The changing nature of risks facing banks

Ramon Moreno[1]

Introduction

Emerging market financial systems have proved to be less resilient than the banking systems of developed countries. Views differ about the reasons for this. Some argue that an unstable macroeconomic environment is the main culprit. Others blame poor risk management.

In this note we draw on the results of a survey of emerging market central bank meeting participants to shed light on the possible contributions of these two broad factors to changing banking resilience. We explore: (1) the changing nature of macroeconomic risks; (2) new forms of risk to banks; and (3) whether the capacity to manage risks has improved. We conclude the paper with an overview of what we know about the vulnerability of the banking sector in emerging markets at this time.

1. The changing nature of macroeconomic risks

Emerging economies are exposed to larger shocks than are developed countries.[2] Annex Table A1 shows that in the second half of the 1990s, the volatility of growth in output, consumer prices, and the real exchange rate, as well as that of the ratio of bank credit to the private sector to GDP, was consistently much higher in emerging than in developed market economies. Macroeconomic volatility would discourage the provision of credit by increasing uncertainty about prospective returns and exposing banks to potentially large losses. However, more recently macroeconomic conditions appear to have improved considerably: Annex Table A1 also reveals a sharp decline in the volatility of these macroeconomic indicators in emerging economies in the last decade, although it still tends to be higher than in developed countries.

Whether the recent period of low volatility will continue remains uncertain, but a number of structural changes have occurred which might be expected to enhance macroeconomic resilience and stability. Some emerging market economies have succeeded in reducing economic imbalances, thus lowering their vulnerability to external or domestic shocks. As shown in Graph 1, external vulnerability indicators developed at the BIS[3] have broadly declined. Indicators of currency mismatches have also fallen significantly since the late 1990s.[4] Budget deficits and ratios of public debt to GDP have improved in some important emerging markets. Finally, resilience has also been enhanced in those countries which adopted floating exchange rates along with more stable, and increasingly more credible, monetary policy regimes.

Nevertheless, a number of risks remain. First, large global imbalances - notably fiscal and current account deficits in the United States, and large current account surpluses in Asia - could reverse abruptly. A sudden correction, resulting in sharply lower global growth, higher US interest rates and a steep dollar depreciation could be harmful to some emerging market economies, in some cases by

[1] Comments by Philip Turner, William White and Már Gudmundsson, helpful discussions with Christian Upper and Agustin Villar, and the research assistance of Marjorie Santos and Gert Schnabel are gratefully acknowledged.

[2] Inter-American Development Bank (2005, p 8).

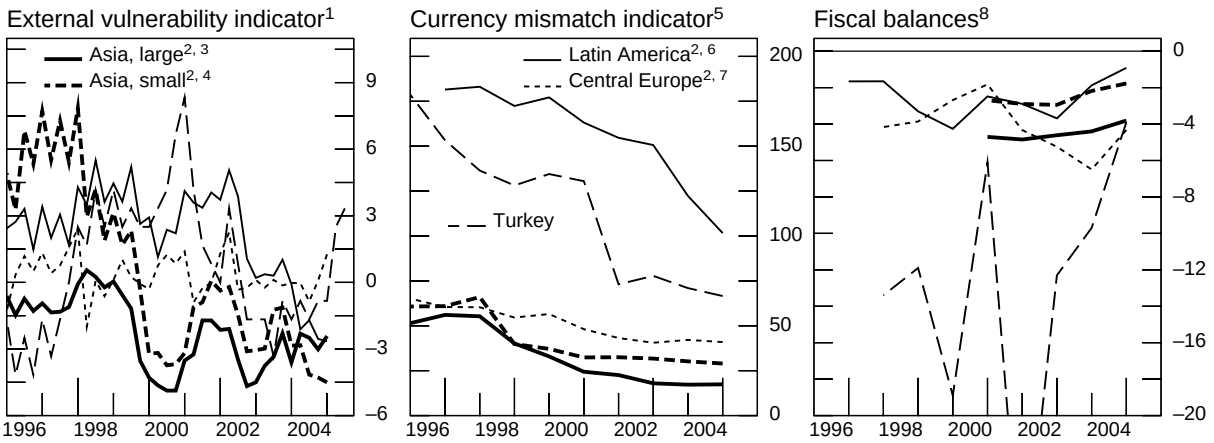
[3] Based on the behaviour of the real effective exchange rate, the current account, export growth, external debt level and growth, and short-term debt in relation to foreign reserves. See Hawkins and Klau (2000, Annex B) for details.

[4] For a discussion of the relationship between currency mismatches and the severity of crises, see Goldstein and Turner (2004). The graph measures the extent to which the proportion of foreign currency denominated debt is offset by the size of the export sector, or the presence of a "natural hedge".

inducing "sudden stops" in capital flows.[5] Many are exposed in addition to sharp fluctuations in commodity prices.

Graph 1

External vulnerability, currency mismatch and fiscal balances



[1] Based on Hawkins and Klau (2000); the higher the "score", the greater the vulnerability (maximum = 10). [2] Weighted average of the economies listed. [3] China, India, Korea and Taiwan (China). [4] Indonesia, Malaysia, the Philippines and Thailand. [5] Foreign currency share of total debt divided by the ratio of exports to GDP. [6] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [7] The Czech Republic, Hungary and Poland. [8] As a percentage of GDP. Data not shown: –30% in 2001 for Turkey.

Sources: Asian Development Bank; Economic Commission for Latin America and the Caribbean; IMF; national data; BIS.

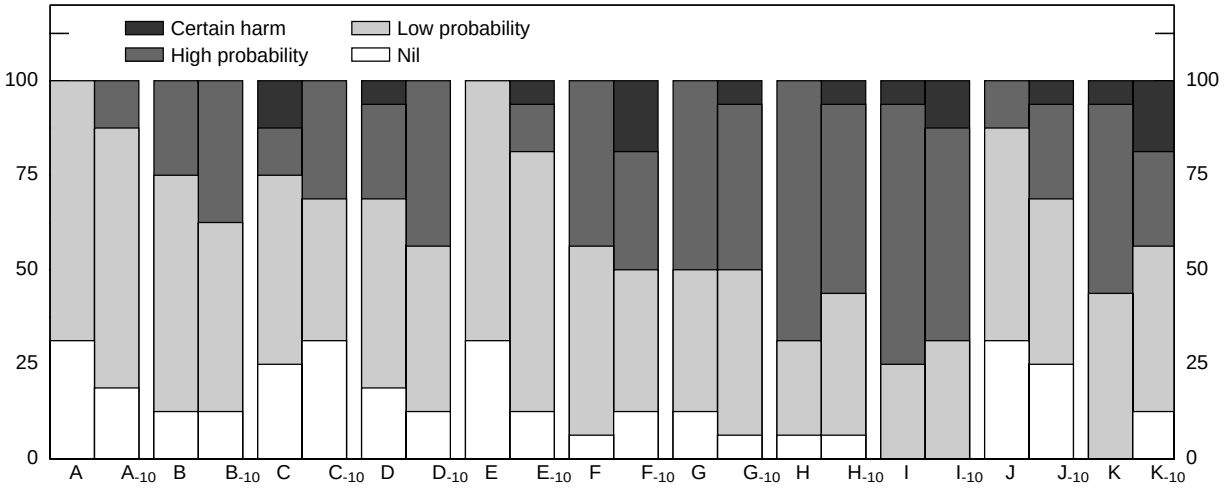
Second, some emerging market economies still face domestic imbalances that could raise concerns. In China, efforts to adjust the composition of domestic demand from investment to consumption are having uncertain effects on bank asset quality; other countries might be vulnerable to credit to the consumer sector as well (see the paper by Mohanty et al in this volume). High public debts are also a concern in a number of emerging markets, including in India and the Philippines, Turkey and a number of Latin American countries. In some cases budget deficits are a related concern; in Poland, for example, rising deficits could adversely affect the prices of long-term securities held by banks. In part this could occur via a resultant need to tighten monetary policy and in part because it might contribute to a delay in Poland's adoption of the euro. A more general concern is that in the current benign environment, domestic borrowers might become overextended and thus become vulnerable to a cyclical downturn.

An additional perspective on changing exposure to macroeconomic risks is provided by central bank responses to the questionnaire mentioned above. Central banks were asked what they thought was the probability of significant harm to the financial sector in the event of a large shock today, and to compare this probability to what their assessment might have been 10 years earlier (Graph 2). Their responses give a distinct impression that banking sector vulnerability to large shocks has declined over this period.

[5] A sharp correction of imbalances in the United States and China is a key element of the crisis scenario developed in Goldstein (2005).

Graph 2

Probability of significant harm to financial sector in case of large shock[1]



Note: A = terms of trade; B = world interest rates; C = sovereign spread; D = capital flows; E = third country exchange rates; F = own exchange rate; G = global demand for exports; H = domestic demand; I = domestic interest rates; J = domestic equity prices; K = domestic property prices.

[1] Percentage of economies which gave the answer indicated. X = shock today, X_{-10} = shock 10 years ago. Respondents comprise Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, Indonesia, Korea, the Philippines, Poland, Russia, Saudi Arabia, Singapore, Thailand and Turkey.

Source: Central banks.

- There is a perception of reduced vulnerability to shocks arising from external sources (terms of trade and export demand). This is of particular interest in the light of large external imbalances and a recent analysis that suggests that a global crisis could be triggered by a slowdown in growth in the United States and China (Goldstein (2005)). It is less clear that perceived risks arising from *domestic demand* have fallen; although no respondent reported certain harm; more respondents assigned a high probability of harm to the financial sector.
- The number of countries reporting certain or high probability of harm from *external financial shocks or capital flows* appears to have remained stable or fallen (see responses for world interest rates, capital flows, third country exchange rates and own exchange rate). However, a small subset of countries sees certain harm from sharp increases in sovereign spreads and capital flow reversals; they did not perceive such high risks 10 years ago.[6]
- Exposure to perceived risks arising from high domestic asset prices has also fallen (see responses for domestic interest rates, equity prices and property prices).

Thus, notwithstanding the impression of reduced vulnerability, the responses still indicate a high probability of significant harm from a wide range of (large) shocks.[7]

To sum up, while the macroeconomic environment and central bank assessments point to distinct improvements in the resilience of banking systems to shocks, significant vulnerabilities apparently remain. In this context, a key challenge confronting policymakers that may have succeeded in addressing old vulnerabilities is to identify and manage new ones. To provide further perspective on this issue, we next review new forms of risks for banks.

[6] For capital flows, certain harm was indicated by a small fraction of respondents, whereas it would not have been indicated 10 years previously. However, the number of respondents indicating high probability or certain harm overall fell.

[7] Questionnaire responses may also understate shocks if respondents assumed shocks would occur independently but instead they occur in combination.

2. New forms of risks for banks

The resilience of banks in emerging markets depends in part on their exposure to new forms of risks and their ability to manage them. We focus on trends in credit, market and liquidity risks.[8]

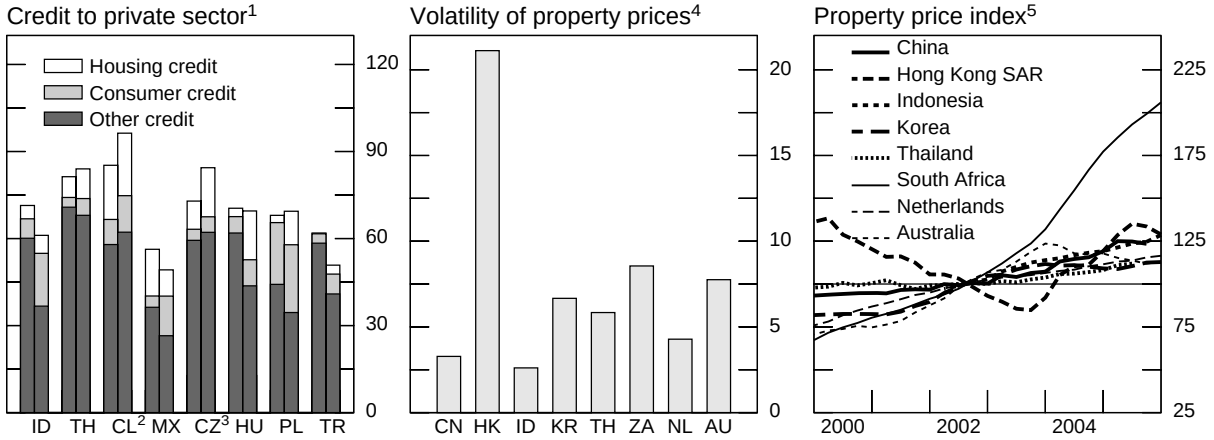
Credit risk

Credit operations are traditionally the main source of income as well as risk for banks. Many emerging market economies appear to have compensated for the adverse effects of recent banking crises on corporate credit growth. In line with this, around 40% of respondents to the questionnaire cited credit to households as an important or somewhat important source of credit risk. The following aspects may be highlighted.

