

Financial globalisation and emerging market capital flows

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The focus of Deputy Governors when they met for their annual meeting at the BIS in January 2008 was on the great expansion of the role of emerging market economies (EMEs) in the international banking and capital markets. One simple measure of that deeper integration is the growth of EME capital movements as measured in the financial account of the balance of payments. In the 1990s, gross non-official inflows averaged around \$170 billion a year, of which \$100 billion was foreign direct investment. By 2007, gross non-official inflows exceeded \$1,400 billion (Table 1). There had been a similar explosion in gross outflows. Net private flows towards the EMEs (ie inflows minus outflows) exceeded \$400 billion, more than quadrupling since the 1990s. At the same time, the aggregate annual current account position of EMEs has moved from deficit over the 1980s and 1990s to substantial surplus.

Table 1
Private capital flows and the EMEs¹
 In billions of US dollars, annual rate

	1980–89	1990–99	2000–07	2006	2007 ³
Gross inflows	15.6	173.8	542.6	902.4	1,440.2
Of which:					
FDI	12.2	102.2	267.3	354.4	530.3
Gross outflows	14.5	86.4	409.7	769.0	1,001.3
Of which:					
FDI	2.6	24.6	115.6	216.0	261.6
Net flow²	1.1	87.4	132.8	133.5	438.8
<i>Memo: Current account</i>	<i>-16.4</i>	<i>-23.3</i>	<i>244.1</i>	<i>451.0</i>	<i>542.7</i>
Increase in reserves	11.6	61.9	364.6	515.2	940.4
Capital inflows to official sector ⁴	54.6	47.3	3.1	-57.3	26.2

Note: This is not a complete balance of payments statement. The memorandum item on capital inflows to the official sector is the sum of government borrowing identified as such in the balance payments (for example, many countries do not separately identify non-resident purchases of locally issued government bonds). Errors and omissions and capital transfers are not included.

¹ Argentina, Brazil, Chile, China, Colombia, the Czech Republic, Hungary, Hong Kong SAR, India, Indonesia, Korea, Malaysia, Mexico, Peru, the Philippines, Poland, Russia, Singapore, South Africa, Taiwan (China), Thailand, Turkey and Venezuela. ² Excluding official flows that can be identified as such. ³ Preliminary figures. ⁴ Including public sector international debt issuance and bilateral official credit and other borrowing (from international banks, the IFIs etc).

Source: IMF, *Balance of Payments Statistics*.

Few would have predicted the nature and the scale of these developments a decade or so ago. At that time, the focus of debate was quite different. Most EMEs had current account deficits that had to be financed: at times, international finance became very difficult. Policy analysis at that time therefore concentrated largely on the links between capital flows and financial crises. Such a focus was inevitable after a series of crises in the 1980s and the 1990s had been made worse by volatile short-term capital flows into countries with thin capital markets or poorly supervised banks.

From the 1980s onwards, the importance of improving domestic financial intermediation in the EMEs was increasingly recognised. After the 1982 debt crisis, Lessard and Williamson (1985) argued that the sources of finance in the developing world needed to be broadened and that financial instruments had to achieve a better distribution of risks and rewards. The BIS annual report after the Mexican crisis in 1994–95 drew a similar conclusion (BIS (1995)).

Over the past decade, the development of local financial markets and the greater openness to foreign investors and financial institutions have indeed increased the diversity of capital inflows to the EMEs. Partly because of the growth of local institutional investors (especially pension funds) and partly because regulatory restrictions have largely been relaxed, net foreign asset holdings by the non-official sector in the EMEs have risen substantially. Official holdings of foreign assets, notably forex reserves, have increased even more. This strengthening of external balance sheets across the emerging markets has no doubt increased their resilience to macroeconomic shocks. Nevertheless, the massive accumulation of reserves has given rise to major policy dilemmas.

Both international trading in EME financial assets and trading by EME entities in international assets have risen. Capital is flowing in both directions in larger volumes (see box “Definition of capital flows”). “Real money” foreign investors – pension funds, for example – have increased their holdings of EME financial assets; because such investors have a low degree of leverage, they are less sensitive to changes in borrowing conditions in international markets. In addition, the scope of financial derivatives based on EME exchange rates or other assets has broadened, improving at least the microeconomic aspects of market liquidity. The broadening of the derivatives market has helped some classes of foreign investors to take more highly leveraged exposures to EME assets (as well as to hedge exposures to underlying assets). Such structural changes in EM balance sheets and these enhanced possibilities for leverage make it harder to grasp the scale of underlying exposures and decipher financial market dynamics.

