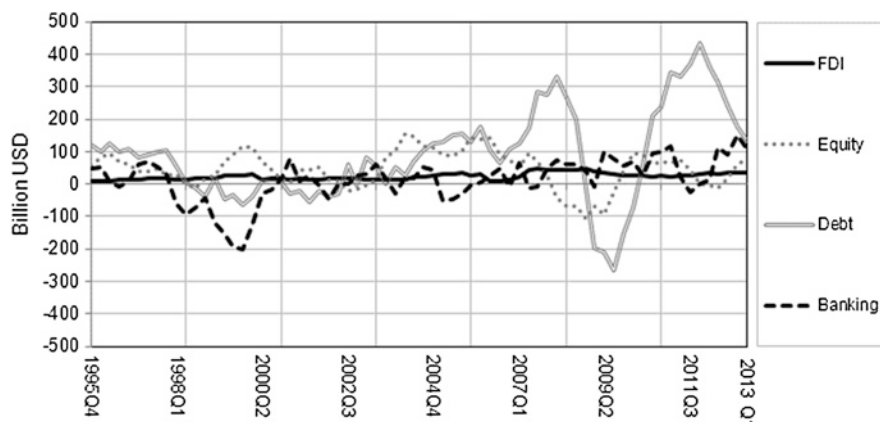
- Surges: equity-led in 2009Q4–2010Q1; debt-led in 2002Q2, 2005Q4, and 2007Q2–2007Q4; bank-led in 2004Q1 and 2010Q2
- Stops: equity-led in 2008Q1–2008Q3; debt-led in 1997Q1–1997Q3 and 1998Q3; and bank-led in 1997Q4–1998Q2 and 2008Q4–2009Q2
- Flight: equity-led in 2007Q4; debt-led in 2005Q4; bank-led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

---

<sup>4</sup> Indonesia, Japan, the Republic of Korea, the Philippines, and Thailand. While Japan is not considered an emerging Asian economy, we include it here for a bigger data set.



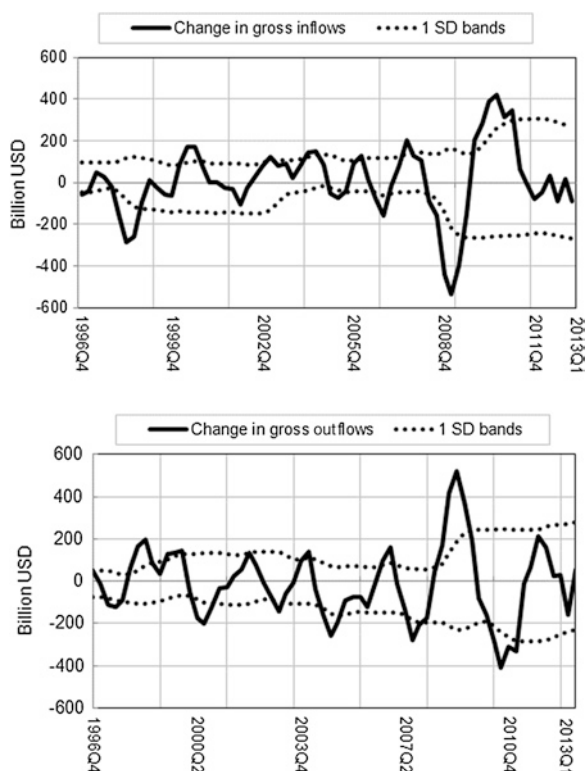
**Fig. 2.19** Gross capital inflows—selected East Asian economies. *FDI* foreign direct investment. *Note* Data include gross capital inflows for Indonesia, Japan, the Republic of Korea, the Philippines, and Thailand. *Source* ADB calculations using data from International Monetary Fund Balance of Payments Statistics

- 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

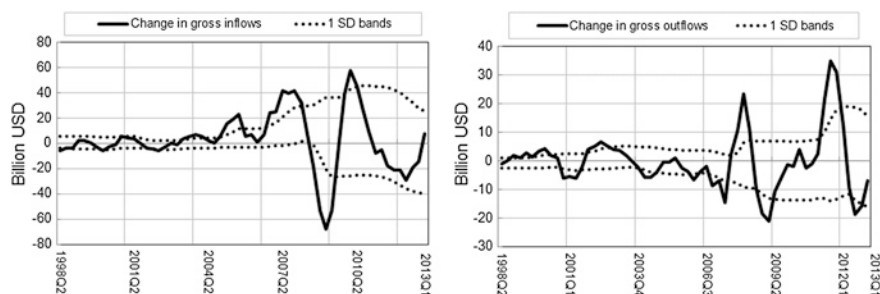
For bank-led flows, deleveraging by European banks contributed to the volatility. As funding conditions in Europe deteriorated toward the end of 2011, bleak economic prospects and doubts over fiscal sustainability undermined the value of sovereign and other assets. Bond issuance by banks fell, especially uncollateralized issuance in economies with fiscal problems; outflows due to fund withdrawals surged, particularly in Italy and Spain, and exposure to several EU financial institutions dropped sharply.