First, a distinct increase in credit to the household sector has altered risk exposures.[9] Although the share of credit to households in some cases is still small (Graph 3, left-hand panel), it is growing rapidly. On balance, credit risks might be expected to fall as a result of the shift to households because: (i) it means that there is lower overall concentration in bank assets; (ii) consumer credit diversifies risks among a larger number of borrowers than does credit to corporations; (iii) profits from consumer lending tend to be more stable and are higher; and (iv) implicit or explicit guarantees, or bankruptcy protection (all of which can encourage risk-taking by the borrower) might be lower for households than for corporations. However, a concern, cited by one central bank respondent, is that banks know less about their household borrowers than they do about their corporate borrowers. In any case, experience shows that risks in lending to households can be significant, as in the example of Korea cited in Mohanty et al's contribution to this volume. Credit risk in Korea now appears to have declined because of adjustments following recent crises and the cleaning-up of non-performing loans (NPLs). However, stress tests for credit risk exposures, which are done occasionally, indicate that it is still the largest part of risk exposure. Another example is India, where the possibility that rapid rates of growth in credit card lending (about 30-40% a year over the past five years) might increase risk exposures is a concern (Merchant (2005)).

Graph 3

Trends in credit to the private sector and residential property prices



[1] As a percentage of total domestic credit. First column refers to end-1999, second column refers to mid-2005. [2] First column refers to end-2001. [3] First column refers to end-2002. [4] Estimated as a standard deviation over 1995-2004 of the year-on-year changes of the quarterly data; for China, 2000-04, for Indonesia, 2003-04. [5] 2002 = 100.

Sources: IMF; CEIC; national data.

[8] This paper will not focus on operational risk. This is a new issue, and could involve significant costs to banks, but our inquiries suggest that domestic banks in a number of emerging markets have neither data to estimate it nor procedures to manage it. In the context of the discussion in this paper, a key concern is that the exposure to new types of credit, and the growing reliance on tradable securities and credit derivatives, as well as new techniques of risk assessment, could increase the risk of errors in modelling or product design, or complicate settlement.

[9] For a discussion on reasons for this shift, see the paper by Mohanty et al in this volume.

Second, in some countries there are significant credit risks on the banking book associated with asset price fluctuations. For example, households which have taken out mortgages bear unhedged interest rate risk and are also exposed to fluctuations in real estate prices which might be related to interest rate movements or the stage of the cycle. As can be seen in Graph 3, property prices in emerging markets are in many cases at least as volatile as they are in two developed countries where volatility is high (Australia and Netherlands). Cumulative changes in these prices have been large; since the end of 2002, real estate prices have approximately doubled in South Africa, and increased up to 60% in Hong Kong SAR. Risks from property price increases depend on exposures, which vary considerably. Lending for residential real estate accounts for around 25% of total loans in Hong Kong and Korea, around 19% in Hungary, Poland and Israel, but 12% or lower in Colombia and Mexico (see Annex Table A2). In some cases, such as Korea or Hong Kong, bank exposure is limited by ceilings on loan-to-value. However, in Korea there is still concern that a fall in property prices could adversely affect aggregate demand or employment. In one country, a stress test conducted in 2004 indicates that an isolated and local sharp fall in real estate prices would not have systemic effects; however, the financial situation of many banks could deteriorate significantly if a real estate crisis were accompanied by a general economic crisis. One big risk to banks is that households will service their debts but will then cut back on spending to do so. A broader recession would then affect banks in other ways. The Bank of Thailand's contribution to this volume discusses the simulated effect of a policy rate hike on financial stability; the risks of a disruption are limited, but market conditions warrant monitoring.

In some countries dollarisation[10] is a potential source of exchange rate-related credit risks. Some banking systems have significant liabilities in dollars and attempt to compensate by extending dollar-denominated loans to domestic residents (De Nicolo et al (2003), Cayazzo et al (forthcoming)). While banks thus hedge their currency positions, most borrowers earn in local currency and do not hedge their borrowing. Dollarisation is significant in Latin America, Turkey and central and eastern Europe (CEE). In Peru, for example, 70% of deposits and 60% of credit is in US dollars. Exchange rate risk is also present in the books of borrowers in Turkey, but for a different reason; in this case it is because companies have borrowed heavily from abroad. In Poland, an increasing share of banks' loan portfolios is in foreign currency, mainly in the form of long-term loans for financing purchases of property.[11] Bank vulnerability in this situation is in some cases potentially limited by policy or by specific conditions. For example, in Chile banks are required to provision for this indirect foreign exchange risk. In CEE, the risks associated with high rates of dollarisation are attenuated by an exit strategy, which is the adoption of the euro.

Market risk

A number of questionnaire respondents noted that the growth in bank trading books has increased exposure to market risk in a number of economies; such risk was generally not considered significant (and was not analysed) 10 years ago. However, exposure to market risk is in many cases still quite small. To illustrate the range of exposures, in Korea marketable securities grew 21% in 2004, to reach over 14% of total assets. In Mexico, about 75% of the total risk of financial institutions, as measured by value-at-risk (VaR), can now be traced to market risk (from positions that are sensitive to interest rate fluctuations); 10 years ago the main source of risk was credit risk. In the Czech Republic, capital requirements for market risks (trading book, including capital requirements for the credit risk of the trading book) have almost doubled over the last five years; however, they still comprise less than one tenth of the capital requirements for the banking book (credit risk). In Thailand, the direct capital impact of market risk on regulatory capital is estimated at less than 1 percentage point, which is significant but small enough to be considered manageable. In Poland and Israel, the direct market risk to banks is considered small. In Poland's case this is because the banks tend to have closed positions in foreign currencies, and floating interest rates apply to both long-term deposits and loans.

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[10] This is a generic term referring to the use of any foreign currency for transactions in a local market. In many countries this involves the use of US dollars; in central and eastern Europe, it involves the use of euros or Swiss francs.

[11] These loans are popular because they are cheaper for borrowers. See discussion relating to Figure 7 of Pruski and Zochowski's contribution to this volume.

Risk on the trading book from fluctuations in interest rates is particularly important in some countries (India, Indonesia, the Philippines, Argentina, Colombia) where government securities form a significant part of banks' assets (see the papers by Mohanty et al, Pesce, Vargas and Goeltom in this volume). In a number of countries, these holdings have been a large source of trading profits when interest rates were falling but have resulted in losses when rates rose.

Stress tests reveal that banking systems' exposure to this type of risk is also significant in other emerging markets, whether due to holdings of government or private securities.[12] According to one Latin American central bank, a 100 basis point increase in yields across all maturities would cost 17% of the annual earnings of financial institutions. In Mexico, the main source of market risk derives from long-term assets and fixed rate instruments, but a shock the size of the 1995 crisis would not lead to the disappearance of the capital of any bank. In 2004, another central bank assessed the impact of a price decline in corporate debt of 30%. For institutions that had resident enterprises' listed instruments in their portfolios, losses for two types of banks ranged from 2 to 4.8% of capital, up from 1.3 to 3.6% a year earlier.[13] Still another central bank performed a test of dependence of the banking system on the public sector, in both assets and liabilities. It showed that some small banks' capital and net earnings were sensitive to moderate changes in public debt prices or withdrawal of public deposits. In Hong Kong SAR, a stress test conducted in 2005 revealed that an interest rate increase of more than 2% could lead to some banks making a loss. This is because banks might not have necessarily factored in the interest rate or significant exposure to interest rate sensitive sectors such as property (Gimbel (2005)). In Korea, however, based on quantitative risk management tools such as VaR, the market risk of bonds was assessed as low.

Most respondents to the questionnaire expressed no concerns about exchange rate risk, although direct currency exposure, while low, is in some cases significant. In Turkey, banks have small open positions that do not require additional capital, so exchange rate risk is much lower than in the period before the 2000-01 crisis. In Korea, a stress test of the impact of Chinese renminbi appreciation on banks' foreign currency risk estimated the impact as low because of ex ante portfolio adjustment. In contrast to past episodes in which currency depreciation was the main concern, there could be risks in possible currency appreciation in countries where foreign currency holdings are significant.[14]

Neither were significant concerns expressed about the market risk from holding stocks, as such holdings are low in many emerging markets (eg 0.1% of total assets of banks in Korea and 0 in Chile, where banks are prohibited from holding stocks). In one country, it was estimated that the impact of a fall in the stock index by 30% would not entail significant losses, and this estimate had fallen; losses were estimated at 3.8% of capital at the beginning of 2005 against 5.2% of capital a year earlier. For estimates of bank open positions in currencies and equities, see Annex Table A4.

Liquidity risk

The analysis of liquidity risk (the risk of being unable to raise funds without incurring unusually high costs) focuses on gaps between bank assets and liabilities along the whole maturity spectrum.[15] An excess of assets over liabilities at each maturity creates a funding gap, and liquidity management involves securing financing to cover this gap or limit its size (conversely, if assets fall below liabilities,

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[12] For further information on banks' holdings of securities, see Annex Table A3 and Mohanty et al's contribution to this volume (Graph 1).

[13] Type 1 comprised banks that were required to calculate interest rate risk and, consequently, included market risk in the calculation of the capital adequacy ratio; Type 2 comprised credit institutions that did not calculate interest rate risk. The latter had lower estimated losses.

[14] In Chile, interest rate risk is relatively more important than exchange rate risk.

[15] In this context, recent research has formalised the idea that one reason why banks exist is that they are a mechanism for pooling liquidity to meet the demands of savers and borrowers simultaneously. In particular, banks can reduce their need for cash in response to unexpected shocks to liquidity by combining transaction deposits and loan commitments, as long as depositor and borrower demands for liquidity are not highly correlated. In line with this, banks with a larger share of transaction deposits (in total deposits) tend to extend more loans (Kashyap et al (2002)). For interbank market implications, see footnote 36.

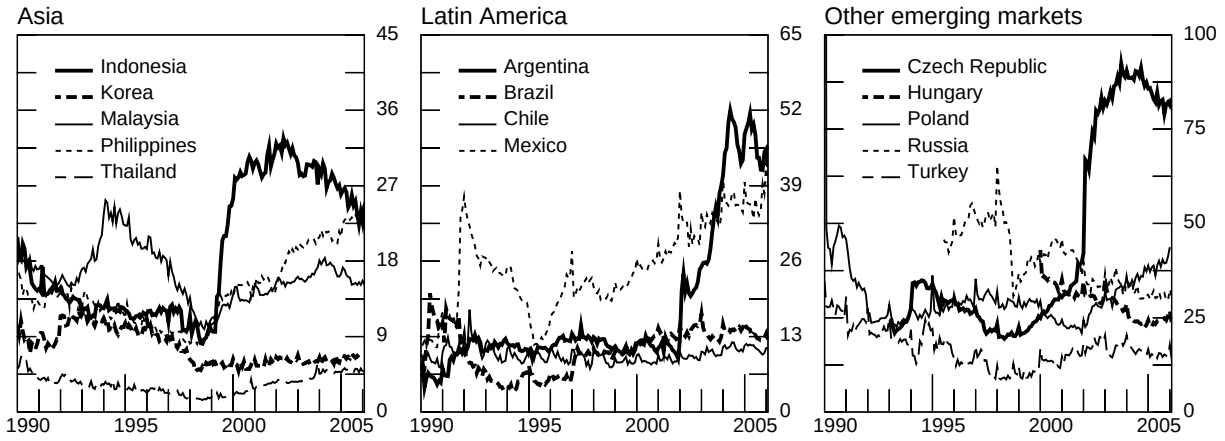
the liabilities need to be invested). Prospective funding gaps create exposure to interest rate risk unless hedged, as the costs of funding or returns on investment are uncertain.[16]

While data on funding gaps at different maturities are currently not available, we can get a sense of liquidity conditions by examining the ratio of liquid assets to liquid liabilities (liquid asset or current ratio[17]). This is highest in banks in Korea and the Czech Republic (115% and 95% respectively), intermediate in Turkey, Poland, Hong Kong SAR, Mexico, Saudi Arabia and Hungary (37-65%) and lowest in Venezuela, Israel and Colombia (23.4-29.3%). Current ratios declined significantly between 1999 and 2004 in Venezuela, Hungary and Israel (see Annex Table A5 for liquidity ratios and other indicators related to funding gaps). As the preceding are aggregate data and reflect a variety of economic conditions, interpretation is not straightforward. However liquidity ratios might be expected to be higher in economies where the government does not actively intervene to meet funding gaps, financial institutions are risk-averse, fixed interest rates prevail or where hedging is more difficult.