Definition of capital flows

The terms used for the various measures of international capital transactions sometimes cause confusion because such terms are used ambiguously in common parlance. The definitions used here are as follows:

Inflows = Purchases by non-residents of domestic assets less their sales of such assets.

Outflows = Purchases by residents of foreign assets less their sales of such assets.

Hence inflows and outflows can be either positive or negative. For example, a non-resident sale of domestic assets is a negative inflow – not an outflow. The term “net flows” means inflows minus outflows.

A particular question in the background at this meeting was whether these changes have made capital flows to EMEs more or less sensitive to financial developments in the advanced economies. At the time of the meeting, the tumult in global markets that began in August 2007 seemed to have had very little effect on the markets or the exchange rates of emerging economies. If financial globalisation had indeed deepened, why that apparent disconnect? Later in the year, however, the deepening banking crisis in the major economies had a major impact on the EMEs.

The papers written for this meeting – three background papers by BIS staff members and the country-specific papers prepared at the central banks of 19 EMEs – tackle several aspects of these issues.

Broad trends

Most of the central bank papers in this volume analyse the historical trends in capital flows over the past 10 to 20 years. The BIS staff paper by Mihaljek summarises the broad trends of capital flows in the main EME areas during the past decade. Of the many aspects he mentions, two are especially worth highlighting.

The first is the increasing importance of capital outflows from EMEs. Mihaljek notes that sovereign wealth funds are playing a greater role in the international investment of the national wealth of the EMEs. He also finds that institutional investors such as pension funds are becoming major players. They now “recycle” the funds generated from the combination of current account surpluses and capital inflows of emerging market economies. He notes that much of these notionally private outflows might originate in the public sector institutions such as state-owned commercial banks. An example of the importance of private capital outflows is Hong Kong. In its contribution to this volume, the Hong Kong Monetary Authority (HKMA) observes that the current account surpluses of Hong Kong SAR have been largely associated with capital outflows by the private sector (as a result, the accumulation of foreign reserves in Hong Kong SAR has been relatively moderate). Another example is given by Chile. Desormeaux, Fernández and García observe that net reductions in capital flows in Chile have recently been based on “sudden starts” in capital outflows as opposed to “sudden stops” in capital inflows observed in the past.

A second key point by Mihaljek is that changes in the volatility of capital flows have been notable. Among the central bank papers, this point is exemplified by Pesce, who notes that, in Argentina, capital flight before 2002 was followed by a sharp resumption in capital inflows once the fixed exchange rate had been abandoned. Likewise, Vargas and Varela observe that the volatility of capital inflows to Colombia does not appear to have increased but that the volatility of outflows has risen, apparently under the influence of position-taking by pension funds.

An important issue raised at the meeting is how to monitor capital flows effectively given the reporting lags in balance of payment statistics. For example Ooi’s paper cites a number of internal reporting systems used by Bank Negara Malaysia to enhance its surveillance of capital flows. The HKMA paper describes how cross-border bank flows between Hong Kong SAR and China are monitored. Several central banks have inherited fairly elaborate monitoring and reporting mechanisms associated with capital controls. But financial innovation has made the data harder to interpret because changing risk exposures (eg through forward exchange markets) may not immediately show up in capital flow statistics.

Exchange rate-sensitive capital flows

Many participants argued that the increased importance of capital flows driven by exchange rate expectations had created major implications for EMEs. Local currency debt markets had expanded,¹ local corporations were more able to adjust the mix of foreign and local currencies in their borrowing according to such expectations, and local institutional investors were now managing portfolios that contained foreign currency assets.

¹ Including issuance in international markets. Sidaoui explains the mechanics of a 20-year euro-peso issue by Mexico, discussing in particular the calculation of pricing.