Capital flows to Asia intensified before the GFC (Figs. 2.20 and 2.21). These flows can be beneficial, but their volatile pattern and procyclicality can also act as a channel that transmits the buildup of financial risks and imbalances. A recent study examining the procyclicality of financial systems in Asia 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 economies. In economies with relatively high real GDP elasticities, such as the Republic of Korea and Indonesia, noncore liabilities are more procyclical than core liabilities. Also, noncore liabilities such as foreign borrowings tend to be more procyclical during boom periods. Using a slightly different approach, in Chap. 4, we also find evidence of procyclicality in selected Asian economies.





**Fig. 2.20** Gross capital inflows and outflows—selected Asian economies. *SD* standard deviation. *Notes* 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 the International Monetary Fund Balance of Payments Statistics



**Fig. 2.21** Gross capital inflows and outflows in selected South Asian economies. *SD* standard deviation. *Notes* Data for South Asia include India, Pakistan, and Sri Lanka; periods covered = 1995Q1–2013Q1 for India and Pakistan and 1995Q1–2011Q4 for Sri Lanka, 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 the International Monetary Fund Balance of Payments Statistics

Regarding US monetary policy, Hahm et al. (2013) show that bank liabilities respond to both domestic and US policy interest rates. But there are some differences across economies. In the Republic of Korea and Singapore, for example, bank liabilities tend to increase faster when US federal fund rates are low, which indicates that US monetary policy has important spillover effects on bank leveraging in emerging Asia. On the impact of interoffice assets of foreign banks in the US, bank liabilities in many Asian economies respond positively to US cross-border interoffice loans and the elasticities are higher for noncore liabilities. The impact of global market uncertainty, as measured by the CBOE Volatility Index (VIX), seems less significant in Asian economies, and in many cases, the elasticity has an opposite sign.

Overall, these suggest that noncore 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 far different from domestic business cycles due to cross-border links through noncore funding. The implication is that monetary policy alone is insufficient to lean against procyclicality and financial cycles in open emerging market economies, and thus, policy makers must also have access to macroprudential tools.

Using a panel probit model to analyze the incidence of financial crises in a large sample of emerging economies, it has been found that noncore bank liabilities do have explanatory power for subsequent crises (Hahm et al. 2011). This is consistent with the analysis based on data of emerging Asia in Chap. 4. The empirical performance of measures for noncore liabilities is encouraging even when more traditional measures are included, such as the ratio of credit to GDP. In particular, banks' foreign liabilities are a major component of their noncore liabilities in many emerging market economies where the domestic wholesale bank funding market is not yet able to support rapid bank lending growth.

The overall results from these studies are consistent with the hypothesis that noncore bank liabilities matter more in open emerging market economies than in relatively closed ones. However, the impact of noncore liabilities appears highly nonlinear and heterogeneous across different crisis episodes. Policy makers in emerging Asia must take these complex interactions and their effects into consideration when pursuing capital market liberalization. They need to craft a careful macroprudential policy framework as a guard against potential risks.

For an economy like the Republic of Korea, where the domestic banks can access the global banking system for funding, this makes sense. However, for financial systems at an earlier development stage, or where banks are prohibited or restricted from accessing the global banking system, the distinction between core and noncore liabilities will look different, although the principles from the system-wide accounting framework will continue to apply (discussed in more detail in Chap. 3).

Regardless of system openness, however, a large increase of highly volatile debt-led and bank-led flows pose a difficult challenge for policy makers in maintaining macro- and financial stability. Bank-led flows can alter the size

and composition of bank balance sheets to the point that risk of a banking crisis increases. 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 noncore liabilities through bank-led flows can heighten risky behavior and increase bank leverage. Bank credit can also be disrupted when an external shock strikes. With a stronger currency resulting from capital inflows, banks are willing to take greater risks by extending more credit as the balance sheet of borrowers improves.

These risks are particularly important for bank-dependent Asian economies with open capital accounts—where bank leverage tends to exceed cyclical norms. Bank credit growth in emerging Asia accelerated prior to the GFC (Fig. 2.22). Even afterward, growth continued to rise in some economies. This rapid expansion coincided with rising demand for real estate, causing a persistent increase in property prices and exposing the region to the risk of a bubble bursting. Credit for consumption also surged, which allowed relatively high economic growth amid the global economic slowdown.

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 (2000–2006) and GFC (2007–2011). In the set of charts in Fig. 2.23, 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) the correlation of assets with noncore liabilities (or core liabilities in the case of households) across different types of assets (Azis and Yarcia 2014). The first aims to capture what type of liabilities moves in sync with changes in assets (source of funds); the second aims to identify the type of assets noncore liabilities invest in (use of funds).

For example, the Philippine financial sector exhibited a significant change in investment behavior between pre-GFC and GFC periods. The preference for noncore sources (nondeposits) increased, with the slope doubling, while the slope of currency and deposits declined. With growing noncore liabilities, financial sector investment is more diversified in favor of nonloans, particularly securities and equities. In the case of Indonesia, banks have been increasingly seeking funds from noncurrency and deposit sources. They continue to allocate the bulk of their funds for loans, presumably dominated by credit for consumption, real estate, and other nontradables. However, in both economies, the preference for securities and nonloan assets rose faster than that for lending.

Like Indonesia, the tendency 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 nonloans. A shift of preference in favor of raising funds from noncore sources is also observed. The noncore share of banks' liabilities remained high, although it has been declining in recent years.