Additional perspective could be gained by examining the ratio of demand deposits to credit to the private sector over the business cycle and during episodes of financial stress (Graph 4). Given that credit to the private sector is illiquid, a rising share of demand deposits could suggest higher liquidity risks. This appears to be an issue in a number of emerging markets. For example, one central bank noted that low interest rates had encouraged banks to fund from short-term sources in the current cycle; this has deepened the maturity mismatch in the balance sheets of deposit-takers, who are now exposed to both significant interest rate risk and higher liquidity risk.

Graph 4

Demand deposits as a percentage of credit to the private sector



Source: IMF.

As can be seen, the demand deposit ratio has been stable for extended periods in a number of countries, such as Brazil and Chile (converging to around 12%), and Korea and Thailand (converging to around 5%). In other countries it has been quite volatile, although the relationship to the cycle is not always apparent. In some countries there appears to be a boom and bust process in which the ratio falls with rapid growth in credit during a cyclical upturn, and then rises in the aftermath of crises.[18]

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[16] A complete analysis at the bank level would include consideration of "maturity ladders", which are based on the projected evolution of assets and liabilities and expected gaps at given maturity dates. Goldstein and Turner (2004, pp 94-5) recommend that supervisors or central banks aggregate the liquidity gap analysis of individual banks to construct maturity ladders for the whole economy.

[17] The current ratio typically refers to assets that could be converted to cash in less than one year and to payables due within one year.

[18] Examples include Mexico around the time of the peso crisis, Brazil before and after 1997, Malaysia and to a lesser extent Indonesia and the Philippines around the time of the Asian crises of 1997-98, and Argentina. Remarkably, no such cycle is apparent in Korea or Thailand around 1997.

One possible interpretation of these fluctuations is that during boom times, banks are expanding their credit portfolios in anticipation of higher returns, and might be willing to offer higher rates of interest to longer-term depositors; this might encourage a fall in the demand deposit ratio. During bad times, the ratio rises because demand deposits become more attractive to depositors due to concerns about the safety of their deposits,[19] because banks offer lower rates of interest and because credit has fallen. The effect would be particularly strong in those banking systems where credit has collapsed or NPLs have suddenly been taken off the books of the banking system, as occurred in the Czech Republic earlier this decade.[20] One caveat is that in a number of cases, such as Mexico, the rise in demand deposits appears to have persisted for a long time, so factors other than the 1994 crisis may be responsible for the rise in the proportion of such deposits.

The preceding discussion suggests that the relative importance of risks could change over the business cycle. Credit risk would be of concern during boom periods as credit portfolios expanded. Potential illiquidity in the banking system's balance sheet, which makes it vulnerable to runs, could be a greater concern during bad times, but not in all cases and possibly only in the aftermath of certain very severe crises. Determining more precisely the changes in risks over the cycle requires further research.

3. Has the capacity to manage risks improved?

Assessing risks

The past 10 to 15 years have been associated with significant changes in the reliance on risk management in a number of emerging markets. In the past, the extension of credit in many economies reflected government guidelines or existing banking relationships. Institutional conditions played a large role; many banks were state-owned or were subject to government credit guidelines. Private banks (eg in East Asia) were often family-owned or formed part of a corporate network in which priority was given to lending within the group of related businesses. There was no culture of risk management; the government, other banks, or the profitable segments of the corporate networks (which were often relied upon to provide guarantees to their weaker partners) would provide support in case of financial difficulty. Supervisory oversight was formal and focused on compliance with rules rather than risk mitigation.[21] The system was not transparent, and market discipline was absent or ineffective.

The high costs of this system (financial crises, persistent losses among public banks) have led to significant changes. State-owned banks have been privatised in many countries. Competition has been encouraged by liberalising entry, notably by foreign banks (see the paper by Mihaljek in this volume). There has been more reliance on market discipline, requiring greater transparency in governance and accounting. Prudential oversight has shifted towards ensuring that financial institutions are run in a way that is conducive to financial stability, as opposed to ensuring compliance with rules.

To varying degrees, these changes have increased the accountability of bank managers and their incentives to improve risk management. In the past 10 years, risk management units have been established in banks in emerging market economies or their role has been strengthened, and risk management issues are now explicitly considered by boards of directors of these banks. Ongoing technical improvements include: (i) changes in the approach to valuation, including marking to market or fair value assessments; (ii) the quantification of various risks, including the use of VaR calculations

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[19] Increases in demand deposits may be seen in the context of Diamond and Rajan's (2003) argument that such deposits serve as a device for attracting depositors by reassuring them that the bank will not be able to extract additional rents (any effort to do so would trigger a bank run). Demand deposits and the associated financial fragility are thus a disciplining device that are an intrinsic feature of financial intermediation. The policy implication is that financial fragility should not be entirely eliminated by regulation since it promotes good internal governance.

[20] As noted earlier, this effect is not apparent in Korea or Thailand, even though both countries had large programmes for NPL disposal.

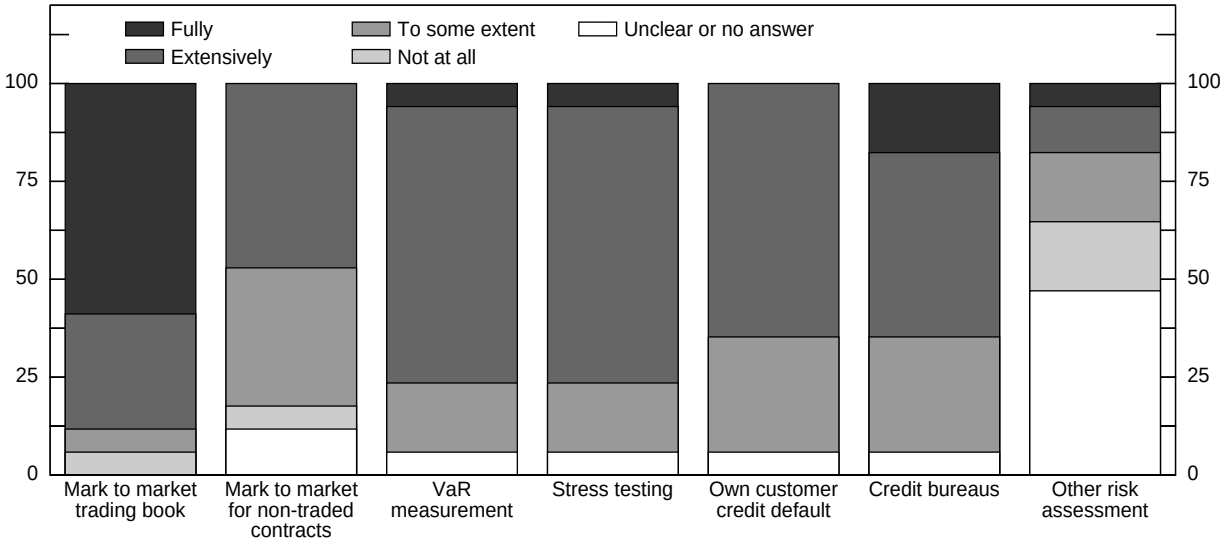
[21] For perspectives on supervision see Topping (2005), and the respective contributions to this volume by Ryback, Guinigundo, Al-Hamidy and Villar.

and stress testing, focused on market risks and to some extent on credit risks; and (iii) the pricing and allocation of credit, as well as provisioning and the allocation of capital on the basis of risk assessment.

While the extent to which more market-oriented or sophisticated risk management tools have been adopted varies considerably, the use of such tools now appears to be a more common part of banking practice in emerging markets. As illustrated in Graph 5, which focuses on valuation, modelling and reliance on data, in about 40% or more of responding countries there has been full or extensive adoption of marking to market, VaR (typically of market risks), stress testing, and reliance on credit default information or credit bureaus. However, efforts to adopt better approaches to valuation and risk management raise a number of issues.

Graph 5

Use of risk management techniques by deposit-taking institutions[1]



[1] Percentage of economies which gave the answer indicated. Respondents comprise Chile, China, Colombia, the Czech Republic, Hong Kong SAR, Hungary, Indonesia, Korea, Malaysia, Mexico, the Philippines, Poland, Russia, Saudi Arabia, Singapore, Thailand and Turkey.

Source: Central banks.

Issues of valuation

There has been a shift towards marking to market and fair value accounting that in many cases is broadly consistent with international or developed country accounting standards. Implementation appears to be well advanced in some emerging markets while lagging in others. For example, Korea and Turkey have adopted fair value on trading portfolios (derivatives and many securities), but other assets are measured at historical cost. Other countries are taking steps to implement international accounting standards for fair value accounting (eg IAS 39).

Transparent accounting is a prerequisite for effective risk management and the exercise of market discipline. In addition, it creates the right incentives for bank managers. For example, a number of emerging markets have kept NPLs on their books for extended periods without recognising the losses. The implementation of IAS 39 would require banks to recognise these losses, creating a strong incentive to dispose of the loans (this is the case in the Philippines). Notwithstanding these advantages, the growing adoption of fair value accounting raises a number of issues cited by our questionnaire respondents.[22]

[22] One respondent also cited the amount and quality of resources and controls required to reliably measure the fair value of financial instruments, which is disclosed in a note to the financial statements.

First, measurement issues. For example, how does the designated use of a financial instrument affect its measurement (eg a loan which is a hedged item in a fair value hedge and a loan which is not; debt securities held to maturity, held for sale and trading securities; a derivative instrument which is a hedging instrument in a cash flow hedge and a derivative which is not). How does one deal with measurement differences of instruments that differ in their legal form, but are similar in their economic substance (for example: loans and debt securities that are not traded).

Second, how can one obtain reasonable fair value for instruments which are not priced in deep and liquid markets?

Third, how relevant are unrealised valuation changes, especially those that are not intended to be realised for a long while? Such valuation changes mean bank financial statements can become more volatile. This could raise regulatory capital requirements, and possibly lead to procyclicality.

Views on how to address this last issue vary considerably, with some opting for deferred recognition of valuation changes and one central bank stressing the importance of immediate recognition. In Venezuela, the bank supervisory authority (which is not the central bank) has dealt with unrealised valuation changes by allowing banks to transfer government securities, over 90% of the investment portfolio, from the trading portfolio (subject to mark to market) to a "permanent portfolio". Banks thus avoid the effects of a sharp decline in prices, and can easily hold government securities to maturity since the longest term is four years. Another respondent noted that the Committee of EU Banking Supervisors had introduced prudential filters which help limit the impact of IAS introduction on regulatory capital and presumably attenuate any procyclical impact at the macro level. However, the Czech National Bank stressed that financial statement volatility contains important information. It noted that movements in the yield curve introduce volatility into the profit and loss statement only if a bank is not hedging its interest rate risk; it is appropriate to show this profit and loss volatility by fair value accounting. Under old accounting practices, this volatility was hidden.

Issues of risk assessment

As noted earlier, banks in emerging markets are adopting more advanced techniques for risk assessment, such as VaR, stress testing and credit scoring. Underlying this have been sustained efforts by financial institutions in many emerging market economies to introduce functional risk management groups as well as the large improvements in IT infrastructure needed to handle up-to-date valuation and risk measurement requirements. In a number of economies, risk assessment is now used as the basis for daily transactions, and to improve such risk management practices as limits to different positions. Three difficulties in implementing more sophisticated risk assessment techniques may be highlighted.