The resulting greater integration with international capital markets had several important implications. One was the tighter linkage of long-term debt markets with global debt markets. Such greater integration had been reinforced by declining country risk premia (partly the result of a shift from deficit to surplus in the current accounts of many countries). The greater presence of foreign investors in local currency debt markets has probably contributed to a trend towards lower long-term interest rates in EMEs. Some EME central banks at this meeting expressed worries that such investments could drive long-term rates too low for the needs of the local economy. For that reason, several maintained capital controls on foreign purchases of local currency debt. As a corollary of low long-term rates, asset prices more broadly could be driven too high. In any event, benchmark long-term rates had become more responsive to international influences.

A second implication was that the exchange rate was becoming more responsive to international shifts in asset preferences, which could increase exchange rate volatility. From 2002 to 2007, EME currencies had come under strong appreciation pressures. In addition, many central banks had resisted appreciation by engaging in forex intervention on an unprecedented scale and for far longer than expected. Several central bank papers discuss the various rationales for intervention in forex markets. For example, Mohan stresses that intervention can counter self-fulfilling one-way expectations. It can also help insulate the local economy from external shocks. Apart from highlighting precautionary motives for reserve accumulation, Pesce also cites the need for intervention to prevent cycles of real exchange rate appreciation followed by sudden currency collapse. Rossini, Quispe and Gondo observe that foreign reserve accumulation gives the central bank the ability to smooth exchange rate fluctuations, which can be costly in a highly dollarised economy like Peru's. Thaicharoen and Ananchotikul cite the need in 2006 to moderate very rapid appreciation of the Thai baht, although the effectiveness of that intervention turned out to be limited.

Appreciation pressures to some extent reflected fundamentals. One participant said that a low-income country in the early stages of development would have an exchange rate that was at a very large discount to its purchasing power parity level. Reforms in the political and legal framework (eg the better protection of property rights), the greater market-orientation of policies, increased total factor productivity and better trained labour and a host of other improvements associated with development would eventually narrow the exchange rate-PPP gap. But how rapidly the narrowing should happen was difficult to judge. According to this participant, the risk that the market would lead to an overshooting of (or too-fast movement in) the exchange rate was all the greater in countries that had just begun to develop rapidly. Such countries would not feel as comfortable with a highly flexible exchange rate as do countries with deep and resilient financial systems.

Nevertheless, several participants noted that crises in their countries had been aggravated by earlier attempts to resist currency appreciation. In her discussion of Indonesia, Goeltom sets out the key dilemmas. Attempting to cope with increased capital inflows, Indonesia widened its intervention band several times between September 1992 and August 1997. But short-term inflows continued to rise because "the intervention band helped the market to predict movement in the nominal exchange rate" and reduced the incentive for local borrowers to hedge their debt exposure. She also examines the issues that can arise when certain classes of non-resident investors dominate price determination in thin forex markets during periods of stress.

In any event, it was clear from several central bank contributions that the rise in exchange-rate-driven capital flows had complicated the setting of monetary policy. A continuing challenge, noted by Mohan, is that raising interest rates to tighten policy could attract additional capital inflows. Niedermayer and Bárta point out that appreciation pressures led to the undershooting of inflation targets in the Czech Republic earlier in this decade. However, cutting interest rates below the level consistent with the inflation target in order to curb capital inflows posed significant macroeconomic risks. Vargas and Varela note that currency appreciation in Colombia may have delayed the tightening of monetary policy in 2004 and

2005. In a number of countries, capital flows also appear to have been associated with fluctuations in domestic credit growth – see the contributions by Király et al on Hungary, by the HKMA (in Hong Kong such fluctuations reflect activities in the stock market by non-residents) and by Yörükoğlu and Çufadar (capital inflows in Turkey were associated with growth in bank credit). In countries that peg their exchange rate, capital flows can more directly affect liquidity conditions in the money market, although the central bank has tools to deal with this (see the paper by Al-Jasser and Banafe).²

Large changes in commodity prices added to these complications. A particular issue of concern in several countries has been how far to respond to increases in food prices. Because food prices have a much higher weight in the consumption basket in EMEs than in more developed market economies, their impact on the consumer price index is greater. In a simple inflation-targeting framework, this would mean that a given percentage rise in food prices would lead to larger increases in nominal interest rates in developing than in developed countries. This could lead to even stronger capital inflows and exchange rate appreciation.