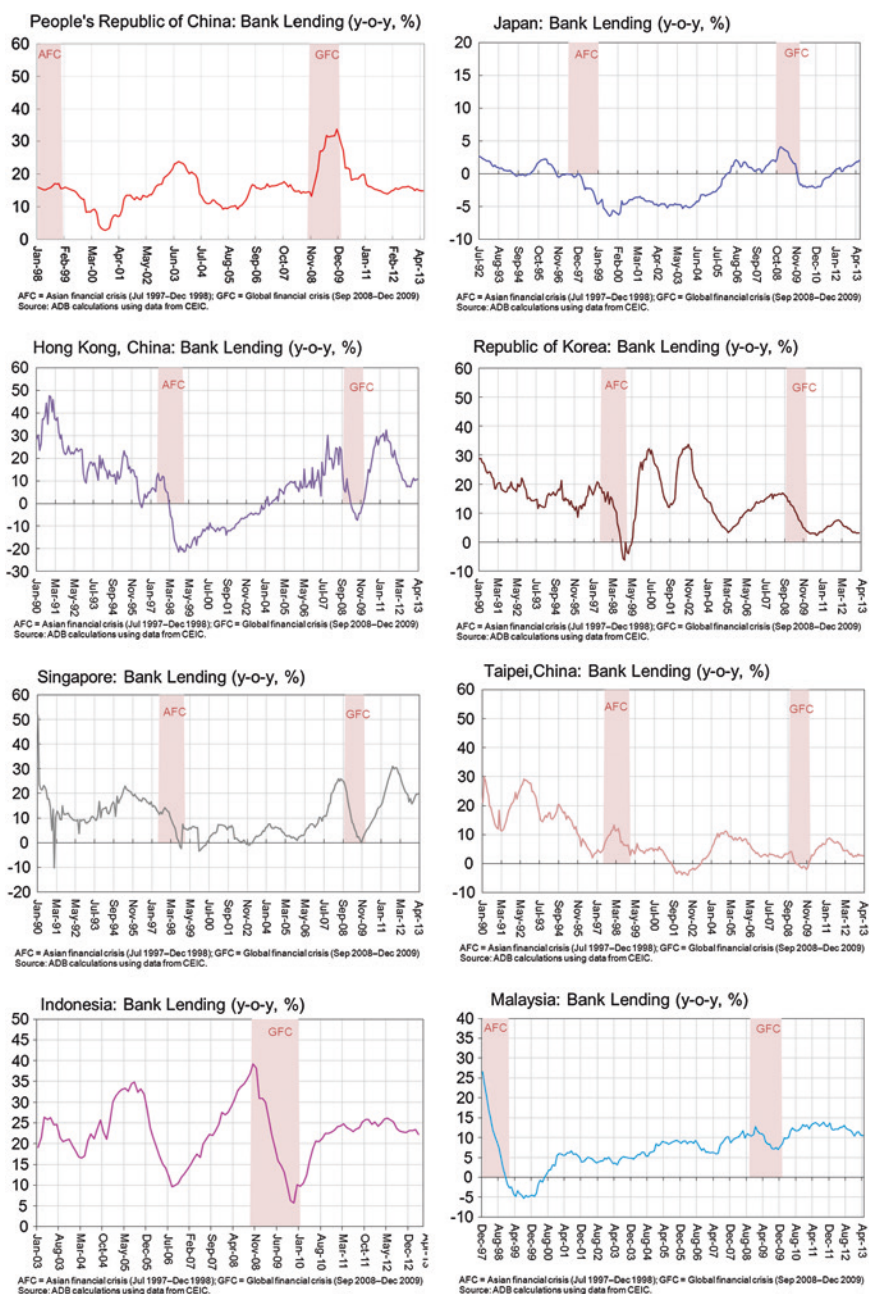


Fig. 2.22 Credit growth—emerging Asia. *Note* y-o-y year on year

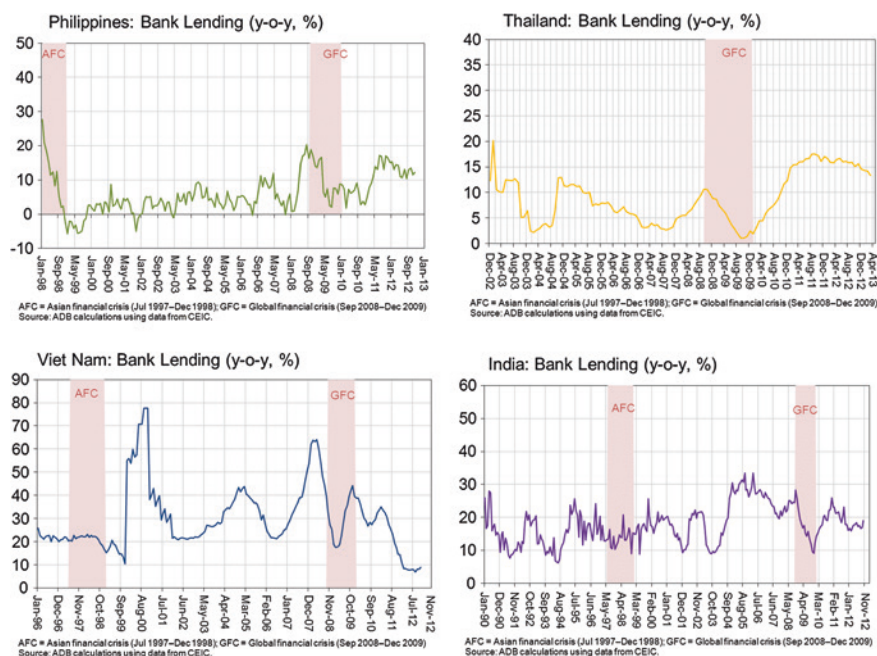
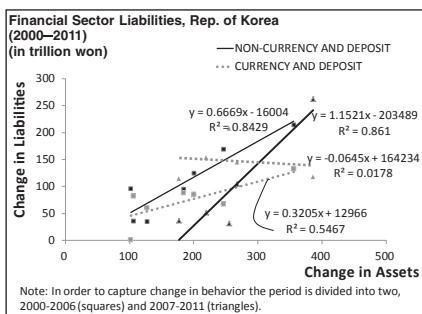
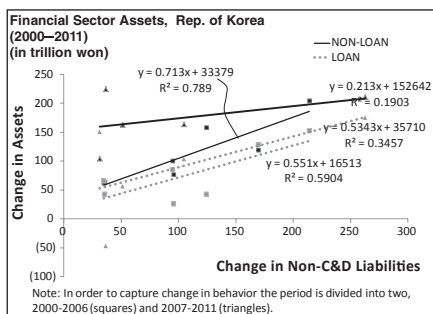
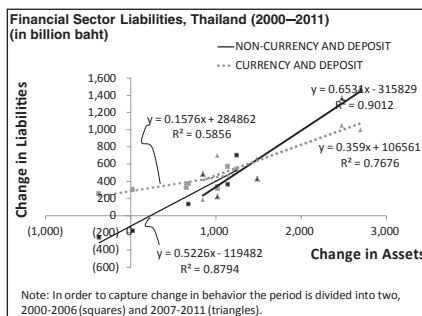
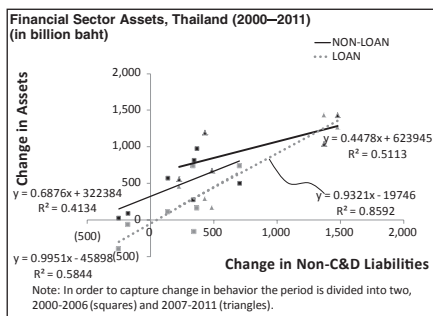
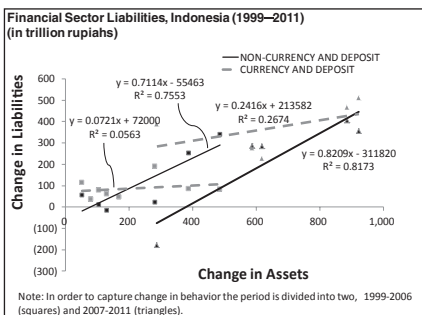
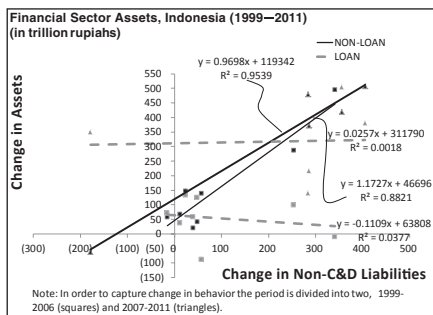
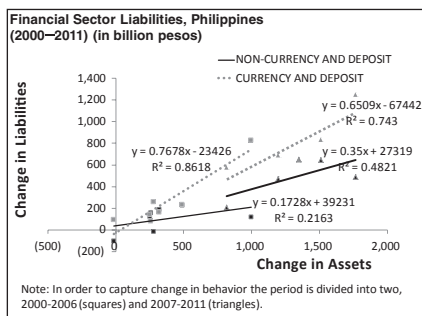
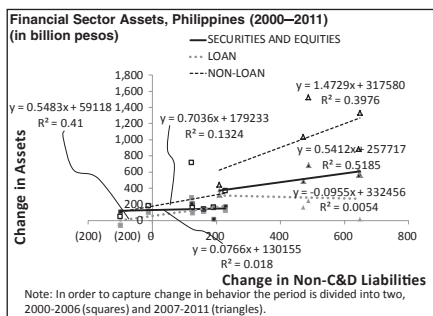


Fig. 2.22 (continued)

It is clear that as banks and other financial institutions expand their liabilities using noncore sources, they tend to diversify their asset holdings by allocating the additional funds either to loans or to other risky financial assets. As a large portion is directed toward the property market and other forms of consumer credit, vulnerabilities multiply. Although the level of noncore liabilities in most economies has yet to set off alarms, it could threaten macro- and financial stability if left unattended.