First, data problems. Modern techniques of risk management, reflected in the methodological approach of Basel II, involve the estimation of probabilities of default on the lender's loan portfolio, as well as of loss-given-default. Banks in emerging markets often lack sufficient data on corporate and household rates of default to estimate default probabilities.[23] In the case of one advanced emerging market economy, banks could estimate default probabilities but typically did not estimate loss-given-default. Foreign banks get around the problem by relying on data from their home country operations, but these data might not be entirely applicable to the emerging markets. Many emerging markets are, however, taking steps to improve data availability. For example, Malaysia and Thailand have respectively established a centralised credit registry (for households and corporations) and a credit information bureau. However, in some countries banks are reluctant to share information on borrowers, even when credit information bureaus already exist.

Second, even in relatively advanced emerging markets, banks might lack suitable techniques for designing and calibrating models to evaluate alternative scenarios. As noted by one central bank respondent, measures of VaR or market risk are sometimes not standardised, and it is difficult to verify the economic validity of estimated values.

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[23] It would still be possible to draw on a significant amount of information to make informed credit decisions, but tighter constraints on credit might then be needed due to less precisely estimated risks. One central bank respondent said that growing credit card lending was appropriately managed by banks which followed due diligence in lending to households. Such banks generally required borrowers to submit regular information about their income and debt positions.

Third, the human resources and infrastructure (IT and other) costs of implementing advanced techniques of risk assessment can be very large.

One questionnaire respondent said that external ratings also help risk management processes, as they can be used as a check on internal ratings or to assess credit risks. For instance, reliance on external ratings of borrowers is foreseen under the standardised approach of Basel II. However, discussions with international rating agencies suggest that it is unlikely that they will rate more than a limited set of (major) borrowers in each emerging market in the near future, because increasing coverage is simply too costly.[24] This would be particularly true in the less advanced emerging markets that would be most likely to rely on external ratings. There are local rating agencies in a number of countries that cover a larger set of domestic corporate borrowers. This can contribute to improved risk assessment, but the national ratings are not necessarily comparable across countries.[25] Each country would thus have a different way of rating borrowers and weighting risks. An implication is that indicators of banking conditions such as capital asset ratios will not be comparable across countries. This can complicate policy assessment and cross-border asset allocation decisions.

Better risk management?[26]

Better risk management is ultimately reflected in better pricing. While pricing reflecting assessments of risks and return are the norm in developed countries, achieving this in emerging economies is an ongoing process. A key concern in some countries has been the existence of very high bank intermediation margins over extended periods (Brock and Rojas-Suarez (2000)). The reasons for the persistence of high intermediation margins are not clear, but may include a history of banking crises, lack of competition, and government regulations that favour lending to certain sectors (which might result in cross-subsidisation through higher rates being charged to other sectors). In the past, restrictions in interest rates may also have played a role.

Cross-country time series data for intermediation margins are not readily available, but IMF data on loan-to-deposit spreads offer some perspective (Graph 6). As can be seen, Brazil is perhaps the most extreme case of high spreads, at around 40%. In contrast, there are a number of countries where loan-to-deposit spreads are low, and comparable to those in developed markets. Even in those countries where spreads are lower, however, extended periods of stability raise questions about the influence of market forces in price setting.[27]

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[24] For example, in Mexico, where there is a large foreign bank presence, rating agencies play a limited but growing role in assessing banks' credit risks. On the one hand, only a few categories of assets take external ratings into consideration and few banks have rated their issued securities. On the other hand, the local operations of international rating agencies (Standard & Poor's, Moody's and Fitch) are the main source of ratings for Mexican and other Latin American companies and provide increasingly valuable information. Their ratings complement banks' internal rating systems, thus improving debtor quality information.

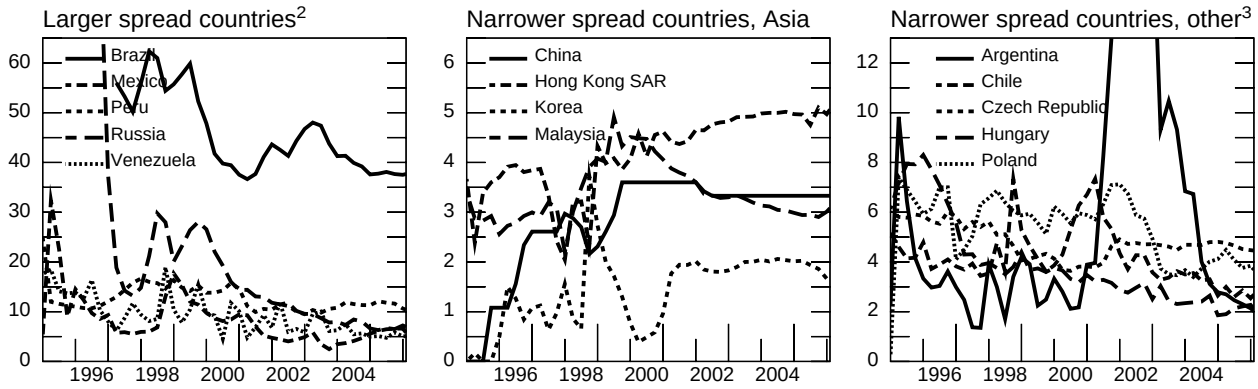
[25] Domestic rating agencies often follow a methodology similar to that of international rating agencies, but would not be in a position to harmonise ratings on a cross-country basis. In a number of emerging markets, the problem is alleviated by foreign rating agencies entering into joint ventures with local ones. In China, there are 73 rating agencies with a total staff of 1,200 and cooperation with international rating agencies has led to significant improvements in rating techniques and quality.

[26] Risk management has been influenced by provisioning, which is discussed in Villar's contribution to this volume.

[27] See also the discussion of pass-through from money market rates in Archer's contribution to this volume. An alternative perspective on spreads is provided by Sidaoui in his contribution to this volume (see discussion relating to his Graph 11). He notes that higher spreads can be obtained from new types of lending, such as credit card lending, than from traditional commercial credit. As noted by Pruski and Zochowski in this volume, credit to households also earns higher rates than credit to corporations in Poland.

Graph 6

Interest spreads[1]



[1] Loan rates less deposit rates; quarterly averages; in per cent. [2] Peak value for Russia in 1995 close to 300%. [3] Peak value for Argentina close to 36% in 2002.

Source: IMF.

Questionnaire responses suggest that the adoption of improved techniques for risk assessment have allowed banks in some emerging markets to improve risk management and to rationalise their pricing. Innovation will play an increasingly important role in this process, as new financial instruments tend to reduce market segmentation, and to make prices across borders and between various types of financial instruments (credit and equity) move more closely. However, concerns remain about whether pricing fully reflects the risks being taken.

A number of factors that have a bearing on pricing and risk management in emerging market economies may be cited.

First, technical difficulties in pricing risk correctly. While risk is now increasingly taken into account in pricing, domestic banks in many emerging market economies still face considerable difficulty in pricing it correctly because of the data and model limitations cited earlier.

Second, changes in market structure and growing competition. Changes in market structure (privatisation, increased entry by foreign banks, financial innovations) have significantly altered the competitive environment faced by domestic banks.[28] In emerging markets, foreign banks intensify competition because they tend to be more highly rated than domestic banks (whose ratings typically do not exceed the sovereign's) and thus have access to cheaper financing. Their competitive advantages are often enhanced by greater operating efficiency and better technology. The implications for risk management and financial stability are mixed. On the one hand, the erosion in pricing power (ie less ability to lower deposit rates and raise loan rates) reduces earnings and increases the incentives for risk-taking on the part of domestic banks. Moreover, competitive pressures might also lead to mispricing. For example, in one economically advanced emerging market, the lending rate generally reflects expected loss, but only a few banks incorporate unexpected loss (cost of capital) into their pricing due to competition in the lending market.[29] On the other hand, lower loan rates reduce adverse selection problems and incentives for risk-taking by borrowers.[30] The presence of foreign banks can also enhance financial stability by improving risk management among competitors, and because of the potential support by the parent. Indeed, questionnaire respondents indicated that foreign banks often hedge their positions by implementing reverse transactions with their respective parents.

[28] See the paper by Mihaljek in this volume.

[29] Improvements in measuring expected and unexpected loss are also needed in order to increase the use of risk-based pricing.

[30] For a discussion of these competing viewpoints and some recent empirical evidence, see Beck et al (2003) and Boyd and De Nicolo (2005).

Third, concentration risk and connected lending. In some countries (eg Israel) concentration risk arises because most credit is to the local economy and all the big banks are locally owned. Credit to a few big local groups of connected borrowers is now close to regulatory ceilings; some of these are highly leveraged borrowers whose performance could have systemic effects. Some of these groups were formed as a result of privatisation. It may be noted that connected lending as a percentage of capital is nonetheless relatively small in Israel, just over 5% in 2004, compared to nearly 12% in Saudi Arabia, 20% in Venezuela and about 26% in Mexico (Annex Table A2). While precise data are not available, connected lending appears to be an issue in China, where banks sometimes extend credit on the basis of loan guarantees by related (but sometimes also unrelated) parties. Loan guarantees appear to have been implicated in the recent failure of a major Chinese conglomerate.[31]

The risks of connected lending are illustrated by the experience in the last decade of one emerging market where most private sector banks belong to family-owned industrial groups. There were limits on connected lending but banks still tended to lend to their related group companies, which pursued aggressive growth strategies. Presumably because connected lending creates incentives for evergreening, NPLs were rolled over and not classified according to requirements; huge loan losses were thus underestimated. Connected lending was also a problem during Korea's financial crisis, as well rated or better performing firms provided guarantees to related weaker firms. In Turkey, efforts to reduce connected lending could be very beneficial as most failing banks taken over by the country's saving deposit insurance fund engaged in such lending (see Başçi's contribution to this volume).

Fourth, government restrictions. Credit risk can be influenced by government restrictions or institutional factors that affect the ability of banks to manage risks. In some countries, interest rate controls prevent banks from pricing credit to account for risks. For example, interest rates in China and Venezuela are still subject to controls, although they were recently partly liberalised in China. In Turkey consumer loans can only be extended at fixed rates, creating risks for creditors who fund at floating rates. In a number of countries (eg India) banks are required to follow credit allocation guidelines, which do not necessarily conform to decisions based on assessments of risks and returns. In China, there is concern that local authorities have influenced credit decisions made by bank branches.

Fifth, deficiencies in legal frameworks. An important source of credit risk is imperfect contract enforcement. Many banks in emerging markets - particularly those following civil law - confront legislation that generally favours the borrower rather than the creditor (for example, by making collateral difficult to seize). Apart from this, court cases can last for years and outcomes are unpredictable; the resulting risks deter lending. Changes have been slow, although some countries (eg Brazil, Mexico, Argentina) have adopted new banking legislation that has to varying degrees improved contract enforcement. In Brazil, ways of attaching earnings to pay bank debt have resulted in large increases in lending to households. In some cases, like that of Venezuela, developments have gone the other way; activism by consumer groups and legislative and judicial decisions have reduced creditor rights, and eroded the credit culture of borrowers.

Sixth, a risk management culture is still not fully developed in many emerging markets. While risk management culture now resembles that of developed markets in a number of countries, there are still some noteworthy differences. Even when banks are privately owned, bank boards might accept greater risks over the objections of their risk management groups, with a view to gaining a larger market share or short-term increases in revenues. Under these conditions, recent easy financing conditions and competitive pressures could imply an excessive lowering of credit standards. Credit standards have also been an ongoing concern in China, and in particular the extent to which a reduction in NPLs might have been achieved largely by expanding the overall size of the loan books without adequate consideration for risks.[32] Even if the importance of effective risk management has

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[31] Press reports indicate that the failed industrial conglomerate Kelon received CNY 381 million in guarantees from Greencool enterprises, a firm owned by Kelon's former Chairman Gu. Resources became available to make good on this guarantee only because Mr Gu's assets were seized. Non-transparent loan guarantees appear to have posed other difficulties for Kelon. As early as 2002, it had advanced CNY 1.2 billion to its former controlling shareholder through undisclosed transactions involving bank borrowings, guarantees and debt transfers. More recently, a local Chinese court froze CNY 17.1 million in bank deposits and Kelon's 22.73% stake in its Jiangxi-based subsidiary Huayi Compressor Co Ltd due to a loan guarantee dispute.

[32] For example, according to press reports, a Goldman Sachs report on China Construction Bank, which was listed in Hong Kong SAR in October 2005, estimated that 7.4% of new corporate loans granted by CCB in 2002 had already turned sour.

been recognised by the Chinese authorities for some time now, observers have expressed concern that majority government ownership might create incentives to pursue social as opposed to commercial goals, with such an approach leading to bank losses.