Once the decision has been taken to intervene and buy foreign exchange, central banks (or governments) also need to decide on the nature of the local currency instruments to be issued and on possible measures to limit the consequent growth of banks' balance sheets ("sterilisation", in a word)³. Several of the central bank papers explore in some detail the challenges for domestic liquidity management of growing foreign exchange reserves. Possible policies include money market borrowing, issuance of central bank or government debt, repo or forex swap operations, and changes in reserve requirements. Mohan argues that weighing the pros and cons of various instruments depends on the nature and size of the capital inflow and on the financial market context. Ooi also argues that longer-term paper was needed when the amount of liquidity to be sterilised was large relative to the size of the economy. Sterilisation is most effective when it involves the issuance of long-term paper to the non-bank sector.

The issuance by the state of local currency debt to finance the acquisition of foreign exchange reserves creates a currency mismatch for the official sector. This could prove costly. Several papers attempt to quantify the costs of building up reserves (eg Rossini, Quispe and Gondo). Mohan explains how the use of government-issued bonds ensures that the costs are borne transparently by the government, not the central bank. Both India and China have also sought to limit the growth of money and credit by raising bank reserve requirements. Although raising the requirements imposes costs on domestic banks, it can make the banking system more resilient to liquidity shocks. This is because increasing reserve requirements in the expansion phase of a cycle (eg when capital inflows are boosting the liquidity of the banking system) can provide the authorities with a liquidity cushion that can be released when banks face greater funding difficulties (eg because of a reversal of earlier inflows). This proved to be unexpectedly useful for many EM central banks during the period of extreme stress in October 2008. Furthermore, variations in bank reserve requirements could avoid some of the disadvantages of official debt issuance. Several noted that attempting to sterilise large and persistent inflows by issuing paper of very short term maturity would have a "snowball" effect as increasing volumes of sterilisation papers fall due and have to be rolled over.

² However, Sidaoui points out that financial integration has facilitated the conduct of monetary policy in Mexico by improving transparency and contributing to a deeper financial sector. For example, financial markets provide information to the central bank on inflation or exchange rate expectations of market participants. In their discussion of Poland, Pruski and Szpunar argue that inflation targeting is an effective framework for coping with capital flows.

³ And on the composition of central bank balance sheets.

Increased bank flows: liquidity risks

Another important development is the revival of cross-border banking flows, which could have several implications for financial stability. The banking systems in several EMEs have become in recent years more dependent on wholesale foreign funding. This has sometimes involved borrowing by affiliates of foreign banks from their parents. In other cases, foreign currency lending to residents (often in derivative contracts) was financed by borrowing in wholesale markets in the major financial centres. The liquidity risks of such dependence were demonstrated when such markets became dysfunctional in September and October 2008⁴.

Currency mismatches from bank lending in the household and corporate sectors were a potential problem in several countries. Király et al explain that, in Hungary, households are taking forex risk because they borrow from banks heavily in foreign currencies; the banks then balance their direct forex exposure by borrowing abroad in foreign currency. In other countries, prolonged upward pressure on local currencies led exporters to overhedge future foreign currency receipts.⁵

Mihaljek argues that the foreign ownership of local banks has tended to reduce the risk of a traditional banking solvency crisis because foreign owners are generally large, well-capitalised financial institutions. And their start-up costs are such that they tend to take a long-term view of the growth opportunities in the markets where they set up operations. Once they have established a local presence, they have consistently sought to protect their franchises. They also tend to focus on traditional commercial banking activities and not on trading securitised products. But foreign-owned banks may well underestimate the accumulation of credit risk arising from rapid credit growth in EMEs. Foreign-owned banking systems might also be more exposed to the risk of a sharp reversal in capital flows, triggered by problems either in the local market or in the parent bank's home market. Mihaljek discusses both sets of problems.

A heavy presence of foreign banks may also accentuate the risk of monetary or financial contagion. There is evidence that monetary policy shocks at home prompt global banks to change flows to their affiliates overseas. Once the recognition or materialisation of credit risk in one country triggers a broader reassessment of risk in a particular region, close financial linkages between home and host country institutions could also serve as channels for contagion. The danger is greater when financial institutions pursue common strategies across the region, which tends to result in banks having similar exposures across countries. The need for more effective cooperation between host and home country supervisors, an issue that presents particular difficulty in countries with a large presence of foreign-owned banks, was also discussed during the meeting.