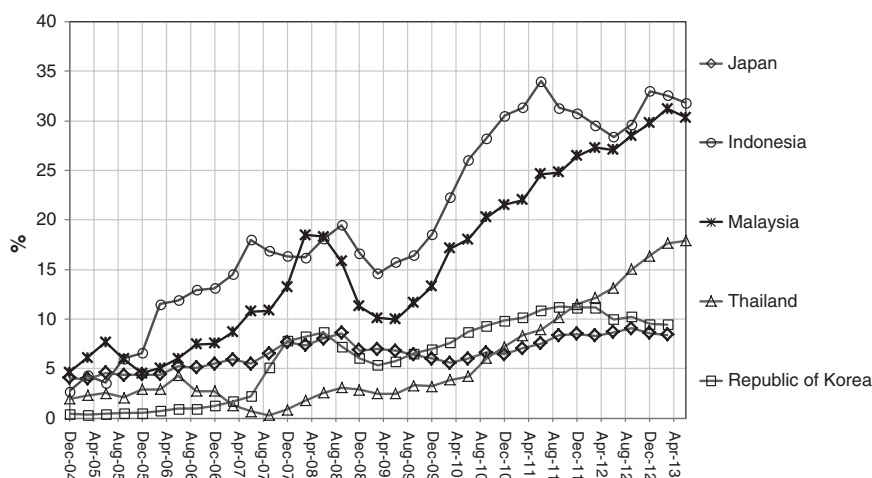
The attraction for banks holding financial assets has been enhanced by improved liquidity in capital markets as foreign funds flocked to the region. As foreign investors shun risky holdings such as equities, while at the same time seek high risk returns, emerging Asia's LCY bond market has become especially attractive. Asia's safe haven status relative to other developing regions reinforced these flows. The yields of traditionally safer US Treasuries and those of emerging market debt moved in the same direction after the GFC. Slower global growth expectations pushed emerging Asian LCY bond yields lower in tandem with those in advanced economies. This implies that 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 total bonds outstanding in Indonesia and Malaysia, and more than 10 % in the Republic of Korea and Singapore (Fig. 2.24). Despite this encouraging trend, the relatively small size of emerging Asian LCY



**Fig. 2.23** Bank behavior—selected emerging Asian economies. *Source* Flow-of-funds (FOF) data from national sources





**Fig. 2.24** Share of foreign ownership—selected emerging Asian local currency bond markets. *Source* ADB calculations

bond markets and their limited liquidity make these markets sensitive to foreign withdrawals. The resulting volatility can hurt market liquidity and reduce the region's attractiveness to bond investors—as it directly affects investor perceptions of the collateral value of emerging Asian LCY bonds. A recent study by Azis et al. (2013) shows how some Asian markets were significantly affected by US and European bond market volatility associated with both the Lehman failure and Eurozone crisis.

In short, the global flows that fueled capital market liquidity in emerging Asia (second phase) clearly affected the region's financial sector, which is the largest holder of LCY bonds. And with ample liquidity from noncore liabilities (first phase), banks expanded not just lending but their financial assets as well, including LCY sovereign bonds. This has some bearing on the implications for available policy choices.

## 2.5 Third Phase and Onward

The first and second phases of global liquidity set the stage for a new episode, one that could define a distinct third phase. The Asian experience of capital flow reversals discussed above is particularly relevant in establishing this third phase. The vulnerability caused by bank-led flows through noncore liabilities in the first phase is associated with procyclicality—where a bank's health can deteriorate despite the structural improvements 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 become the more pressing concern.



Debt-led flows raised the level of foreign ownership in emerging Asian capital markets, enhancing market liquidity and attracting amply liquid banks 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.

In this way, the second phase of global liquidity has led to a combination of forces that increase the vulnerability of emerging economies to a reversal of permissive financial conditions. There are three elements:

- i. Yields on emerging market LCY debt securities have fallen in tandem with those in more mature markets and have shown increasing tendency to move in sync with bonds in advanced economies (Miyajima et al. 2012, Turner 2014).
- ii. Offshore FCY corporate bond issuance has created currency mismatches on the consolidated balance sheets of emerging market firms. Accompanying this offshore issuance has been growth in corporate deposits in the domestic banking system that becomes vulnerable to withdrawals in the case of corporate distress.
- iii. The growing stock of emerging market corporate debt securities has been absorbed by asset managers—whose main reason for buying them has been the perception of stronger economic fundamentals of emerging markets.

All three elements ignited during mid-2013, placing financial markets in emerging economies under severe stress.

The shock that led to the capital outflows was the 22 May 2013 remarks by the US Fed Chairman 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 eased a bit following the US Fed's clarification that the start of tapering was not imminent and would depend on economic conditions. But the bond market sell-off spreads to emerging markets nonetheless, with an immediate impact of rising bond yields, higher interbank rates, and depreciating currencies—albeit the impacts were not felt evenly across all economies.

From May to August 2013, capital outflows from emerging Asia's top 10 economies were estimated at \$86 billion, half of which comprised outflows from the PRC. This is still relatively small compared with the \$2.1 trillion of inflows between November 2008 and April 2013, an estimate based on foreign exchange reserves data. Between June and August, foreign investors withdrew roughly \$19 billion from Asian LCY bond markets. Given the small market size in some economies, the impact was inevitable and significant, especially where the fundamentals were weak (e.g., those with high fiscal and current account deficits). India and Indonesia are notable examples where policy choices became more limited.