In some cases, prudential regulations suggest concerns that risk management tools in place might not suffice to manage systemic risks. One example is regulatory loan-to-value ceilings, implemented in some emerging markets, which do not rely on the internal risk management tools of financial institutions. Another example is restrictions that were recently imposed on consumer credit in Thailand.[33] Beyond this, government intervention to rescue financial institutions or firms can dampen incentives for risk management, particularly if these institutions do not pose systemic risks.

Seventh, the adequacy of mechanisms and markets for managing and mitigating risks. This involves issues such as the availability of instruments for hedging and risk transfer, and the functioning of the interbank market (for managing liquidity risks). These are discussed in the next two sections.

Instruments for hedging and transferring risks

The effectiveness of risk management also depends on the ability to hedge or transfer risks. One issue here is the lack of depth in (cash) asset markets, which has sometimes constrained risk management by limiting the ability of financial institutions to adjust their portfolios in a timely fashion. Conditions in some cases have improved, however (see below).

Another issue is the depth of markets for hedging or transferring risks. The degree of market development varies, but in a number of cases derivatives markets have grown rapidly. For example, increases in outstanding derivatives positions have been large in Mexico and Hungary. Based on questionnaire responses, the following can be highlighted (see Annex Table A6).

First, markets for hedging exchange rate risk (forwards, swaps) are common in emerging economies and are usually the most liquid.

Second, markets for hedging interest rate risk are either very recent or not available in a number of emerging market economies (eg in Latin America). One reason for this may be lack of liquidity in underlying bond markets.[34] Countries have sought to address this with varying degrees of success. One successful example is offered by Mexico, where maturities have increased considerably, and local currency fixed rate government issues are now available in maturities of three, five, seven, 10 and 20 years. These securities have helped stabilise cash flows under different interest rate conditions, and instruments exist to hedge the associated interest rate risk in fairly liquid markets.

Third, standardised contracts that trade on exchanges (eg futures) are available in some countries. Such contracts are sometimes preferred because they lower costs. They are also more transparent, thus lowering the operational (eg settlement) risk usually associated with over-the-counter (OTC)transactions. However, because they are not customised, they will not necessarily be the first choice of financial institutions seeking to develop new products.

Fourth, the share of new credit risk transfer instruments is still small in many emerging markets although these instruments are attracting growing interest. One of their uses has been to help strengthen banking systems via the securitisation of NPLs. More recently, there has been interest in the development of mortgage-backed securities (MBS) markets. However, questionnaire responses

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Furthermore, "special mention" loans (which were likely to become NPLs) comprised 14% of CCB's loan book in the first half of 2005. The case of CCB is particularly relevant because of government measures to strengthen the bank by recapitalising it, removing NPLs from its books, and improving its governance prior to listing. For another example, in the course of a(n individual) rating upgrade in September 2005, Fitch Ratings estimated that ICBC's NPLs had fallen due to government assistance, but the underlying trend of ICBC NPLs actually increased in 2004. ICBC states that this is due to a much stricter classification of overdue loans.

[33] According to the Bank of Thailand, this recent regulation of consumer credit was partly preventive, with a view to reducing systemic risks, and not aimed at restricting credit to households. The current regulation restricts the maximum credit limit to five times borrowers' monthly income, 10% minimum payments, and cancellation of credit cards with outstanding debt exceeding three months. To prevent what were seen as excessively high interest rate charges, interest rates on consumer lending are now subject to a maximum of 28% (15% interest rate and 13% charges and fees).

[34] See Jiang and McCauley (2004), Ma and Remolona (2005), Gyntelberg et al (2005), Jeanneau and Peréz Verdia (2005) and BIS (2002).

suggested that while traditional derivative instruments are widely used for risk mitigation, new credit risk transfer instruments, such as credit default swaps or asset-backed securities (ABSs), are sometimes used to take certain investment positions at a lower cost, or to provide services to clients, rather than to manage risks. To illustrate, in some countries foreign banks issue credit-linked notes acquired by domestic residents (typically banks); the reference is dollar-denominated debt issued by the host country. In this manner, foreign banks buy protection from domestic residents, paid for in advance. The credit-linked notes are an investment vehicle for domestic banks that thereby become exposed to counterparty and credit risk.[35] Another example is the use of cross-border ABSs denominated in foreign currency to finance the issuance of credit cards in Korea. Here, ABSs provided a way of accessing domestic and foreign financing on much cheaper terms than could have been obtained by issuing a bond in the domestic market. To illustrate how Korean ABS transactions were designed, Annex 1 discusses an ABS transaction securitising the credit card receivables of a major credit card company, LG Card.

New credit risk transfer instruments raise a number of issues. *First, how can the reallocation of risks* associated with new instruments be systematically assessed and managed? In particular, does the possibility that these instruments could transfer risks towards emerging markets rather than away from them raise concerns? For example, while it could appear in Korea's case that risk was transferred to foreign investors buying the ABS notes it is not clear how much cross-border risk-sharing actually occurred as Korea's credit crisis unfolded. If foreign investors suffered any losses, these were not as widely reported as the considerable losses to Korean financial institutions. One could also ask whether prudential issues arise when financial institutions in emerging market economies become protection sellers through credit derivative instruments. These transactions increase domestic bank exposure to the sovereign and introduce a layer of counterparty risk.

Second, does the design of some credit risk transfer instruments, and the insurance provided to investors, weaken rather than reinforce market discipline? In particular, does it reduce the incentive for diligent risk management by protection buyers or the issuer?

Third, is the process (which might involve several parties engaged in a complex web of transactions) sufficiently transparent?

Interbank markets

Banks' capacity to manage risks depends in part on how well the interbank market works. A particular concern is how vulnerable banking systems are to shocks that might reduce liquidity in the interbank market, as this could be an important channel for the spread of a crisis. In particular, in response to a shock (such as the failure of a major bank) banks might choose to withdraw liquidity from the interbank market, triggering contagion.[36] One questionnaire respondent noted that liquidity risk had risen with an increase in (bank) lending and household deposits. While risk was contained by a recently established deposit insurance system, stress testing suggested that banks could incur significant losses as a result of a crisis in the interbank lending market.

Some perspective can be gained by reviewing the relative importance of interbank markets, and pressures on liquidity indicated by the volatility of interbank rates. To illustrate, Graph 7 (left-hand panel) provides an indicator of the relative size of interbank credit for a number of emerging market economies. As can be seen, there is a significant amount of cross-country variation, with Russia having the smallest relative interbank claims (by this measure) and Thailand the highest.

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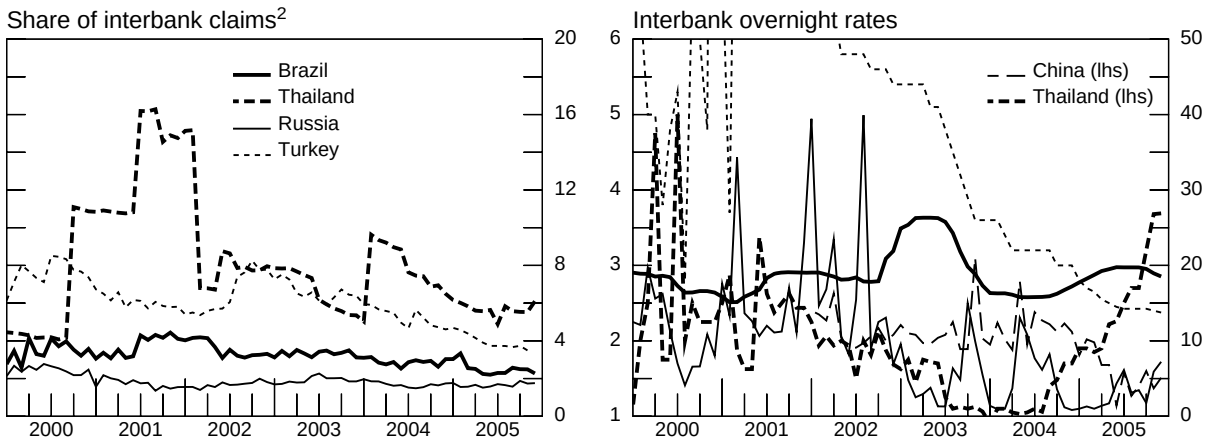
[35] However, the risk rating of the counterparty might be higher than the sovereign's. Credit-linked notes are used inter alia in the Philippines and Venezuela.

[36] Systematic research on this topic has so far focused on the experience of some developed countries. For example, Furfine (1999) estimates bilateral exposures in the US federal funds market and attempts to determine the impact of a major bank failure on other banks ("domino effects"). Losses appear to be limited. Upper and Worms (2002) estimate domino effects in Germany, and find that there is a high degree of concentration in the interbank market; in line with this, domino effects can lead to significant losses from contagion. Gatev et al (2004) argue that liquidity in the interbank market might increase during periods of financial stress because investors shift funds from capital markets to their banks. Liquidity pooling effects (see reference to Kashyap et al (2002) in footnote 15) become particularly important during episodes of financial stress because the correlation between liquidity demands by depositors and borrowers becomes negative.

Graph 7

Share of interbank credit and interbank rates[1]



[1] End of period. [2] Measured as deposit money banks' claims on other financial institutions as a percentage of claims on private sector and on other financial institutions.

Sources: IMF; Datastream.

Interbank exposures might not fully coincide with activity in the short-term interbank market (eg they might reflect longer-term financing by development banks). To the extent that they do, however, the graph provides an approximation of differences in banks' reliance on the interbank market for liquidity.[37] A small share of interbank claims might mean that banks find it too risky to extend credit to each other due to imperfect information,[38] deficiencies in payment systems or other unfavourable institutional arrangements. For example, depending on the financing instruments available, it might be relatively difficult to close a position, or secure immediate delivery of a security against payment. In some cases, high reserve or liquid asset requirements could discourage interbank market activity by limiting the availability of excess reserves (required liquid asset ratios are 25% (of deposits) in Hong Kong SAR and India and 20% in Saudi Arabia).[39] These various impediments to the liquidity of interbank markets could lower the resilience of the banking system in the face of liquidity shocks unless monetary authorities took offsetting measures.

The low interest rates and ample liquidity prevailing in recent years have alleviated concerns about the availability of funding in interbank markets. However, even under such conditions, significant shocks to liquidity in the interbank market are possible, particularly as monetary policy tightens or as a result of other policy actions.[40] For example, recent press commentary has noted the very high volatility in interbank rates in Russia (Graph 7, right-hand panel), which could be related to concerns about how recent closures of poorly performing banks would affect liquidity. When China raised reserve requirements in 2003 in order to dampen money creation, banks anticipated further increases, causing liquidity in the interbank market to fall and the interbank interest rate to rise.

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[37] The availability of alternatives to interbank lending might also play a role. For example, when opportunities for extending credit to the private sector are strong the share of interbank lending might fall. This does not appear to be an important factor in Brazil or Russia, where the ratio is relatively stable, but the relationship might be more apparent if a broader measure of bank assets were used.

[38] In a Stiglitz and Weiss (1981) framework, loan supply is backward bending. If information problems are sufficiently severe, there might be no equilibrium interest rate at which the market clears and no credit would then be supplied in the interbank market.

[39] On the other hand, liquidity requirements reduce the scope for excessive risk-taking. Other factors that might affect relative size are extensive dollarisation, which might limit the demand for liquidity in domestic currency, and efficiency; eg the share of interbank claims in the United States (about 3%) would tend to be lower than in some emerging markets because liquidity management technology allows less reliance on interbank financing.

[40] A recent study on operating procedure found that unexpected government transactions with the central bank are an important source of shocks to liquidity in emerging interbank markets (Hawkins (2005)), whereas in more developed economies the central bank receives advance notice from the government and can take offsetting actions.