Financial and capital account reforms

The evolving structure of capital flows described earlier has been much influenced by financial reforms in the emerging markets. Some insights are provided by Desormeaux, Fernández and García, who provide an overview of the liberalisation of capital movements worldwide before examining the case of Chile. (See also papers by Eckstein and Ramot-Nyska on Israel, by the People's Bank of China, and by Niedermeyer and Bárta on the Czech Republic.) Apart from the relaxation of restrictions on cross-border capital movements, reforms in EMEs have included widening the range of market-based instruments to deal with

⁴ See the report of the Deputy Governors meeting in 1999 on policies to manage the liquidity risks that are often created by strong capital inflows (BIS 2000).

⁵ Firms in Brazil and Korea suffered losses from these strategies when the exchange rate fell sharply in 2008.

capital inflows, improving public debt management, and removing the constraints on local institutions investing in foreign assets. Ahn outlines the measures taken by Korea to promote capital outflows.

The overwhelming trend over the past decade regarding controls on capital inflows has been liberalisation. Even in countries that retain capital account controls, the authorities have become more discerning and flexible for reasons of both financial stability and monetary policy. Mohan notes that India's comparatively strict regulation of short-term debt flows and preference for flows that do not create debt (such as FDI and equity investment) reflect financial stability concerns. This is consistent with the clear cross-country evidence that equity flows are beneficial to growth; the evidence about debt flows is more ambiguous. He also argues that restrictions on foreign currency borrowings of domestic corporations prevented such entities from "annulling the effects of monetary tightening".

In the past few years, several countries have attempted to limit appreciation pressures by limiting inflows. For example, Pesce explains that controls on capital inflows were introduced in Argentina to make the flexible exchange rate regime more resilient. Both Thailand (December 2006) and Colombia (May 2007), aiming to deter capital inflows attracted in part by monetary tightening, introduced controls on short-term capital inflows (see the contributions by Vargas and Varela and Thaicharoen and Ananchotikul).⁶

Several papers review the effectiveness and implications of capital controls. Instances of capital controls "working" – that is, instances in which they are the least bad policy – are well documented. Participants nonetheless noted that even when capital controls seem to be well designed, they tend to run the risk of sending an unintended signal to foreign investors that they are unwelcome in the local markets. Furthermore, although capital controls can provide a temporary breathing space (and restore some independence to monetary policy), they tend to lose effectiveness over time. Some participants said they had resisted the temptation of imposing such controls, fearing that such controls would be considered a policy reversal in their processes for financial development and liberalisation and thus affect policy credibility. It was on those grounds that, on several occasions, Israel had considered but rejected Chilean-type capital controls.⁷ In 2008 both Colombia and Thailand completely eliminated controls on capital inflows, which they had imposed only within the preceding two years.

Several central banks (eg see contributions by the People's Bank of China; Desormeaux, Fernández and García; Gonzalez; and Thaicharoen and Ananchotikul) reported that measures to liberalise *capital outflows* may have eased appreciation pressures. The Philippines, for instance, has lifted most limits on foreign exchange purchases by individuals; pension funds and some mutual funds have been encouraged to make deposits in special accounts at the central bank. However, Thaicharoen and Ananchotikul note that to the extent that capital outflow positions were hedged, the impact on the exchange rate may have been limited. In addition, as Mohan notes, liberalisation of outflows can make the country appear more "market friendly" and so attract further inflows.

Pension funds, demographic trends and capital flows

Moreno and Santos focus on demographic trends and the recent development of funded pension systems. They note that populations in many EMEs are beginning to age, a trend that could become quite rapid in some countries, including China. Other things equal, the

⁶ Goeltom notes that in the early 1990s, Indonesia also introduced controls on foreign borrowing and that, in the aftermath of its crisis in the late 1990s, it imposed restrictions on rupiah transfers to non-residents and derivative transactions not supported by underlying transactions.

⁷ Thaicharoen and Ananchotikul discuss the benefits and costs of the capital controls that were recently imposed in Thailand in more detail.

ageing trend should contribute to lower national saving rates (as the retired draw on the savings built up during their working life). If investment rates do not fall as much, this should help move current account positions from surplus toward deficit. But a strengthening precautionary motive for saving (to provide for rising health and education costs) plus related fiscal and asset accumulation policies may offset the impact of demographic developments, at least for a time.