In 2013Q2, while there were four emerging Asian economies with current account deficits, only India and Indonesia also had fiscal deficits in 2012 (Table 2.1). Among the 11 economies listed, they also had the two lowest ratios of foreign exchange reserves to GDP and the two highest rates of inflation. As risk

**Table 2.1** Vulnerability indicators

	Fiscal balance (% GDP)		Current account (% GDP)		Reserves less gold (% GDP)		Short-term external debt/reserves		Inflation (%)	
	1996	2012	1997Q2 <sup>2</sup>	2013Q2 <sup>3</sup>	1997Q2	2013Q1	1997Q2	2012Q4	June 1997	Latest <sup>4</sup>
People's Republic of China	-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 <sup>1</sup>	-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
Republic of Korea	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

GDP gross domestic product

<sup>1</sup> For India, latest figures are compared with 1991 (annual), not 1997

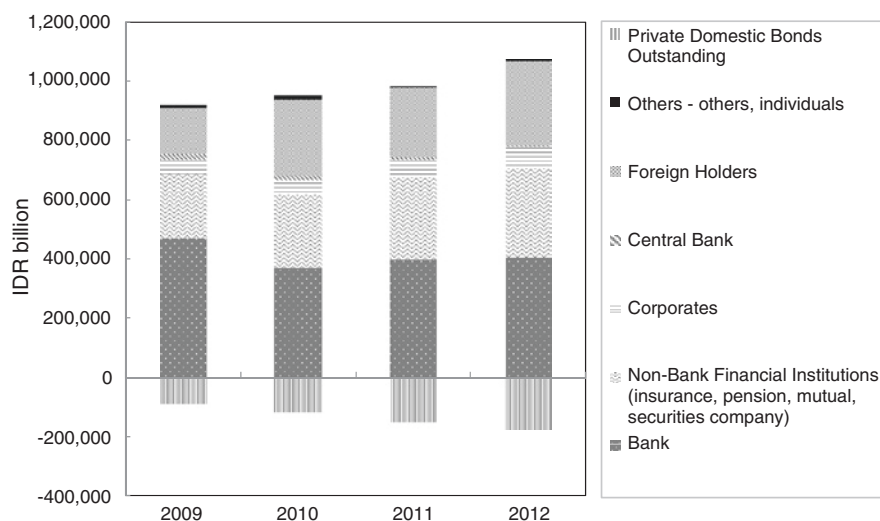
<sup>2</sup> Annual 1996 current account as % of GDP data for People's Republic of China; Hong Kong, China; India; Malaysia; the Philippines; Thailand; and Viet Nam

<sup>3</sup> 2012Q4 data for Viet Nam; 2013Q1 data for Hong Kong, China; India; the Republic of Korea; Malaysia; and the Philippines

<sup>4</sup> Refers to July 2013 except Singapore (June 2013)

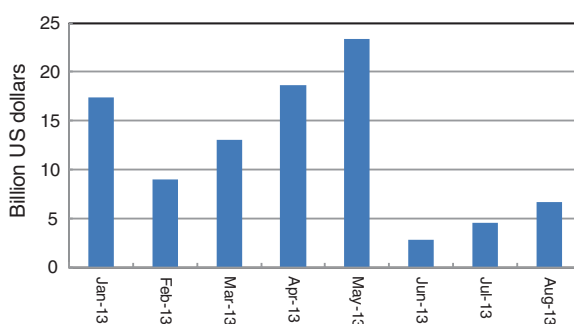
Source: ADB calculations using data from ADB Asian Development Outlook, CEIC, Haver Analytics, and national sources





**Fig. 2.26** Outstanding bond holdings by investor versus private domestic debt issuance in Indonesia. *Source* AsiaBondsOnline

**Fig. 2.27** G3 currency bond issuance. G3 Eurozone, Japan, US. *Note* G3 currency bond issuance covers data for the People's Republic of China; Hong Kong, China; Indonesia; the Republic of Korea; Malaysia; the Philippines; Singapore; Thailand; and Viet Nam. *Source* ADB calculations based on Bloomberg LP data



preferred—as they provide a more stable source of long-term funding without the risk of currency mismatch—the trend was not good. However, with its rising fiscal deficit, there was no choice for the Indonesian government but to continue issuing bonds.

Issuing FCY bonds has become more difficult and expensive as well. Issuance of FCY bonds in emerging Asia declined dramatically in June 2013 and only slightly recovered in subsequent months (Fig. 2.27). Although the figure leaves out India, the world's third largest economy, the same thing happened—Indian firms' overseas bond sales slowed significantly.<sup>5</sup> Only one Indian company (Indian Oil) managed to sell a US\$-denominated bond during the period after 22 May when the US Fed hinted at QE tapering.

<sup>5</sup> Third largest in PPP terms.

For emerging Asia as a whole, FCY bond issuance fell from \$81 billion in the first 5 months of 2013 to just \$7.5 billion in June and July. The high-yield market was particularly hard hit. Given that global investors were hunting for Asia's high-yield bonds during the second phase of global liquidity, it was a dramatic turnaround in terms of capital flows.

Even economies with relatively sound fundamentals experienced capital outflows—US market risks were perceived to be less significant. With the exception of the renminbi and the Philippine peso, the exchange rate in all emerging Asian economies depreciated against the US dollar following the 22 May announcement. Bond markets in Hong Kong, China; Malaysia; the Philippines; and Singapore—markets traditionally viewed as safe havens due to their 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 sell-off.