Two implications of imperfectly functioning interbank markets can be cited. First, banks might prefer not to implement transactions with each other but rather to do so with the central bank. Central banks should be aware that this can impair the development of effective liquidity management and of financial markets. Second, shocks can have significant distribution effects. When interest rates rise in some emerging interbank markets (eg Hong Kong SAR, Russia, Thailand), smaller banks might suffer from reduced liquidity while larger banks might profit, because the former are usually borrowers and the latter lenders in these markets. This has mixed implications for resource allocation and systemic stability.[41]

Central banks have taken a number of steps to enhance liquidity in interbank and securities markets. For example, the Central Bank of Malaysia announced in early 2005 that it would use repos in the interbank market, thus encouraging their use to manage liquidity and reducing reliance on direct lending or the issuance of short-term bills. Liquidity is to be enhanced further through improved securities custodianship arrangements and the introduction of a securities lending facility to improve market-making.[42] Improvements in custodianship have recently also been implemented in the Philippines. Another measure to enhance liquidity has been to reduce high liquidity and cash ratios. For example, while liquidity ratios (requiring banks to hold, inter alia, government securities) were not binding in India for extended periods, they could become so with rising interest rates. Revisions to existing legislation were introduced in July 2005 to give the Reserve Bank of India leeway to adjust them as needed.[43]

4. Conclusion: has the health of the banking systems in emerging market economies improved?

The ability of banking systems to bear risks in the future will be determined in part by their financial health, current versus prospective. This can be assessed by examining information from bank financial statements (ie financial soundness indicators); by looking at stock market indicators; by relying on credit ratings of banks; or by reviewing composite indicators of bank vulnerability. In general, these current indicators suggest improvements in banking health, but as noted below, they must be interpreted with caution.

Financial soundness and market indicators

The favourable economic conditions observed in recent years have been associated with significant improvements in indicators of banking performance: ROA and capital asset ratios have generally

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[41] See earlier discussion referring to Beck et al (2003) and Boyd and de Nicolo (2005) in footnote 30 on how the presence of large banks can increase the incentive to manage risks effectively but possibly select for riskier borrowers or projects. Thus, a shock that favours large banks could improve or worsen systemic stability. Resource allocation could worsen in either case if there are no substitutes for smaller banks which provide credit to underserved economic sectors. Relationships in the interbank market are also relevant, and have been studied by Cocco et al (2004). Using data from the Portuguese interbank market they find that: (i) borrowers with lower returns on assets (ROAs) and a higher proportion of NPLs are more likely to rely on relationship lending, illustrating the default risk and monitoring function of the latter; (ii) borrowers with more volatile liquidity shocks are more likely to rely on relationship lending with lenders who have less volatile liquidity shocks and also with whom they have less correlated shocks; (iii) borrowers are more likely to rely on lending relationships when they experience a larger imbalance in their reserve deposits (lending relationships as insurance); (iv) small borrowers are more likely to establish relationships and tend to choose larger banks as their preferred lenders (in line with the broader literature on relationship lending). As for pricing, the authors find that other things equal, larger banks borrow and lend at more favourable terms, while banks with higher ROAs lend at higher interest rates (higher opportunity costs). They also find that borrowers with higher NPLs tend to pay higher interest rates, and banks with better investment opportunities tend to be net borrowers.

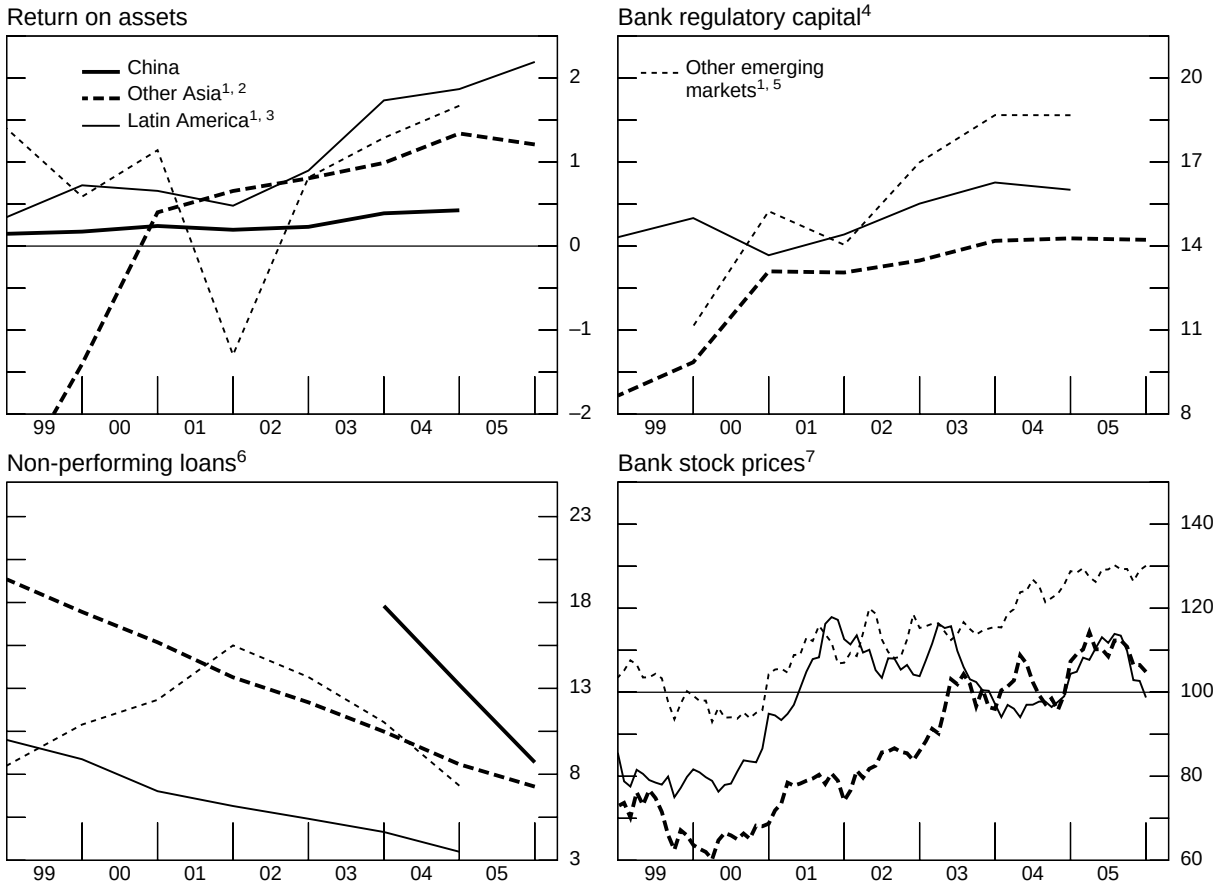
[42] For further details on recent initiatives to develop financial markets see, for example, Zamani's and Sidaoui's respective contributions to this volume.

[43] In India, bank investments in government securities (under the Statutory Liquidity Ratio) fell to 36.3% of demand and time liabilities (still above the statutory requirement) at 8 July 2005 from 42.3% a year earlier.

risen, and NPLs have declined.[44] Recent stock price behaviour suggests that market sentiment towards banks in emerging markets has improved. In Asia, CEE and Latin America (excluding Argentina) bank stock prices have risen relative to overall stock prices in recent years (although more recently they have tended to decline: Graph 8, lower right-hand panel). This has occurred even in some markets where overall stock prices have risen significantly. In Turkey, for example, in the period between June 2003 and November 2005, a bank stock index rose 452% while the overall market index rose about 218%.[45] A similar, although somewhat less dramatic pattern has been apparent in India.

Graph 8

Bank performance indicators



[1] Weighted average of the economies listed based on 2000 GDP and PPP exchange rates. [2] Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore and Thailand. [3] Brazil, Chile, Colombia, Mexico and Peru. [4] As a percentage of risk-weighted assets. [5] The Czech Republic, Poland, South Africa and Turkey. [6] As a percentage of total loans. [7] Relative to overall stock indices, 1995-2004 = 100.

Sources: IMF, Global Financial Stability Report; CEIC; Datastream; Fitch Ratings; national data.

However, some of the preceding indicators need to be interpreted with caution. *First, financial markets* are often not liquid, and information problems can be particularly severe. Stock prices (or other instruments, such as subordinated debt) might not be fully representative of market forces, nor provide

[44] Trends in banking sector performance in the Philippines and Thailand are respectively discussed in the papers by Guinigundo and Bank of Thailand in this volume.

[45] This reflected the banking sector's recovery from crisis. However, as discussed later on, ratings suggest that the banking sector is weaker than in the past.

a good guide to the underlying value of a firm (ie the expected stream of future earnings, adjusted for risk) but instead reflect the actions of a few investors or bandwagon effects.

Second, listed banks may not be representative of the banking system. In China, for example, the state commercial banks are not listed on the domestic stock market (for this reason, this index is not shown). In Mexico, foreign banks now control about 80% of the banking system, and as a result many local banks have delisted from the local stock market. Market indices thus exclude the major banks in the financial system in these two countries: Chinese (A shares) and Mexican banks recently accounted for about 7% and 4% of total market capitalisation respectively. This is well below the 15% share of Korean banks and the 19% share of South African banks.

Third, indicators based on financial statements (capital adequacy ratios) can be misleading because some emerging market economies do not follow international accounting standards and accounts are not properly audited. Supervision and regulation can also affect the usefulness of financial statements.

In line with the preceding, Rojas-Suarez (2001) shows that the traditional measures of banking health most commonly used in industrial countries, such as the capital/asset ratio, have performed poorly as indicators of banking problems in Latin America and East Asia. A key issue is that, in the absence of adequately functioning markets for equity (or subordinated debt), banks will not be subject to effective market discipline. Rojas-Suarez proposes alternative measures of banking health, such as the implicit interest rate paid on deposits, the spread between lending and deposit rates, the rate of loan growth and the growth of interbank debt. She finds that the first two are especially effective as early warning indicators of banking problems in emerging market economies.

Bank ratings

One difficulty with the preceding indicators is that it is not clear to what extent current measures of "good health" would survive a cyclical downturn. Perspective on this issue can be gained by examining the behaviour of bank ratings. Annex Table A7 shows long-term foreign currency (LTFC) and aggregate individual bank ratings (IR) by Fitch Ratings. LTFC ratings assess the capacity of banks to meet foreign currency commitments such as interest, preferred dividends or repayment of principal on a timely basis. Because these ratings reflect the possibility of government support they are often adjusted in response to changes in sovereign ratings. In contrast, individual bank ratings strip out support and more closely reflect a bank's underlying financial strength.[46]

The table reveals that both LTFC and individual ratings have improved significantly in a number of emerging market economies between 1999 and 2004. However, there are some notable exceptions, such as Argentina, Venezuela and Turkey, which experienced crises over this period. Ratings remain low overall, with LTFC ratings of 52 (BB) or lower, in several countries.[47] Broadly in line with the perception that long-run growth prospects in Asia and CEE are relatively favourable, LTFC ratings in these areas tend to be higher than in Latin America (an important exception is Chile).

While LTFC ratings cannot be directly compared to individual ratings, the latter still convey a greater impression of weakness than the former. In particular, most individual bank ratings are lower relative to their maximum possible rating than are LTFC ratings. The discrepancies between LTFC and individual ratings are apparent in the cases of China, India, Korea, Philippines, Venezuela, Poland and Turkey. Thus, the credit risk of bank debt has fallen in emerging markets, but this is in large measure due to expectations regarding external (to the bank) support.

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[46] See Fitch Ratings (2004b). According to Fitch, individual ratings are only assigned to banks. These ratings, which are internationally comparable, attempt to assess how a bank would be viewed if it were entirely independent and could not rely on external support. They are designed to assess a bank's exposure to, appetite for, and management of risk, and thus represent Fitch's view on the likelihood of it running into difficulties such that it would require support. The principal factors Fitch analyses to evaluate the bank and determine these ratings include profitability and balance sheet integrity (including capitalisation), franchise, management, operating environment, and prospects. Finally, consistency is an important consideration, as is a bank's size (in terms of equity capital) and diversification (in terms of involvement in a variety of activities in different economic and geographical sectors). Individual ratings range from "A" to "E". In addition, gradations may be used among the five ratings: ie A/B, B/C, C/D and D/E.