In addition, trends in national saving rates could be affected by how pension benefits are financed. Recent reforms have moved away from defined benefit and pay-as-you-go plans toward those based on defined contributions and prefunding. With a few exceptions, however, no clear evidence exists that such pension system reforms have increased saving. This could be due to a number of factors, such as a lack of financial literacy, transitional fiscal costs associated with pension reforms, and the problems with low or declining pension fund coverage.

The rapid growth in pension fund assets appears to be associated with some deepening of financial markets. But the impact in many countries has been limited because EME pension funds still allocate a significant proportion of their assets to domestic liquid assets such as bank deposits. The funds, especially in Latin America, have also made large allocations to government bonds. EME pension funds typically allocate small amounts to equities or foreign assets.

Moreno and Santos provide examples of how a greater allocation of funds to equities and foreign assets would increase returns and could provide diversification benefits. Desormeaux, Fernández and García suggest that such benefits could be significant; which may partly account for the growing investment abroad by Chilean pension funds. Nevertheless, for reasons related to a lack of familiarity or technical difficulties, pension funds may still be too reluctant to invest abroad, even when restrictions on such investments have been eased. Even when they invest abroad, they often hedge forex risks – and so the country loses a potential gain when the currency depreciates very sharply in a crisis. The prospect of high short-term returns at home has doubtless been a factor too. Such high returns are to some extent transitional (eg reflecting greater success at lowering inflation than many had expected in 2000).

More liquid local markets

A recurrent theme of the meeting was the deepening of local money and capital markets. By the usual measures, market liquidity had increased; because non-resident investors tend to trade more frequently, they have contributed in an important way to improving market liquidity. The development of derivative markets had been associated with this improved liquidity (regarding development of financial or derivatives markets see contributions by Desormeaux, Fernández and García; Ahn; Ooi; Sidaoui; and Pruski and Szpunar).

In their background paper on hedging instruments, Saxena and Villar note that the development of derivatives markets in the EMEs has been helped by the very strong growth in two cash markets. First, total trading in EME currencies in the foreign exchange market rose from \$98 billion in 2001 to \$247 billion in 2007. As the volume of spot transactions rises, the share traded on derivatives markets tends to rise relative to the spot market. Second, local currency domestic bonds outstanding increased from about \$1 trillion in 1998 to more than \$4 trillion now. As issuance has become more market oriented and trading has increased, yield curves in many countries have lengthened significantly. The lengthening should in principle help the pricing of interest rate derivatives.

The size of the derivatives market in EMEs has grown annually by 28% since 2004, with the average daily turnover in OTC derivatives reaching \$516 billion in 2007 and accounting for 12% of the global market. Hedging opportunities in EMEs, however, are still concentrated in foreign exchange risk: foreign exchange contracts make up more than 80% of OTC

derivatives market trading. In contrast, the market share of OTC interest rate contracts in EMEs is just 10%.

Saxena and Villar examine hedging instruments for the three types of risk:

- *Foreign exchange risk:* The banking sector is the biggest user of OTC forex derivatives and keeps the largest open position in most EMEs. Its net position is generally concentrated in foreign exchange swaps, the most significant OTC derivative product in EMEs. Such swaps are commonly used by foreigners that do not have access to the money market. Forward markets are important in Korea and Taiwan. Although they are liquid in only a handful of other jurisdictions (India, Hong Kong SAR, Singapore, Chile, Russia and South Africa), forex derivatives markets are growing in a number of countries, including Argentina, Colombia, Chile and Mexico (see contributions by Pesce; Vargas and Varela; Desormeaux, Fernández and García; Sidaoui; and Peru). Most trading activity takes place between banks and other financial institutions. For example, since 2002, pension funds in Chile have diversified their exposure to foreign assets and have hedged foreign exchange risk by selling long forward positions in foreign exchange to the local banks. To close their positions, local banks in turn sell long forward positions in foreign exchange to their clients, notably corporations. FX options have relatively large trading volumes in Singapore, Hong Kong SAR and India.
- *Interest rate risk:* The OTC derivatives market for hedging interest rate risk is rather underdeveloped in EMEs and is concentrated predominantly in interest rate swaps (rather than in forward rate agreements). The reason that the market for interest rate derivatives has remained small is that interest rate risk is relatively low in EME and mostly remains with the banking sector. In particular, interest rates are less volatile and high spreads compensate financial intermediaries for interest rate exposures. Regulatory restrictions, inadequate accounting rules for non-financial corporations and lack of expertise in the valuation of derivative products have also played a role (see the paper by Vargas and Varela). Trading volumes are very low in most currencies, with the exceptions of contracts denominated in the HK dollar and the Mexican peso. But trading is growing in the Indian rupee, Korean won and Singapore dollar. In some cases, the presence of foreign banks has helped the development of derivatives markets as well as financial markets more generally (see the contributions by Pruski and Szpunar and by Ooi). For example the share of foreign banks in net turnover on the market for domestic interest rate instruments exceeds 50% (that in the FX swap market exceeds 90%). Foreign banks have large positions in off-balance sheet interest rate instruments.
- *Credit risk:* Credit default swaps (CDS) are the most important financial products for managing exposure to credit risk in EMEs. The CDS market has been one of the fastest growing global financial markets in recent years. Most CDS have been arranged on corporate entities in global financial markets, but the market value issued out of EMEs is concentrated on sovereign entities. For EMEs, the most liquid tranche of the market is around five years, but there is also a market up to 10 years.

Epilogue on financial stability

A number of contributors to this volume discuss the implications of capital flows for financial stability (eg Mihaljek; Ooi; and Yörükoğlu and Çufadar), and the meeting concluded by inquiring whether central banks are doing enough to discharge their responsibilities in this area.

EMEs have adopted a number of measures to address financial stability concerns. Most have sought to bring prudential and regulatory frameworks in line with international best practices. They have given greater regulatory and supervisory flexibility to institutions that

are seen as having strong governance and risk-management capacity. For example, in Turkey, special attention is paid to capital adequacy. In some cases improvements in the banking sector have allowed the lifting of certain prudential restrictions (eg on the foreign currency net open positions or on equity-related activities) even as other prudential measures are maintained. Supervisory practices have adapted to the rapid evolution of the financial system and the risks of contagion.

Echoing a common theme, Ooi notes that, with the growing maturity of the market and the capabilities of the players, supervision and regulation have evolved from being predominantly “rule based” (ie reliant on administrative controls and prescriptive rules) towards a more “principle based” approach that is more adaptive to changing market circumstances and business practices. Under the evolving regime, he argues, both the regulatory and supervisory perspectives accord greater flexibility to those institutions with strong risk management and corporate governance practices.

One major challenge is dealing with complex financial conglomerates. As Ooi points out, a balance has to be struck between allowing group synergy and efficiency on the one hand and, on the other, preventing the conglomerate from introducing excessive risks into the domestic system. Cooperation between home and host supervisors is important and is not easy. The sharp turbulence in markets worldwide in the second half of 2008 demonstrated the need for central banks to monitor the risk of contagion from global financial markets.

Several participants reported that they took a multidimensional approach to assessing and dealing with potential vulnerabilities. One participant put the issue memorably when he said that, “when driving downhill (strong demand) on a curved road (markets volatile), one had to use not just the brakes (monetary policy) but also the gears (prudential regulations)”. Exposure to short-term volatility remains a fact of life in many EMEs. Yörükoğlu and Çufadar explain that Turkey has found the best responses to be tight fiscal and monetary policies, a floating exchange rate, and financial market development with the strong participation of foreign investors. They stressed that there was no fear of floating. Foreign participation in domestic financial markets had increased substantially, helping to improve liquidity and extend debt maturities.

Many participants noted that they imposed more strict and explicit liquidity and prudential measures on their financial firms (including by issuing warnings) than was common in advanced countries. The measures include: rules on open foreign exchange positions; rules on leverage ratios as well as on the orthodox international capital ratios; significant reserve requirements; and clearly defined liquidity ratios. The supervisory authorities had also intensified banking supervision to cope with their more dynamic financial system.

Finally, several participants said that one aspect of a multidimensional approach to vulnerability was that shocks came from major countries in the industrial world. Were current international arrangements up to coping with these? Some argued that the major emerging market countries should play a more active part within the global community of central banks and regulatory and other authorities to improve the international financial architecture.

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