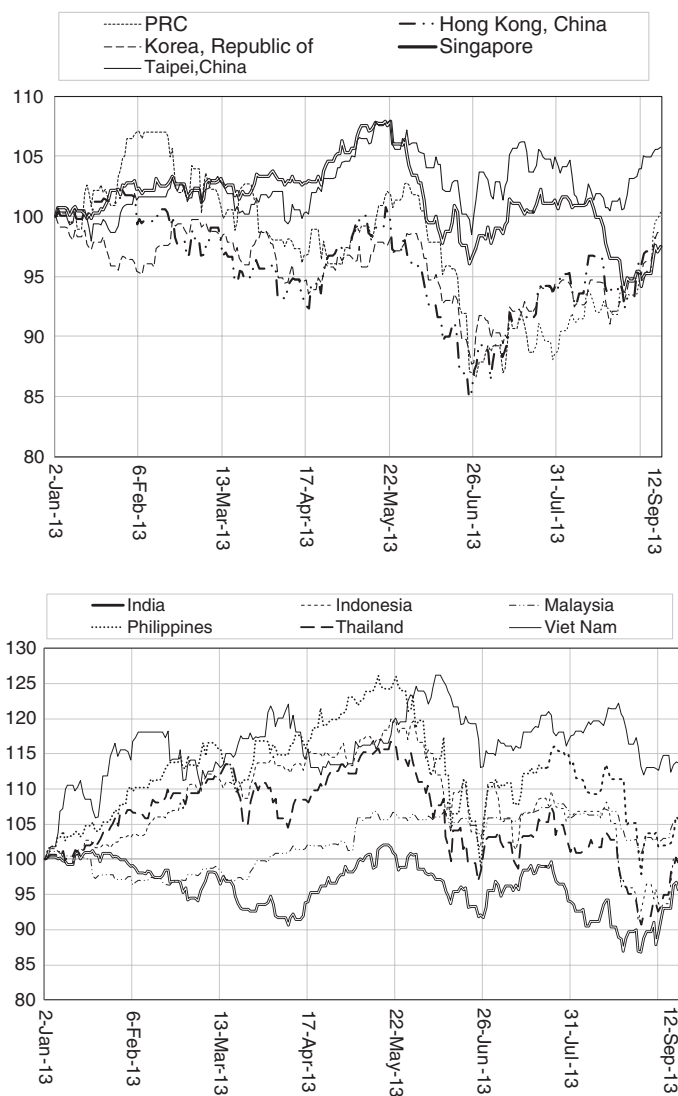
Equity market investors—prone to “buying the rumor and selling the news”—also began to bail. Asset price swings reflect the region's thin, illiquid equity markets as prices jumped, especially in interest-rate-sensitive sectors (Fig. 2.28). Table 2.2 summarizes the direction and magnitude of changes in 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 fell—indicated by rising CDS spreads, which increased 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) sit at the top of emerging Asian economies with the highest CDS spreads (Fig. 2.29). When it comes to market confidence and perceptions, however, economic fundamentals may take the back seat. CDS spreads in the PRC, Malaysia, and the Philippines also increased despite their better fundamentals.

In sum, the third phase of global liquidity is a story about capital flow reversals triggered by the May 2013 US Fed announcement, leading to elevated risk perceptions toward emerging Asian markets. Although economies with weak fundamentals were hit hardest, outflows occurred across the board. The repercussions for capital markets and exchange rates, however, were varied.

When global financial conditions eventually tighten—as the US Fed begins to raise rates—vulnerabilities will likely impact market behavior yet again. Given the elements underpinning the second phase of global liquidity, the crisis dynamics in the emerging economies would then have the following elements:

- Step 1. Steepening of the LCY yield curve
- Step 2. Currency depreciation, corporate distress, and runs of wholesale corporate deposits from the domestic banking system
- Step 3. Decline in corporate capital expenditure directly feeding into slowing economic growth
- Step 4. Asset managers cutting back positions in emerging market corporate bonds, citing the slower growth, and
- Step 5. A return to Step 1, completing the loop



**Fig. 2.28** Stock Price Index (January 2, 2013 = 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 September 12, 2013. *Source* ADB calculations using data from Bloomberg

The distress dynamics sketched above holds some unfamiliar elements. We normally invoke either leverage or maturity mismatches when explaining crises—with the usual protagonists in the crisis narrative banks or other financial intermediaries. In contrast, in this pending scenario, asset managers are at its heart. We find this unsettling, as long- or hold-to-maturity investors are meant to be benign, not add to market vulnerability—they are routinely excluded from the list of “systemic” market participants.

**Table 2.2** Changes in bond markets, CDS spreads, equity markets, and exchange rates—since May 22, 2013

	2-year government bond (bps)	10-year government bond (bps)	5-year credit default swap spread (bps)	Equity index (%)	FX rate (%)
<i>Major advanced economies</i>					
US	20	87	0	1.7	—
UK	15	104	(7)	(3.7)	(5.0)
Japan	(1)	(16)	(1)	(6.9)	3.5
Germany	23	57	(0.3)	(0.4)	(3.4)
<i>Emerging Asia</i>					
People's Republic of China	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)
Republic of Korea	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)
<i>Select European markets</i>					
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*