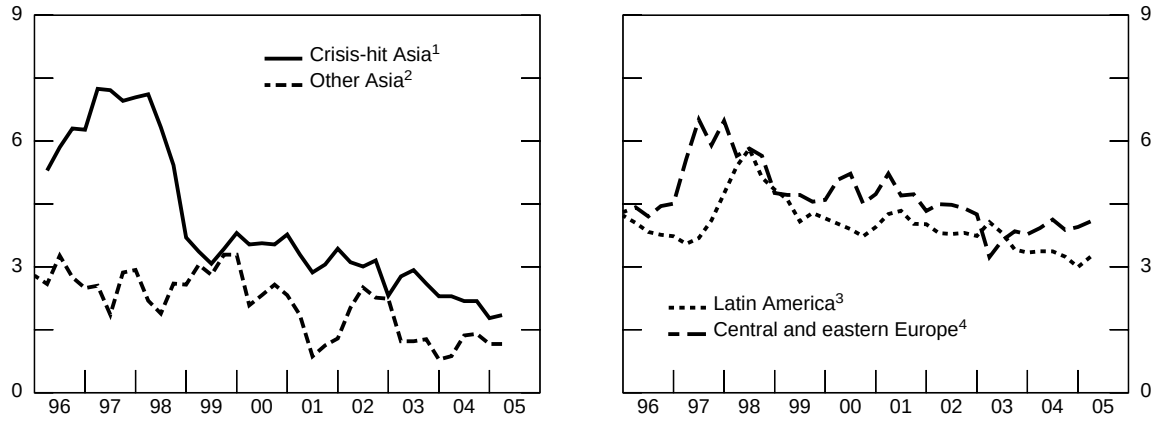
[47] As can be seen, however, in a number of the economies listed the LTFC ratings do exceed this threshold. As a caveat it may be noted that the number of banks included in each country can vary considerably.

Banking vulnerability

BIS researchers have sought to derive composite indicators of banking vulnerability. Graph 9 illustrates the readings from the index developed by Hawkins and Klau (2000).[48] As can be seen, there has been a significant decline in indicators of banking vulnerability in all regions since the late 1990s. The results are broadly consistent with a set of macroprudential indicators also developed at the BIS and applied by Fitch Ratings (not shown) which indicates that there are few cases of large aggregate credit sector imbalances in emerging market economies at this time.[49]

Graph 9

Banking sector vulnerability



Note: Increases in the index (expressed as a weighted average, based on 2000 GDP and PPP exchange rates of the economies in each group) imply an increase in risk. The index ranges from 0 to 10 (maximum risk).

[1] Indonesia, Korea, Malaysia, the Philippines and Thailand. [2] China, Hong Kong SAR, India, Singapore and Taiwan (China). [3] Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela. [4] The Czech Republic, Hungary, Poland, Russia and Turkey.

Source: Hawkins and Klau (2000).

To conclude, we have reviewed changing macroeconomic risks, new forms of risks faced by banks, risk management capacity and banking health. This review has been based on central bank responses to a questionnaire as well as statistical indicators of macroeconomic and financial conditions. It is apparent that there have been significant improvements in the ability of banking systems in emerging markets to deal with shocks and manage risks in the current cycle. Some changes - both macroeconomic and in risk management capability - appear to be structural and will apparently persist through the cycle. At the same time, however, significant weaknesses in emerging market banking systems still need to be overcome.

[48] The index is based on increases in the ratio of domestic credit (to the private sector) to GDP; increases, in per cent, in the liabilities to BIS reporting banks; liabilities to BIS reporting banks (vis-à-vis the banking sector) as a percentage of domestic credit to the private sector; the three-month interest rate less the annualised change, in per cent, in consumer prices over the previous six months; and the average credit rating of banks.

[49] Fitch Ratings (2005), using the methodology of Borio and Lowe (2002).

Annex 1:
Implications of cross-border ABS transactions backed by credit card receivables: the example of LG Card[50]

A large proportion of the credit card business in Korea has been financed by the issuance of ABSs backed by credit card receivables. To illustrate, at the end of 2002, LG Card, then the largest credit card company in Korea, relied on ABSs for a significant proportion of its total financing. According to Fitch (2003) the large Korean commercial banks held significant amounts of ABSs linked to LG Card. Commercial banks and other domestic and foreign investors participated in financing the outstanding ABSs.

An example of the structure of this type of financing is provided by a cross-border ABS transaction executed by LG Card. This involved the creation of a special purpose entity, Credipia 2001, a company organised under Korean law ("Korean (Issuer)" in the graph) solely for the purpose of issuing USD 500 million in floating rate guaranteed notes. While the structure of this ABS transaction shares many features with other such operations, an interesting characteristic was that the transaction was registered with the Financial Supervisory Commission in order to benefit from protection offered by local legislation (the Act on Asset Backed Securitisation).

In this context the following questions are of interest. First, what were the advantages of the transaction? Second, how did its design allocate risks? Third, who absorbed the losses? Fourth, what issues does this episode raise?

Advantages of the transaction. For investors, the transaction provided an opportunity to diversify investments by offering an investment grade asset. For LG Card, the cost of financing was apparently much lower, as reflected in the wide spread between the interest rate paid by credit card holders (17-23%) and the favourable yield on the ABS note (corresponding to the Aaa Moody's rating). These advantages presumably account for the large share of credit card business funded by ABSs, as noted above.

Allocation of risks. The institutional arrangements illustrated in the graph were designed to ensure payments even in the event of default by credit card holders or LG Card. The risk faced by investors was mitigated by a protection seller, FSA ("Guarantor", in the graph), a New Jersey-based firm. FSA guaranteed full and timely payments on interest and payment on the principal on the note at par by the final maturity date, and also guaranteed payment on the swap. A supplementary guarantee was also offered by Credipia 2001 (Jersey) limited, which provided security protection for note holders because Korean law forbids a direct security interest in the issuer's assets by anonymous note holders. Risks faced by the investor were further mitigated by the structure and credit enhancement features of the transaction, which gave the note holders in this transaction preferential treatment in the allocation of credit card receivables:

- The note was secured by collateral; this was the pool of credit card receivables backing the investor interest issued by a trust (the trustee was Kookmin Bank).
- Investors received credit support in the form of 15% subordination by the subordinated seller interest (LG Card).[51]
- There were rapid accumulation triggers in case the portfolio deteriorated. In normal times, principal payments were to be deferred for four and a half years ("revolving" period in which only interest payments were made on the investor interest and fees were paid). Payments would then accumulate for six months to cover principal ("controlled accumulation period"). However, if the servicer or originator defaulted, a period of rapid accumulation would be triggered. Principal collections would instead be used to pay down the investor interest held by the issuer.

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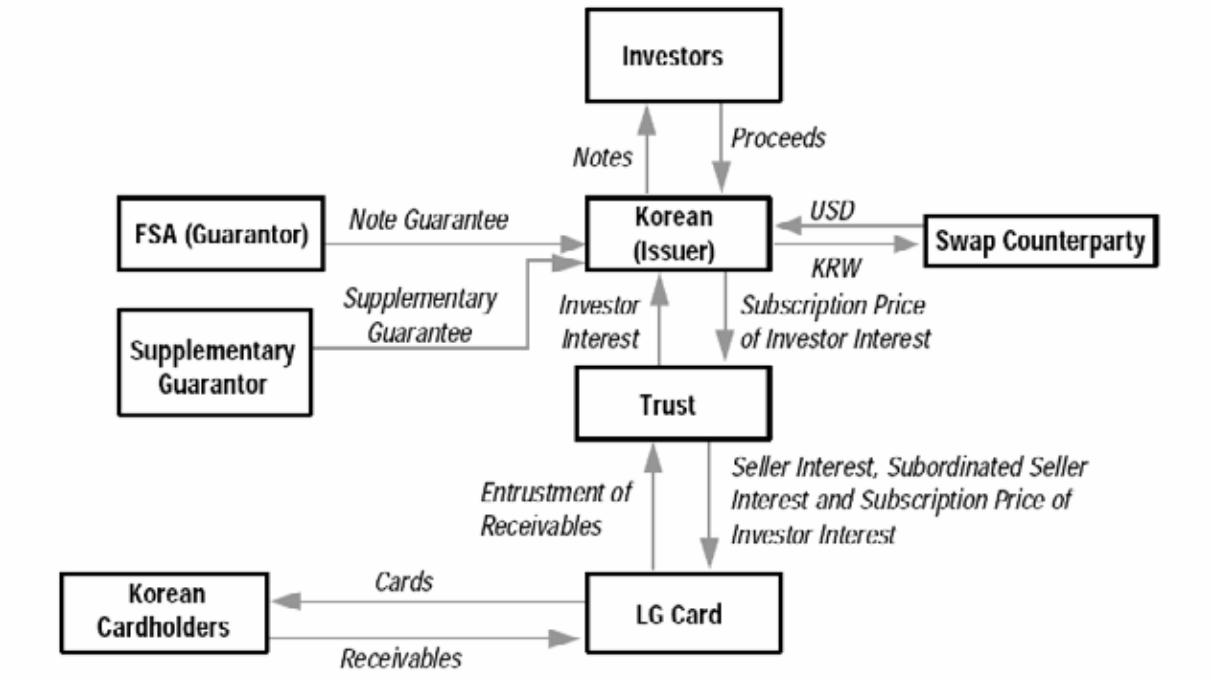
[50] A macroeconomic overview of Korea's credit card crisis and associated macroeconomic effects is provided in a box in Mohanty et al's contribution to this volume. Discussion of the structure of the ABS transaction is based on Moody's (2001).

[51] For a discussion of subordination in ABS transactions see Isaka et al (2005).

- Risks were further controlled by the structure and by adjusting the location of principal collection payments. Thus, the claim on the credit card loan pool was transferred by LG Card to the special purpose entity. Also, the type of triggers determined where principal collections would accumulate; at the trust level if portfolio performance deteriorated, at the issuer level if LG Card itself breached triggers.

Who absorbed the losses? Once the crisis unfolded and LG Card was unable to service its debts, costs were absorbed by its major creditors, who agreed to swap existing loans into equity followed by a capital reduction that would lead to recognition of losses; and by banks (both commercial and policy), which injected new capital into the company. The result was that almost all LG Card ownership switched to its major creditors, with government-owned Korea Development Bank acquiring a 25% ownership share. It is less clear to what extent other domestic or foreign investors absorbed any losses. However, it is noteworthy that after a period in which no ABSs were issued, the market appears to have revived in 2005. Losses have not been reported by the New Jersey-based protection seller, FSA. In its 2003 *Annual Report*, FSA stated that it had discontinued offering guarantees in Korea, but that its outstanding transactions were performing and that it expected opportunities in the Korean market in the future. Korea was not mentioned in FSA's 2004 *Annual Report*.

Issues raised. Three issues may be highlighted. First, the extent to which the ABS structure is conducive to market discipline. It is apparent that the ABS structure was a very effective device for obtaining financing for activities that proved to be very risky after the fact. Second, transparency. Given the complexity of the transactions and the number of participants involved, it is difficult to tell whether pricing fully accounted for risk exposures, and the incentives for effective risk management. Also, at least one rating agency reported in early 2004 that it could not quantify ABS losses because details on those holdings were not available on a consistent basis (Fitch Ratings (2004)).Third, what prudential arrangements could be introduced to reinforce market discipline and help prevent crises.