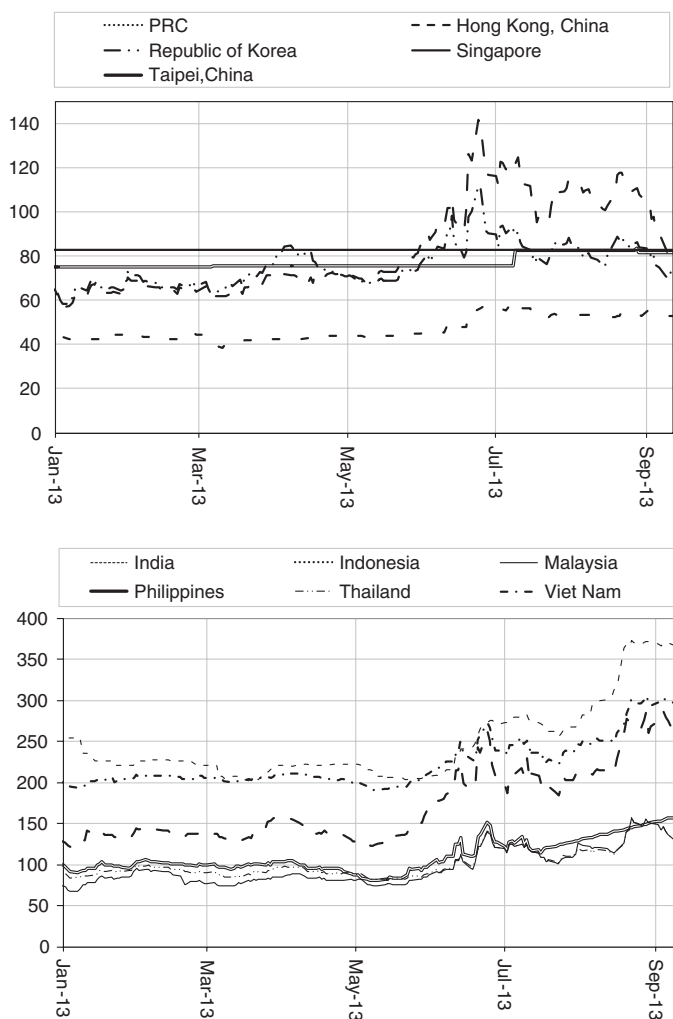
1. Data reflect changes between May 22, 2013, and September 12, 2013

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

However, the distinction between leveraged institutions and these long-term investors matters less if they share the same tendency toward procyclicality. Asset managers are answerable to the trustees of the fund that gives them their mandate. In turn, the trustees are themselves agents vis-à-vis the ultimate





**Fig. 2.29** Credit default swap spreads—selected Asian economies. *PRC* People's Republic of China. *Note* Data as of September 12, 2013. *Source* Datastream

beneficiaries. In this way, asset managers lie at the end of a chain of principal–agent relationships that may induce restrictions on their discretion in selecting their portfolio. Frequently, trading restrictions are based on measures of risk used by banks and other leveraged players. As such, their behavior could show the same type of procyclical risk-taking that banks are well known for. The uncomfortable lesson is that asset managers may not conform to the textbook picture of long-term investors, but instead may have much more in common with banks in amplifying shocks.

**Open Access** This chapter is distributed under the terms of the Creative Commons Attribution-Noncommercial 3.0 IGO (CC BY-NC 3.0 IGO) License which permits any noncommercial use, distribution, and reproduction in any medium, provided ADB and the original author(s) and source are credited.

## References

- Azis IJ, Shin HS (2013) How do global liquidity phases manifest themselves in Asia? Asian Development Bank, Manila
- Azis IJ, Yarcia D (2014) How capital flows affect economy-wide vulnerability and inequality: flow-of-funds analysis of selected Asian economies. ADB working paper series on regional economic integration 136
- Azis IJ, Mitra S, Baluga A (2013) Global shock and regional spillovers. *Peace Economics, Peace Science and Public Policy* 19(2):1–29
- Bank for International Settlements (2012) Residency/local and nationality/global views of financial positions. IFC working paper 8
- Borio C, Disyatat P (2011) Global imbalances and the financial crisis: link or no link? BIS working papers 346
- Bruno V, Shin HS (2012) Capital flows and the risk-taking channel of monetary policy. BIS working papers 400
- Bruno V, Shin HS (2013) Cross-border banking, and global liquidity. NBER working papers 19038
- Cetorelli N, Goldberg L (2008) Banking globalization, monetary transmission, and the lending channel. NBER working papers 14101
- Cetorelli N, Goldberg L (2010) Global banks and international shock transmission: evidence from the crisis, staff reports, Federal Reserve Bank of New York 446
- Chung K et al (2013) Global liquidity through the lens of monetary aggregates. IMF working paper 14/9
- Gourinchas PO, Obstfeld M (2012) Stories of the twentieth century for the twenty-first. *Am Econ J Macroecon* 4(1):226–265
- Hahm JH, Shin HS, Shin K (2011) Noncore bank liabilities and financial vulnerability. NBER working paper W18428
- Hahm JH, Shin HS, Shin K (2013) Monetary aggregates and the procyclicality of the financial system: an Asian perspective. Working paper presented at ADB interim conference, Hong Kong, China, Jan 2013
- McCauley R, Upper C, Villar A (2013) Emerging market debt securities issuance in offshore centres. BIS Q Rev Sept
- Miyajima K, Mohanty MS, Chan T (2012) Emerging market local currency bonds: diversification and stability. BIS working papers 391
- Schularick M, Taylor A (2012) Credit booms gone bust: monetary policy, leverage cycles, and financial crises, 1870–2008. *Am Econ Rev* 102:1029–1061
- Shin HS (2012) Global banking glut and loan risk premium. Mundell-Fleming lecture. *IMF Econ Rev* 60(2):155–192
- Shin HS, Zhao Y (2013) Monetary aggregates and global liquidity: evidence from individual firm data from Asia. Working paper presented at ADB interim conference, Hong Kong, China, Jan 2013
- Turner P (2014) The global long-term interest rate, financial risks and policy choices in EMEs. BIS working paper 441