Annex tables

Table A1

Volatility indicators[1]

Standard deviation of annual changes, in per cent

	Real GDP		Consumer prices		Real effective exchange rate		Bank credit to the private sector as a percentage of GDP[2]	
	1995-99	**2000-04**	**1995-99**	**2000-04**	**1995-99**	**2000-04**	**1995-99**	**2000-04**
Latin America								
Argentina	5.1	8.6	1.7	11.4	5.8	25.9	4.7	12.1
Brazil	1.7	1.9	26.5	3.5	17.5	9.1	16.2	1.8
Chile	4.4	1.4	1.9	1.1	5.3	6.1	1.9	2.3
Colombia	3.6	1.2	4.1	1.3	8.4	8.5	10.9	5.6
Mexico	5.2	2.8	9.5	2.1	19.6	8.1	26.7	11.7
Peru	3.9	1.9	3.2	1.5	7.4	4.2	10.5	2.5
Venezuela	4.7	10.8	29.2	7.1	18.5	13.7	27.3	20.0
Asia, large								
China	1.4	0.9	7.7	1.7	6.5	4.4	4.6	5.5
India	1.1	1.6	3.2	0.2	4.8	3.2	4.9	7.5
Korea	6.8	2.3	2.4	0.7	14.2	5.3	4.8	5.9
Taiwan, China	0.9	3.3	1.5	0.9	3.7	4.4	1.9	6.1
Other Asia								
Indonesia	8.8	0.5	21.9	3.5	34.0	11.1	31.6	9.8
Malaysia	7.2	3.2	1.1	0.3	9.8	4.7	9.9	5.9
Philippines	2.6	1.5	1.5	1.6	9.7	3.7	21.0	2.8
Thailand	7.7	1.8	2.9	0.7	8.5	2.9	13.5	6.3
Central Europe								
Czech Republic	3.1	1.1	3.3	1.8	4.9	5.3	5.4	12.1
Hungary	1.7	0.9	7.2	2.3	3.6	4.6	9.5	7.2
Poland	1.2	1.9	7.9	3.7	4.5	9.4	8.3	4.3
Russia	4.8	2.1	73.9	4.6	28.2	6.8	32.2	9.1
Israel	1.7	3.6	2.8	2.4	4.3	6.2	2.6	6.0
Turkey	4.9	6.8	11.1	19.3	3.0	12.0	15.6	22.4
South Africa	1.4	0.6	1.4	2.8	5.8	18.9	3.1	7.3
Memo:								
United States	*0.8*	*1.4*	0.6	*0.7*	*4.5*	*5.2*	*1.5*	*2.2*
Euro area	*0.5*	*1.2*	0.6	*0.1*	*4.9*	*8.2*	*2.3*	*1.4*
Japan	*1.8*	*1.3*	0.8	*0.4*	*10.4*	*6.5*	*2.9*	*1.1*
Canada	*1.5*	*1.4*	0.4	*0.4*	*2.1*	*5.2*	*5.5*	*2.4*
New Zealand	*1.5*	*1.2*	0.6	*1.2*	*1.9*	*5.1*	*5.5*	*4.9*
Norway	*2.0*	*0.9*	0.5	*0.4*	*8.0*	*9.9*	*1.7*	*1.9*

[1] Based on annual data. [2] For China, credit to sectors other than central government and non-bank financial institutions.

Sources: IMF; national data; BIS.

Table A2

Credit exposures, deposit-taking institutions

	Residential real estate loans as a percentage of total loans			Commercial real estate loans as a percentage of total loans			Large exposures as a percentage of capital			Exposures to connected parties as a percentage of capital		
	1994	1999	2004	1994	1999	2004	1994	1999	2004	1994	1999	2004
Argentina								159	93		5.7	1.4
Chile	12.4	16.7	20.2							13.9	14.3	13.0
Colombia	23.1	32.5	12.0									
Mexico	13.7	13.4	7.4								42.9	25.7
Venezuela							10.0	10.0	10.0	20.0	20.0	20.0
Hong Kong SAR		18.9	24.8		4.5	4.5						
India												
Indonesia		4.2	5.4		0.1	0.1			101		47 [1]	8.8
Korea			24.1			21.1		175	38.1			
Malaysia		15.8	25.9		11.0	8.7						
Thailand												
Czech Republic												
Hungary		2.4	19.2		1.6	3.6						
Poland		7.0	18.1			3.2						
Israel		18.4	18.7		10.6	10.2		253	137			5.3
Saudi Arabia							125	124	96	0.0	10.3	11.8
Turkey												

[1] Refers to 2000.

Source: Central banks.

Table A3

Banks' holdings of securities[1]

	Money market securities			Bonds			Equities			Other		
	1994	1999	2004	1994	1999	2004	1994	1999	2004	1994	1999	2004
Argentina		0.12	0.07		0.10	0.10		0.05	0.02			
Chile		17.1	17.0		0.7	7.2						
Colombia	1.9	2.3	1.6	4.6	4.5	17.0	1.2	0.2	0.9	0.6	3.5	4.4
Mexico	82.1	83.3	95.8				17.9	16.7	4.2			
Venezuela	34.4	12.5	29.9							5.0	4.3	18.0
Hong Kong SAR							0.2	0.3	0.6	5.9	8.6	18.6
India												
Indonesia		0.1	0.8		20.9	24.7		0.0	0.2		6.2	
Korea		1.6	0.6	8.8	18.8	18.0	3.6	3.4	2.6			
Malaysia												
Thailand												
Czech Republic			0.3			43.9			0.9			54.9
Hungary		2.5	2.2		14.6	12.8		3.2	2.3			
Poland		6.7	5.1		16.5	15.8		0.4	0.2		0.0	0.0
Israel	57.9	64.1	66.5	11.6	13.2	16.1	5.1	5.1	5.4	0.9	1.3	2.6
Saudi Arabia												
Turkey	0.7	0.9	1.3	9.7	14.3	30.7	0.3	1.4	0.3	1.9	1.4	0.8

[1] As a percentage of total assets.

Source: Central banks.

Table A4

Equity and exchange rate risks

	Net open position in equities as a percentage of capital			Net open position in foreign exchange as a percentage of capital		
	1994	1999	2004	1994	1999	2004
Argentina		0.47	0.18		68	57
Chile						0.0
Colombia					–5.4	–3.2
Mexico		21.0	2.7		5.1	6.1
Venezuela						
Hong Kong SAR			0.8			
India						
Indonesia						7.4
Korea					3.3	5.6
Malaysia					2.3	3.0
Thailand						
Czech Republic		41.9	20.5			
Hungary					6.1	27.0
Poland			0.3		–1.6	1.5
Israel		6.5	12.8		0.9	0.4
Saudi Arabia						
Turkey					–64.9	–0.4

Source: Central banks.

Table A5

Bank liquidity

	Customer deposits as a percentage of total (non-interbank) loans			Required liquid asset ratio,[1] in per cent			Liquid assets as a percentage of total assets			Liquid assets as a percentage of liquid liabilities		
	1994	1999	2004	1994	1999	2004	1994	1999	2004	1994	1999	2004
Argentina		96	120					6	15		34	50
Chile							24.4	22.9	21.5	28.0	26.7	25.4
Colombia	106	104	135				9.0	12.6	29.3	252	240	661
Mexico	94	210	175						28.0			37.0
Venezuela	266	172	208				21.6	24.8	18.4	84.4	32.8	23.4
Hong Kong SAR		116	179	25.0	25.0	25.0		21.4	28.0		54.1	52.3
India		190	172					41.9	42.7			
Indonesia	86	177	172					19.6	23.5		19.2	32.9
Korea	97	96	88		100	100		51.4	39.5		133	115
Malaysia[2]	98	120	122	17			9			18		
Thailand												
Czech Republic		153	161					19.5	32.8		104	95.0
Hungary		162	92					37.5	21.9		74.1	45.9
Poland		139	136					18.2	26.1		37.8	53.1
Israel	125	123	121				13.6	40.2	29.4	17.5	38.7	28.2
Saudi Arabia				20.0	20.0	20.0	0.0	32.1	27.5	0.0	53.3	42.5
Turkey	115	155	124				32.6	34.0	41.6	59.0	49.0	65.0

[1] Defined as the ratio of liquid assets to total assets except for Korea (defined as liquid assets to liquid liabilities). [2] Data shown refer to commercial banks.

Source: Central banks.

Annex Table A6

Hedging or credit risk transfer instruments

	Exchange rate/ interest rate risk	Exchange-traded	New financial instruments	Government-supplied instruments	Notes
Hong Kong SAR	Y/Y	Y	Y	N	
India	Y/Y		Collateralised borrowing and lending obligation (a money market instrument to mitigate risk).	Y	Plain vanilla FRAs/IRS allowed, no caps/collars/floors.
Indonesia			N	N	Limited number of hedging instruments and limited liquidity.
Korea	Y/Y	Y	MBS market based on medium- and long-term mortgage loans has expanded recently.	No. Government promotes market. The March 2004 establishment of KHFC, which takes over and securitises medium-term mortgage loans from financial institutions, stimulated the MBS market.	Forwards, futures, swaps and options markets exist.
Malaysia	Y/Y	Y	Small but growing fast. Some ABSs backed by credit card receivables.	Residential MBSs (also Islamic).	Derivatives still in infancy in Malaysia but growing rapidly.
Philippines			Credit-linked notes issued by foreign banks backed by government debt issued in foreign currency.		

Annex Table A6 (cont)

Hedging or credit risk transfer instruments

	Exchange rate/ interest rate risk	Exchange-traded	New financial instruments	Government-supplied instruments	Notes
Singapore	Y/Y	Y	CDSs, credit-linked notes, CDOs, CDO squared, first to default, *n*th to default, index-based trades used to manage credit spread risk.	N	
Thailand	Y/Y	Y	Some interest in credit derivatives, CDOs, structured notes.		Except for credit derivatives, new instruments used to provide service to clients and enhance yields, not for managing or transferring own risk.
Chile	Y/Y	Y		No. The Central Bank of Chile, independent from the government, can enter into currency swap contracts with banks for purposes of monetary regulation.	Exchange rate forwards are most important. Options are new.
Colombia	Y/N	N			Incipient derivatives market.
Mexico	Y/Y		Y	N	Use of interest rate swaps and futures is increasing.

Annex Table A6 (cont)

Hedging or credit risk transfer instruments

	Exchange rate/ interest rate risk	Exchange-traded	New financial instruments	Government-supplied instruments	Notes
Venezuela	N/N	N	Credit-linked notes backed by government debt issued in foreign currency.		CLNs. Banks sell to domestic residents in local currency. Reduce interest rate mismatch but create currency mismatch. Small and OTC. Underdeveloped. Some unsuccessful attempts to offer instruments against foreign exchange risks.
Czech Republic	Y/Y	Y	Small credit derivatives, CDOs and ABSs.		Standardised instruments preferred in closing open positions because cheaper.
Hungary	Y/Y			Export Credit Insurance Ltd. Provides exchange rate risk insurance facilities for domestic exporters and travel agencies.	Interest rate derivatives market relatively shallow. Deep short maturity (to one week) foreign exchange swaps market (average daily turnover EUR 2 billion) modestly affects interest rate exposure.
Poland	Y/Y	Y			Moderate liquidity in standardised instruments. Banks often do back-to-back hedging with their parent.
Turkey	Y/Y	Y	Draft mortgage law to allow for MBSs.	Promotion and enabling regulation.	Turnover is low.

Annex Table A6 (cont)

Hedging or credit risk transfer instruments

	Exchange rate/ interest rate risk	Exchange-traded	New financial instruments	Government-supplied instruments	Notes
Saudi Arabia	Y/Y			No role except promotion of markets.	
Israel	Y/Y	Y	Structured products (deposits with yield linked to defined external changes in indices), credit derivatives (for investment).	Bank of Israel issues: shekel options, shekel-dollar swaps, future treasury notes, repos.	Liquidity and volume are a concern.

Note: Exchange-traded instruments will generally include equities and commodities. ABSs: asset-backed securities; CDOs: collateralised debt obligations; CDSs: credit default swaps; CLNs: credit-linked notes; MBSs: mortgage-backed securities.

Table A7

Average ratings for major banks in emerging markets[1]

	Fitch individual ratings		Fitch long-term foreign currency (LTFC) ratings	
	1999	**2004**	**1999**	**2004**
Argentina	42.5	0.0	51.1	8.7
Brazil	42.5	41.7	39.1	47.8
Chile	68.8	71.9	73.9	75.7
Colombia	25.0	43.8	56.5	52.2
Mexico	20.8	44.6	52.2	60.9
Venezuela	43.8	30.0		40.9
China		10.8		62.3
Hong Kong SAR	65.3	61.7	77.4	74.6
India		25.4		56.5
Indonesia	0.0	28.4		43.5
Korea	12.5	47.5	63.8	70.0
Malaysia	43.8	34.4		62.0
Philippines	32.5	26.1		50.0
Singapore	67.5	75.0	87.0	85.5
Taiwan, China	53.6	34.1		67.1
Thailand	5.0	25.0		59.8
Czech Republic	25.0	45.8	66.7	79.7
Hungary	50.0	37.5	69.6	80.4
Poland	43.8	25.0	69.6	73.9
Israel	62.5	41.7	73.9	68.1
Russia	4.2	27.9	10.9	45.0
Saudi Arabia	75.0	62.5		70.0
South Africa	66.7	57.5		64.3
Turkey	46.9	27.3		42.7

[1] End of period. Constructed according to a numerical scale, "0" indicates the lowest possible average rating and "100" indicates the highest possible average rating. Individual rating scale is A-E. Illustrative values: 11 approximately equals D/E, 72 is a shade below a B. Fitch Ratings long-term foreign currency rating scale is AAA-D. An LTFC score of 39 is about a B; a score of 86 is a shade below AA–.

Sources: Fitch Ratings; BIS calculations.

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